RUHR-UNIVERSITY BOCHUM (RUB)

RUB is one of three universities of The University Alliance Ruhr and is located within the Ruhr Metropolitan Area in Germany. This large population centre has five million people, including more than 110.000 students, 15.000 of whom are international.

Many successful top athletes study at RUB. As an official “Partner University of Top Sports”, Ruhr-University Bochum offers these athletes the ideal conditions for maximising their performance in their respective sport and chosen degree.

At the University Sports Programme there is a choice between around 70 disciplines. These include traditional disciplines as well as more exotic options, including underwater rugby, juggling, parcouring and zumba.

RUHR METROPOLITAN AREA

The Ruhr area has a strong coal and steel industrial history including a UNESCO World Heritage Site but in the recent decades it has developed to a vibrant, service and culture oriented metropolitan area.

The Ruhr area is further characterised by the numerous high performance sports clubs, especially their famous worldclass soccer teams. But also for recreational sporting activities the area offers various opportunities including the recreational area at beautiful Lake Kemnader.

THE RUHR METROPOLIS

- is a lively cosmopolitan area
- is famous for its social diversity
- is home to numerous sporting activities
- combines industrial history with modern and trendy culture

THE FACULTY OF SPORT SCIENCE AT RUB

The Faculty of Sport Science has gained its highest international reputation as host of the 22nd annual congress of the European College of Sports Science in 2017. A central characteristic of the faculty is the combination of natural, social, and behavioural sciences with more than 1,200 students currently enrolled in one of the bachelor‘s or master‘s degree programmes.

INFRASTRUCTURE

The Faculty of Sport Science provides superior infrastructure for research, teaching and learning with close communication between researchers, instructors and students. The most up-to-date equipment in the sports facilities allows teaching and research at the highest level.

INDOOR SPORT FACILITIES

Three multi-functional multi-segment hall complexes offer optimal conditions for different indoor sports. For track and field athletics, an indoor pole vault facility and a retractable sand-filled pit are available. A climbing wall can also be set to different levels of difficulty. Students have access to several well equiped gyms for their daily training routines.

OUTDOOR SPORT FACILITIES

The faculty stadium´s grass pitches with floodlights offer ideal conditions for soccer and has a 400 m tartan track.The tennis facility houses four clay courts. A beach facility is available for various beach sports variants. The swimming pool with its ten 50 m lanes and diving board is used for various water sports. Nearby Lake Kemnade with the faculty´s own boathouse is available for water sports.

WHY TO COME TO RUB

Study at a university that will equip you for future success – locally and globally, today and tomorrow.

TEN VERY GOOD REASONS TO STUDY THE MASTER OF SCIENCE ISPORT AND EXERCISE SCIENCES FOR HEALTH AND PERFORMANCE

- No tuition fee
- Affordable and pleasant student accommodation
- Broad range of state-of-the-art sport science research labs, instruments and methods
- Excellent collaboration between students, teaching staff and researchers at faculty
- RUBiss Team your guide to help you before your arrival
- Personal support during your study with OASE
- RUB Career Service
- Internet working stations, group learning rooms and open access at university libraries
- High-quality learning facilities
- Active local international student community

THE MASTER´S PROGRAMME

The Faculty of Sport Science of RUB offers graduate in the Master of Science degree in Sport and Exercise Sciences for Health and Performance. The aim of the master´s programme is to provide studies with a high quality, research-oriented education that considers the requirements of relevant practical fields.

The programme will provide training in a manner that fosters the development of relevant knowledge, abilities and methods in Sport and Exercise Sciences for Health and Performance that candidates will require for the demands and challenges of the career world, with an international focus and emphasis on managerial positions.

Master students will learn practical skills, such as physiological performance testing and biomechanical analysis as well as they will gain knowledge for the design of athletic training programmes, and training programmes for recreational athletes and the general population with a focus on prevention. Students are expected to research, develop and write a thesis that makes an original and substantial contribution to their field. The master´s degree provides the necessary conditions to achieve a future doctorate in Sport and Exercise Sciences for Health and Performance.

OCCUPATIONAL FIELDS

- Professional sports clubs
- National and international sport associations
- Olympic training centres
- Performance diagnostics and health consulting
- Health insurance providers
- Rehabilitation and outpatient clinics
- Clinical gait laboratories
- Sport equipment and technology industries







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RUHR-UNIVERSITÄT BOCHUM

RUB

MASTER OF SCIENCE

SPORT AND EXERCISE SCIENCES FOR HEALTH AND PERFORMANCE

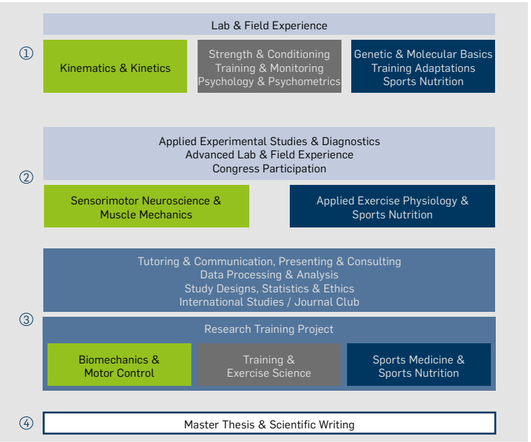
FACULTY OF SPORT SCIENCE



STRUCTURE OF THE MASTER PROGRAMME

The master´s programme Sport and Exercise Sciences for Health and Performance is a fully modulated 4 terms programmme in 2 years that requires regular attendance.

The full course of study covers 120 Credit Points.



- Modul 1 - Biomechanics & Motor Control
- Modul 2 - Exercise Science
- Modul 3 - Sports Medicine & Sports Nutrition
- Modul 4 - Lab & Field Studies
- Modul 5 - Research Training
- Modul 6 - Master Thesis

DESCRIPTION OF MODULES

MODULE 1

Biomechanics & Motor Control deals with the structure and function of the human musculoskeletal system and how human locomotion is controlled.

MODULE 2

Exercise Science covers all aspects related to the improvement of athletic performance and provides the relevant methods and methodologies for the assessment of performance. These also include psychometric instruments and research tools used in Exercise and Sport Psychology.

MODULE 3

Sports Medicine and Sports Nutrition addresses the biological responses to the stress of sport and physical activity, how the human body adapts to repeated bouts of physical activity over time and the study and practice of nutrition and diet, all with regard to improving performance and health in elite and recreational athletes as well as the general population.

MODULE 4

Lab & Field Studies introduce students to the field of experimental sport science and to the scientific community.

MODULE 5

Research Training addresses a wide range of scientific skills including study design, data processing and analysis, statistics, and ethics complemented by social skills as tutoring, communication, and presenting.

MODULE 6

Master Thesis and Scientific Writing involves the planning, conduction and analysis of an individual research study and the preparation of a written master thesis.

INVOLVED RESEARCH DEPARTMENTS

MOVEMENT SCIENCE AND BIOMECHANICS

Human movement results from coordinated neural activations of skeletal muscles under the given physical constraints. The Department of Human Movement Science and Biomechanics seeks to understand how the nervous system and muscles interact in vivo to produce force under varying contraction conditions and task demands. The aim is to provide a better understanding of neuromuscular function and human locomotion relating to health and performance.

RESEARCH AREAS INCLUDE

- History dependence of muscle force production in humans
- Mechanics and neural control of eccentric muscle activity
- Muscle-tendon unit mechanics during movement
- Muscle function and motor control of multi-joint contractions

TRAINING AND EXERCISE SCIENCE

Training and Exercise Science focuses on performance development and performance testing in different areas of sports (high performance sports, school sports, and recreational sports). The Department of Training and Exercise Science aims to determine the scientific foundations of training and recovery interventions in sports from an applied perspective.

RESEARCH AREAS INCLUDE

- Exercise physiology in racket and team sports
- Sport-specific performance testing
- Endurance, speed, and strength training
- Exercise science in childhood and adolescents
- Individualized training monitoring and recovery management

SPORTS MEDICINE AND SPORTS NUTRITION

Sports medicine is concerned with the positive effects of physical activity, training and sport on health and performance over the lifespan. This covers the areas of prevention and rehabilitation, recreational sports as well as competitive sports up to international top-class level.

RESEARCH AREAS INCLUDE

- Exercise physiology under hypoxic conditions
- Molecular muscle physiology
- Exercise physiology and sensory physiology in sports
- Back pain, health and old age
- The female athlete
- Sport safety and athletic injury research

SPORT & EXERCISE PSYCHOLOGY

Sport psychology uses psychological knowledge and skills to address optimal performance and well-being of athletes/coaches, developmental and social aspects of sports participation, and systematic issues associated with sports settings and organisations. The Department of Sport Psychology aims to determine the scientific foundations of practical intervention in sports from a psychological and applied perspective.

RESEARCH AREAS INCLUDE

- Overtraining prevention and recovery enhancement
- Regeneration management in top-class sport
- Stress conditions and mental health of coaches
- Biopsychological aspects on low back pain
- Sleep in elite sport

RESEARCH FACILITIES

The MoveLab is a large double storey human research laboratory for performance testing, motion capture and analysis, and neuromechanical testing. Latest state-of-the-art equipment allow for kinmatic and kinetic analysis of human movement and access to muscle imaging and electrophysiology techniques provides ideal conditions for high-quality applied and basic research.

The Physiology & Hypoxia Labs are state-of-the art labs for treadmill and ergometer testing, which allow for the assessment of cardiorespiratory fitness as well as aerobic and anaerobic metabolism. As a special feature, hypoxia up to an altitude of 6000 metres can be simulated for training and testing.

The Strength & Conditioning Lab offers excellent opportunities for training interventions and strength testing, body composition measurements (BIA) and includes a computerised high-end system for testing the abdominal and back muscles.

The Biochemical Analysis Lab can analyse a large range of biological markers in various tissues including blood, saliva, urea, and muscle biopsies.

The Visual Perception Lab is a unique lab to investigate vision and visual perception and their relevance for sports performance.

Extensive Field Test Equipment including portable spirometry, mobile force plates and force sensors, wireless EMG and Inertial Measurement Units (IMU), double photocell systems, radar guns, GPS and high speed video allows for sport specific field testing in all kind of disciplines.





