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 700 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 equipped 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

Studying 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 IN SPORT, EXERCISE & HEALTH SCIENCES

- 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
- RUB das Team - your guide to help you before your arrival
- Personal support during your study with OASE
- RUB Career Service
- Internet working stations, group learning room and open access at university libraries
- High-quality learning facilities
- Active local international student community

THE MASTER PROGRAMME

The Faculty of Sport Science of RUB offers graduate in the Master of Science degree in Sport, Exercise & Health Sciences. The emphasis of the master’s programme is by studying 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, Exercise & Health Sciences that candidates will require for the demands and challenges of career every year, with an international focus and emphasis on managerial positions. Master students will learn practical skills, such as psychological 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 this area.

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
- Research and education

THE FACULTY OF SPORT SCIENCE

is a lively cosmopolitan area

is famous for its social diversity

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combines industrial heritage with modern and trendy culture

RUHR-UNIVERSITY BOCHUM (RUB)

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combines industrial heritage with modern and trendy culture

is a UNESC World Heritage Site but in the recent decades it has developed to a vibrant, service and culture oriented metropolitan area.

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 world-class soccer teams. But also for recreational athletes and the general population with a focus on prevention, the Ruhr metropolitan area offers various opportunities including the recreational area at beautiful Lake Kemnade.

THE RUHR METROPOLIS

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The master’s programme Sport, Exercise and Health Sciences is a fully modular 4 terms programme in 2 years that requires regular attendance. The full course of study covers 120 Credit Points.

**STRUCTURE OF THE MASTER PROGRAMME**

**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 adjusts 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**

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 5**

Sports Medicine and Sports Nutrition addresses the biological responses to the stress of sport and physical activity, how the human body adjusts 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 6**

Master Thesis and Scientific Writing

**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 under hypoxic conditions
- Molecular muscle physiology
- Exercise physiology and sensory physiology in sports
- Basic 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.

**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**

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

**RESEARCH FACILITIES**

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

The Physiological and Psychosocial Lab is state-of-the-art laboratories for treadmill and ergometer testing, which allow for the assessment of cardiovascular fitness as well as aerobic and anaerobic metabolism. As a special feature, hypoxia up to an altitude of 6000 m can be simulated for training and testing.

The Strength and 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, urine, and muscle biopsies.

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

The External Field Test Equipment including portable sphygmomanometer, mobile force plates and force sensors, wireless EMG and Inertial Measurement Units (IMU), double phototaxial systems, radar guns, OP5 and high speed video allows for sport specific field testing in all kind of disciplines.