UNIVERSITÄT
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Faculty of Human and Business Sciences

Module catalogue for the Master's degree programme 'High-Performance Sport'

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Structure and content of the programme

The Master's degree programme 'High-Performance Sport' is a consecutive, research-focused programme lasting four semesters. Students attain a *Master of Science (M.Sc.)* degree on completing the programme. The curriculum is divided into the mandatory sections 'General Aspects: Methodology and Basic Theories' and 'Specific Aspects of High-Performance Sport' as well as the electives section. The mandatory section 'General Aspects: Methodology and Basic Theories' comprises advanced modules on research design and analysis, methodology (qualitative and quantitative), statistics, evaluation and quality management, physiology, biomechanics and motor skills. The mandatory section 'Specific Aspects of High-Performance Sport' provides a deeper understanding of sports science topics relevant to elite sport, including advanced modules on training methods and management specific to professional and elite sport, talent development, doping prevention and social issues in performance-oriented sports. In the electives section, students can select modules to sharpen their personal academic profiles.

The Master's degree programme focuses on the scientific basis for decision-making and is aimed at students who wish to pursue a career in professional and elite sport. The research focus of the degree programme plays a key role, providing the foundation for a thorough examination of the complex requirements of modern high-performance sport. Students are systematically introduced to scientific methods and learn to generate evidence-based knowledge, reflect on it critically and transfer it into practice. The aim is to enable graduates to understand current research findings and to integrate this knowledge into performance-oriented sports in practice. In addition to optimizing athletic performance, this approach helps to promote the scientifically underpinned development of professional and elite sport in the long term.

The aim is to provide students with advanced knowledge of (high-performance) sports science theories, methods and research in order to develop evidence-based strategies for practical action. While the degree programme fosters practical skills for careers in professional and elite sport, the emphasis is on acquiring a solid scientific foundation and the ability to critically analyse and apply research findings. Graduates are thus able to solve complex problems in elite sport in a well-founded and methodical manner. The degree programme is also aimed at students seeking to pursue an academic career. The aim is therefore to also provide students with an advanced knowledge of methodology and statistics. In addition, graduates should be able to develop research questions and projects independently.

Besides a high level of specialist and methodological knowledge in the field of international sport science, graduates should also have the necessary subject-specific proficiency in English and intercultural skills. The programme includes advanced modules in areas such as research methods, methodology and statistics, and in the sub-disciplines of sport medicine, sport psychology, training science, socioeconomics and sports analytics. It also offers students the opportunity to undertake advanced study in an area that is both career-specific and relevant to elite performance sports in an international context. Examples include global perspectives on internationally recognized elite training and diagnostic methods, on international sport structures and talent development programmes and on cultural aspects in international negotiation and communication strategies. Graduates from the Master's degree programme are equipped with the skills to tackle new and complex challenges and assignments and are able to independently manage processes in the field of sport science that are relevant to international professional and performance-oriented sports. A particular objective of the programme is to produce graduates with the knowledge and skills to be able to take on

appropriate positions in a global context. In addition to possessing the necessary subject-specific proficiency in English, graduates are also acquainted with international communication strategies, enabling them to identify and provide constructive solutions to intercultural conflicts. Students analyse their own reactions to foreign behaviour and learn how to independently recognize and understand cultural differences and how to deal with possible communication barriers in order to be prepared in the best possible way for a globally networked labour market.

Overview of programme modules

As a rule, the standard period of study is four semesters and the degree programme has a modular structure. The curriculum is divided into the mandatory sections 'General Aspects: Methodology and Basic Theories' and 'Specific Aspects of High-Performance Sport' as well as the electives section (including a project / work placement / internship). The final assessment phase of the Master's degree programme comprises the student assessments completed during the degree programme and the Master's thesis. The student assessments completed over the course of the degree programme represent 100 ECTS credits in total, of which at least 60 shall be awarded for graded assessments. The programme is divided into the following three sections:

- Mandatory section 'General Aspects: Methodology and Basic Theories' (20 credits)
- Mandatory section 'Specific Aspects of High-Performance Sport' (65 credits)
- Electives section (15 credits)
- Master's thesis (20 credits).

The mandatory modules are marked as 'M' (mandatory) under the 'Mandatory or elective' column abbreviated as 'M/E' in the following tables. This section comprises a methodological module worth 20 credits ('*Research design and evaluation*', Table 1) and the content-specific subjects 'Specific Aspects of High-Performance Sport' ('*Medicine and physiology in elite sport*' and '*Biomechanics and motor control*', Table 2) worth a further 65 credits. The 'Specific Aspects of High-Performance Sport' section comprises modules that equip students with the skills for the conceptual design and realization of training in elite sport. The mandatory section comprises core-content modules each worth 10 or 15 credits, whereby each module may comprise either two or three module elements, with each element worth 5 credits, or two module components each worth 10 credits (= two module elements each worth 5 credits) (Tables 1 and 2).

In the electives section, students may select modules worth 5 credits each. Individual modules can only be offered every three semesters. It shall be ensured that all elective modules are offered at least once in the standard period of study of each study cohort (Table 3). Language courses, projects or practical assignments (Table 4) worth up to 10 credits may also be selected in this section. Modules completed in areas relevant to the degree programme in other departments and/or from the courses offered by other German or international universities may also be included after assessment by the Teaching Programme Coordinator, programme advisor, programme coordinator or Erasmus representative. Students may apply to have interdisciplinary qualifications (core skills), voluntary work, committee activities, mentoring or tutoring recognized in the electives section in accordance with Section 11 of the Examination Regulations for Master's Degree Programmes of Faculty 5 (Humanities Faculty III – Human and Business Sciences). The topic of the Master's thesis can be selected from all areas.

The curriculum structure is designed to provide students with a broad education by requiring them to take modules in a variety of areas relevant to international elite sport. The electives section also offers students the opportunity to select areas that are of particular relevance to the field in which they later wish to work. The study plan, which also integrates a study abroad period, is shown in Table 4.

Table 1: Student assessments and examination requirements for modules in the mandatory section 'General Aspects: Methodology and Basic Theories' (b = graded, ub = ungraded, M = mandatory, PVL = preliminary assessment, PL examination or assessment, WT = knowledge test.

MODULE: RESEARCH DESIGN AND EVALUATION

Module	M/E	Standard study semester	Module element	Type	hrs/ wk	ECTS	Repeat cycle	Examinations and academic assessments
Research design and evaluation	M	1	Advanced statistics	Ü	2	5	WS	PVL; PL: WT (b)
	M	1	Evaluation and quality assessment	S	2	5	WS	PVL; PL: WT (b)
	M	2	Applied statistics, research designs, and empirical methods	Ü	2	5	SS	PVL; PL: WT (b)
	M	2	Qualitative research	S	2	5	SS	PVL; PL: WT (b)
TOTAL					**8**	**20**		

Table 2: Student assessments and examination requirements for modules in the mandatory section 'Specific Aspects of High-Performance Sport' The module elements are graded in all cases. (b = graded, ub = ungraded, M = mandatory, PVL = preliminary assessment, PL examination or assessment, KKT = cognitive competence test.

MODULE: MEDICINE AND PHYSIOLOGY IN ELITE SPORTS

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Medicine and physiology in elite sports	M	1	Advanced exercise physiology and metabolic regulation	S	2	5	WS	PVL; PL: KKT (b)
	M	1	Athletes' musculoskeletal assessment	S	2	5	WS	PVL; PL: KKT (b)
	M	2	Injury mechanisms, screening and prevention	S	2	5	SS	
TOTAL					**6**	**15**		

MODULE: BIOMECHANICS AND MOTOR CONTROL

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Biomechanics and motor control	M	1	Biomechanics of the elite athlete I	S	2	5	WS	PVL; PL: KKT (b)
	M	1	Biomechanics of the elite athlete II	S	2	5	WS	
	M	2	Motor control and learning	S	2	5	SS	PVL; PL: KKT (b)
TOTAL					**6**	**15**		

MODULE: TRAINING AND COMPETITION IN ELITE SPORT

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Training and competition	M	2	Training the elite athlete	S	2	5	SS	PVL; PL: KKT (b)
	M	2	Training and monitoring processes	S	2	5	SS	PVL; PL: KKT (b)
	M	3	Preparing for and recovering from competition	S	2	5	WS	PVL; PL: KKT (b)
TOTAL					**6**	**15**		

MODULE: DEVELOPING THE ELITE ATHLETE

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Developing the elite athlete	M	3	Talent identification and development	S	2	5	WS	PVL; PL: KKT (b)
	M	3	Elite performance and career transitions in professional sports	S	2	5	WS	PVL; PL: KKT (b)
TOTAL					**4**	**10**		

MODULE: SOCIAL ISSUES IN ELITE SPORTS

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Social issues in elite sports	M	3	Doping world-wide: current situation and reasons for doping	S	2	5	WS	PVL; PL: KKT (b)
	M	3	Social problems and social crises in elite sport	S	2	5	WS	PVL; PL: KKT (b)
TOTAL					**4**	**10**		

Table 3: Student assessment and examination requirements for the electives section. Students are required to choose elective modules worth a total of 15 ECTS credits. (b = graded, ub = ungraded, M = mandatory, PVL = preliminary assessment, PL examination or assessment, KKT = cognitive competence test.

MODULE: LEADING ATHLETES AND SPORTS ORGANIZATIONS

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Leading athletes and sport organizations	E	3	Leading athletes and sports organizations	S	2	5	WS	PVL; PL: KKT (b)
TOTAL					**4**	**5**		

MODULE: DIAGNOSTICS AND TRAINING IN SPORT PSYCHOLOGY

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Diagnostics and training in sport psychology	E	3	International diagnostics in psychology	S	2	5	WS	PVL; PL: KKT (b)
TOTAL					**2**	**5**		

MODULE: PERFORMANCE ANALYSIS AND DATA SCIENCE

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Performance analysis and data science	E	3	Performance analysis and data science	S	2	5	SS	PVL; PL: KKT (b)
TOTAL					**2**	**5**		

MODULE: COACHING AND COMMUNICATION IN THE ELITE SPORTS ENVIRONMENT

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Coaching and communication in the elite sports environment	E	4	Coaching and communication in the elite sports environment	S	2	5	SS	PVL; PL: KKT (b)
TOTAL					**2**	**5**		

MODULE: SKILL ACQUISITION IN MOTOR AND COGNITIVE DOMAINS

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Skill acquisition in motor and cognitive domains	E	3	Skill acquisition in motor and cognitive domains	S	2	5	WS	PVL; PL: KKT (b)
TOTAL					**2**	**5**		

MODULE: TESTING IN HIGH-PERFORMANCE SPORT

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Testing in high-performance sport	E	1 or 4	Testing in high-performance sport	S	2	5	WS or SS	PVL; PL: KKT (b)
TOTAL					**2**	**5**		

MODULE: ADVANCED RESEARCH METHODS AND STATISTCS IN SOCIAL SCIENCES

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Advanced research methods and statistics in social sciences	E	1 or 4	Advanced research methods and statistics in social sciences	S	2	5	WS or SS	PVL; PL: KKT (b)
TOTAL					**2**	**5**		

MODULE: SCIENCE AND MEDICINE IN FOOTBALL

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Science and medicine in football	E	1 or 4	Science and medicine in football	S	2	5	WS or SS	PVL; PL: KKT (b)
TOTAL					**2**	**5**		

MODULE: INFECTIOUS DISEASES IN HIGH-PERFORMANCE SPORT

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Infectious diseases in high-performance sport	E	1 or 4	Infectious diseases in high-performance sport	S	2	5	WS or SS	PVL; PL: KKT (b)
TOTAL					**2**	**5**		

MODULE: INTERNSHIP/RESEARCH PROJECT

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Work placement / internship	E	4	Work placement / internship	I	-	10	-	-
TOTAL					**-**	**10**		

Module	M/E	Standard study semester	Module element	Type	hrs/wk	ECTS	Repeat cycle	Examinations and academic assessments
Research project	E	4	Research project	RP	-	10	-	-
TOTAL					**-**	**10**		

Table 4: Study plan Master's Degree Programme 'High-Performance Sport'
PM = Mandatory module; FWB = Electives section

1. Programme phase:							
1	PM: Research design and evaluation		PM: Medicine and physiology in elite sports		PM: Biomechanics and motor control		Total 30 ECTS
	Applied statistics and research designs and empirical methods	Evaluation and quality assessment	Advanced exercise physiology and sport medical care	Athletes' musculoskeletal assessment	Biomechanics of the elite athlete I	Biomechanics of the elite athlete II	
2	PM: Research design and evaluation		PM: Medicine and physiology in elite sports	PM: Biomechanics and motor control	PM: Training and competition in elite sport		Total 30 ECTS
	Research methods	Qualitative research	Injury mechanisms, screening and prevention	Motor control and learning	Training the elite athlete	Training and monitoring processes	
2. Programme phase:							
3	PM: Training and competition in elite sport	PM: Developing the elite athlete		PM: Social issues in elite sports		Electives section	Total 30 ECTS
	Preparing for and recovering from competition	Talent identification and development	Career transitions in professional sports	Doping world-wide: current situation and reasons for doping	Social problems and social crises in elite sport	FWB module 1	
4	Electives section	Electives section	Master's thesis **Studying abroad**				Total 30 ECTS
	FWB module 2	FWB module 3					

The study plan is organized to allow a stay abroad in the third or fourth semester. An earlier stay abroad may be feasible for individual students, further details will be finalized during the preparatory phase. Students who are interested in a stay at another partner university can include student assessments and examinations from abroad in the electives section.

Curricular orientation

The programme has been designed to produce graduates with both general and subject-specific knowledge and skills. The teaching and learning strategies and the forms of academic assessment used in the programme have been derived from the specific types of knowledge and skills that students will acquire. The following sections describe the transferable, subject-specific and career-specific knowledge and skills taught in the Master's 'High-Performance Sport' programme in line with the Qualifications Framework for German Higher Education Qualifications. In specific terms, students should have the following skills and knowledge after completing their studies:

Transferable skills

- Students are able to reflect upon and contextualize questions of practical significance in international elite sports in the light of current theoretical ideas in sport science.
- They are able to interact successfully and appropriately in culturally diverse environments.
- They are able to deal with intercultural barriers to communication, and have the ability to identify such areas of conflict and resolve such issues constructively by applying the appropriate communicative strategies.
- They can analyse their own reactions to foreign behaviour and recognize and understand their own cultural characteristics.

Subject-specific skills

- Students have a good command of the internationally established methods used in professional and elite sport science and in neighbouring and parent disciplines.
- They can plan, realize, implement and adapt training programmes in high-performance sports.
- They can assess performance and development as well as training success through suitable internationally recognized diagnostic procedures.
- They are familiar with problems typical of high-performance sports in the fields of medicine, sport science and psychology.
- They have mastered communication techniques and stress and conflict management in intercultural settings and with different participants.

Career-related skills

- Students have a thorough understanding of anatomy and physiology as well as of the morphological and structural adaptations within the framework of the main forms of motor activity with particular reference to the requirements of international competitive and elite sport.
- They possess a thorough understanding of internationally recognized measures and strategies for injury prevention and can apply them appropriately to the target group.
- They have team building and leadership skills suited to managing professional athletes in a competitive setting, especially from an international perspective.
- They have practical knowledge in areas related to high-performance sport such as nutrition/substitution and dietetics.

- They are acquainted with national and international talent identification and talent development systems, and understand talent-related issues and ethical and moral aspects of competitive sport in a global context.
- Students can plan, implement and evaluate internationally recognized sport psychological, biomechanical as well as physiological diagnostic and intervention processes for specific sports.
- They can identify, analyse and discuss psychological and social determinants as well as cultural and social conditions of high-performance sport, taking into account global perspectives.
- They are familiar with the problems of combating doping and are capable of developing strategies and taking action in international high-performance sports practice.
- Through practical experience in dealing with competitive athletes from different cultures, they are well acquainted with the practical problems of everyday training and competition, especially taking into account global perspectives and cultural differences (training management, career-sport balance, law of diminishing returns in training, etc.).
- They can critically evaluate physical, technical and tactical performance components of diverse sports as well as methods and metrics for quantifying performance in sport.
- They can independently apply standard data science methods (e.g. clustering, classification, regression) using sport datasets in established programming languages (e.g. Python, R).

Description of modules

Modules in the mandatory section 'General Aspects: Methodology and Basic Theories'

Module: Research design and evaluation

Research design and evaluation					**Abbr.: Research**
Semester 1-2	**Usually completed in semester 2**	**Offered yearly**	**Duration 2 semesters**	**hrs/wk 8**	**ECTS credits 20**

Module coordinator	PD Dr. Werner Pitsch
Teaching staff	Four members of departmental teaching staff and external teaching staff
Type of module	Mandatory module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Advanced statistics; 2 hrs/wk, 5 credits S. Evaluation and quality assessment; 2 hrs/wk, 5 credits Ü. Applied statistics and research designs and empirical methods; 2 hrs/wk, 5 credits S. Qualitative research; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	Module element assessments: Knowledge test (graded)
Student workload	Total: 600 hours Contact teaching time: Exercise classes: 90 hours Preparatory and follow-up activities / Exercises / Assignments: Exercise classes: 510 hours
Grading information	The grade awarded for the module is calculated from the module element assessments/examinations.

Learning outcomes/skills:

After completing this module, students will:

- understand the effects of confounding and moderating variables as well as relevant control and analysis procedures in different kinds of qualitative and quantitative survey and measurement methods

- have acquired a systematic overview of the subject matter, methods and principles as well as the problems and areas of application of exploratory data analysis, multiple correlation tests, comparison testing and mutation analysis
- have advanced knowledge of typical questions, samples and measurement methods in qualitative empirical studies as well as the limitations of these methods
- understand the logic of evaluation and how it is distinct from other areas of empirical research

After completing this module, students are able to:

- describe, apply and critically reflect on quantitative measurement and survey techniques and evaluation methods
- plan, implement and evaluate single-factor and multi-factor designs as well as uni- and multivariate measurements and their statistical analysis
- plan, implement and evaluate qualitative studies on a small scale
- plan, implement and evaluate small-scale evaluations and critically reflect on their results and how well they can be implemented.

Module content:

- Design of experiments (DOE)
- Advanced statistics (e.g. multi-factor and multivariate analysis)
- Working with statistical software (in particular R and RStudio) and software for qualitative studies (e.g. MAXQDA, NVivo)
- Qualitative survey and analysis methods
- Input, output and outcome analyses

Further information:

Mandatory modules in the section 'Specific Aspects of High-Performance Sport'

Module: Medicine and physiology in high-performance sport

Medicine and physiology in high-performance sport					Abbr.: Med
Semester	**Usually completed in**	**Offered**	**Duration**	**hrs/wk**	**ECTS credits**
1-2	**semester 2**	**yearly**	**2 semesters**	**6**	**15**

Module coordinator	Univ.-Prof. Dr. Tim Meyer
Teaching staff	Three members of departmental teaching staff and external teaching staff
Type of module	Mandatory module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Advanced exercise physiology and metabolic regulation; 2 hrs/wk, 5 credits S. Athletes' musculoskeletal assessment; 2 hrs/wk, 5 credits S. Injury mechanisms, screening and prevention in high-perf. sport; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	Module element assessments: Cognitive competence tests (b) Preliminary assessments
Student workload	Total: 450 hours Contact teaching time: Seminars: 70 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 380 hours
Grading information	The grade awarded for the module is calculated from the results of the module element assessments.

Learning outcomes/skills:
After completing this module, students will:

- have an understanding of the typical acute injuries and overuse injuries in sport, including their causes, the risk factors involved and how they can be prevented based on the available scientific evidence
- be acquainted with the typical injury screening procedures used in sports, e.g. functional movement screenings (jump performance, power tests, mobility/agility analyses) based on the available scientific evidence
- understand the general principles underlying sport injury prevention, injury rehabilitation and post-injury 'return-to-play' programmes based on the available scientific evidence
- be acquainted with the physiotherapeutic and physical procedures commonly used in sport and have an appreciation of the supporting scientific evidence

- have a thorough understanding of the physiological processes during the different kinds of mechanical loading in sport and of the underlying molecular/biochemical mechanisms
- be acquainted with the typical medical problems affecting elite athletes and understand the importance of an appropriate evidence-based approach to such problems
- have a fundamental appreciation of the diversity of training adaptation mechanisms in elite and professional sport and understand the biological background
- understand the factors that influence adaptation processes and their mode of action
- appreciate interindividual variability in responses to training stimuli.

After completing this module, students are able to:

- compile a case history of an elite athlete, focusing particularly on the musculoskeletal system
- analyse joints, muscles and body parts both individually and in the context of a specific functional or kinematic chain
- identify typical sports injuries and, working in conjunction with the medical team, know how to treat and manage them, including the compilation and management of prevention, rehabilitation and return-to-play plans
- estimate and explain the health consequences of specific constellations of high-performance sport
- modify training programmes to accommodate changes in physiological and pathological circumstances, e.g. as a result of a sport injury
- describe and record the modifications to a training programme as a multi-factor process
- identify the potential benefits and limits from individually optimizing training efficacy.

Module content:

- Aetiology, symptomatology and therapy of typical sport injuries
- Screening and testing procedures and physiotherapeutic and sport therapy measures for treating sport injuries
- Basic principles of prevention, rehabilitation and return-to-play programmes within a multidisciplinary team
- Special aspects of the activities of elite-sports medical teams
- The limits of adaptation mechanisms in elite athletes and organ pathologies specific to high-performance sport
- Molecular and cellular aspects of the training stimulus
- Biological fundamentals of cellular adaptation mechanisms (particularly, fundamental aspects of signal transduction and protein expression)
- Performance-physiological aspects of training stimuli and their effects
- Non-intrinsic factors and their influence on training-induced adaptation mechanisms.

Further information:

Module: Biomechanics and motor control

Biomechanics and motor control					**Abbr. Biomech**
Semester 1-2	**Usually completed in semester 2**	**Offered yearly**	**Duration 2 semesters**	**hrs/wk 6**	**ECTS credits 15**

Module coordinator	Univ.-Prof. Dr. Stefan Panzer
Teaching staff	Three members of departmental teaching staff and external teaching staff
Type of module	Mandatory module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Biomechanics of strength and conditioning I; 2 hrs/wk, 5 credits S. Biomechanics of strength and conditioning II; 2 hrs/wk, 5 credits S. Motor control and learning
Prerequisites	None
Student assessments/examinations	Module element assessments: Cognitive competence tests (b) Preliminary assessments
Student workload	Total: 450 hours Contact teaching time: Seminars: 70 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 380 hours
Grading information	The grade awarded for the module is calculated from the results of the module element assessments.

Learning outcomes/skills:

After completing this module, students will:

- have a sound understanding of force and movement from a biomechanical perspective
- have a fuller appreciation of the basic principles of training science and deeper insight into special aspects of training science in different types of sport in an international context
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- have acquired a systematic overview of the subject matter, methods and principles as well as the problems and areas of application of sport biomechanics.
- have a systematic overview of the methods used in movement and performance diagnostics in different areas of high-performance sports (optimization of technique, equipment-based methods, preventive and rehabilitation aspects).

- understand the processing of information in connection with learning and optimizing athletic movement sequences.

After completing this module, students are able to:

- describe, measure and evaluate biomechanical parameters (kinematics and dynamics)
- describe, apply and critically assess performance-relevant parameters in different types of sport
- work on specific practical problems in high-performance sport from a biomechanical perspective
- record, evaluate and interpret motor learning processes using measurement technology initiate and optimize motor control and learning processes through feedback mechanisms

Module content:

- Methods of measurement, analysis and evaluation of biomechanical parameters (kinematics and dynamics)

  - Principles of biomechanics
  - General and special training science
  - Handling of measuring equipment
  - Planning and implementation of practical data collection
  - Interpretation and communication of biomechanical results
    Methodology and theoretical development of movement and training science

Further information:

Module: Developing the elite athlete

Developing the elite athlete					**Abbr. Develop**
Semester **2**	**Usually completed in semester 1**	**Offered yearly**	**Duration** **1 semester**	**hrs/wk** **4**	**ECTS credits** **10**

Module coordinator	Univ.-Prof. Dr. Sabine Schäfer-Cerasari
Teaching staff	Two members of departmental teaching staff and external teaching staff
Type of module	Mandatory module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Talent identification and development, 2 hrs/wk, 5 credits S. Elite performance in different life domains; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	Module element assessments: Cognitive competence tests (b) Preliminary assessments
Student workload	Total: 300 hours Contact teaching time: Seminars: 45 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 255 hours
Grading information	The grade awarded for the module is calculated from the results of the module element assessments.

Learning outcomes/skills:

After completing this module, students will:

- understand the problems of defining and interpreting the concept of 'talent'
- have acquired a systematic overview of the subject matter, methods and principles as well as the problems and areas of application of talent identification and talent development in national and international settings
- understand the differences in the typical life courses of elite athletes compared to the general population.

After completing this module, students are able to:

- describe and critically reflect on national and international systems to promote elite athletes and plan, implement, evaluate and assess a strategy for talent scouting and promotion
- respond to the individual needs of clients when planning and implementing interventions
- provide professional support and assistance to elite athletes dealing with critical life events such as serious injuries or the end of their careers.

Module content:
• The concept of talent from an interdisciplinary perspective • Selected research findings concerning critical life events and how they can be overcome • Findings from expertise research and research on career transitions in elite sport • Discussion of the implications of theories and research findings for the career planning of athletes in an international context

Further information:

Module: Training and competition in elite sport

Training and competition in elite sport					**Abbr. Train**
Semester **3**	**Usually completed in semester 3**	**Offered yearly**	**Duration** **1 semester**	**hrs/wk** **6**	**ECTS credits** **15**

Module coordinator	Dr. Sabrina Forster, Dr. Peter Leinen
Teaching staff	Four members of departmental teaching staff and external teaching staff
Type of module	Mandatory module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Coaching the elite athlete, 2 hrs/wk, 5 credits S. Training and monitoring processes, 2 hrs/wk, 5 credits S. Preparing for and recovering from competition, 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	Module element assessment: Cognitive competence test (ub) Preliminary assessments
Student workload	Total: 450 hours Contact teaching time: Seminars: 70 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 380 hours
Grading information	The grade awarded for the module is calculated from the results of the module element assessments.

Learning outcomes/skills:

After completing this module, students will:

- have acquired a systematic overview of the subject matter, methods and principles as well as the problems and areas of application of the different training methods used in elite sports to improve the conditions required for enhanced physical performance
- be acquainted with internationally recognized and scientifically established monitoring tools and understand their advantages and disadvantages
- understand the statistical methods for evaluating and drawing conclusions from monitoring data
- understand the acute and chronic effects that different training methods can have on physiological functions and processes (performance enhancement and fatigue)
- understand the physiological principles of fatigue and recovery both after and between bouts of physical exertion
- be acquainted with the internationally recognized and scientifically established methods of measuring fatigue and recovery
- have the knowledge to incorporate recovery techniques into training plans

have acquired a deeper understanding of different recovery methods, their practical application in an international context (case studies) and their use in carefully managed sport training programmes.

After completing this module, students are able to:

- differentiate between situation- and sport-adapted monitoring, which provides useful results for training management and performance enhancement
- process monitoring results in a statistically correct way in order to adapt training management decisions to the psychological and physiological status of an athlete
- plan, implement and evaluate training programmes with specific performance targets in different seasonal cycles
- describe, apply and critically assess the different means and methods of training used in different types of sport
- assess the significance of regeneration in the training process
- apply internationally recognized and scientifically established methods of measuring the need for recovery in specific situations and for different types of sport
  plan and implement recovery techniques in a manner appropriate for the training regimes used by elite and professional athletes
- identify and quantify insufficient recovery or heightened fatigue and introduce methods that can rectify these deficits
- apply recognized recovery strategies that are appropriate to the specific sport and the prevailing situation.

Module content:

- Principles and theories of training
- Structuring, planning and implementing training programmes
- Procedures for the short-term, medium-term and long-term control of training outcomes
- Assessment of training methods: evaluation and critical reflection
- Data analysis in the context of optimizing the performance of an athlete/team
- Monitoring tools in the contexts of internal and external load, psychological load, overtraining and overreaching
- The scientifically established basis of internationally recognized methods of determining recovery and fatigue in high-performance sport
- Recovery indicators, their quality and their appropriate deployment within the context of international training and competition
- The physiological background to and differentiation between short-term and long-term recovery
- Recovery as a component of training regimes in an international context
  Practical application and management of recovery strategies

Further information:

Module: Social issues in elite sports

Social issues in elite sports					**Abbr. SocIss**
Semester **3**	**Usually completed in semester 3**	**Offered yearly**	**Duration** **1 semester**	**hrs/wk** **4**	**ECTS credits** **10**

Module coordinator	PD Dr. Werner Pitsch
Teaching staff	Members of departmental teaching staff and external teaching staff
Type of module	Mandatory module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Doping world-wide: current situation and reasons for doping, 2 hrs/wk, 5 credits S. Social problems and social crises in elite sport, 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	Module element assessment: Cognitive competence test (b) Preliminary assessments
Student workload	Total: 300 hours Contact teaching time: Seminars: 45 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 255 hours
Grading information	The grade awarded for the module is calculated from the module element assessments/examinations.

Learning outcomes/skills:

After completing this module, students will:

- have a basic understanding of the mode of action and especially the unwanted adverse effects of the substances and methods in the Prohibited List and will be acquainted with the principles of anti-doping analytical testing
- be acquainted with the commonly cited causes of the manifestly apparent abuse of prohibited substances and methods
  have acquired a systematic overview of the subject matter, methods and principles as well as the problems and areas of application of anti-doping measures
- be acquainted with the content and methods of current anti-doping research
- have an in-depth understanding of social problems and crises in elite sport as well as their causes and effects
- be acquainted with the theories of social problems and understand the distinction between social problems, social crises and moral crusades

- understand historical and current social problems and social crises in sport
  be acquainted with social, economic and individual factors influencing social crises such as burnout, doping or mental illness in elite sport.

After completing this module, students are able to:

- describe the current situation regarding doping in sport, apply the factual knowledge acquired to current cases and critically reflect upon the situations in which doping occurs
- plan, implement and evaluate doping prevention strategies
- critically reflect on and discuss phenomena of current and new social problems and social crises in high-performance sport
- analyse social crises in sport in light of theoretical knowledge
- develop problem-solving strategies and discuss measures for addressing social crises in elite sport
  devise recommendations for action for sports stakeholders (e.g. athletes, coaches, associations) to identify and address social problems.

Module content:

- Methods of drug testing in sport (blood vs. urine)
- Mechanisms and unwanted adverse effects of substances and methods in the Prohibited List
- Dependencies and networks of relationships of athletes involved in doping
  Interactions between the factors that potentially motivate doping in athletes Extent of doping in amateur/recreational sports and in professional/elite sports Evaluating the use of performance-enhancing drugs from the perspective of sports law and from a general legal point of view
- Interactions between stakeholders from doping and anti-doping perspectives
- Extent of doping in amateur/recreational sports and in professional/elite sports
- Evaluating the use of performance-enhancing drugs from the perspective of sports law and from a general legal point of view
- Theories of social problems and social crises in high-performance sport
- Different forms of violence, (power) abuse and exploitation in elite sport
- Social and structural causes of social problems and crises

Further information:

Elective modules

Module: Leading athletes and sports organizations

Leading athletes and sports organizations					Abbr.: Lead
Semester	**Usually completed in semester**	**Offered**	**Duration**	**hrs/wk**	**ECTS credits**
3	**3**	**yearly**	**1 semester**	**2**	**5**

Module coordinator	PD Dr. Werner Pitsch
Teaching staff	Members of departmental teaching staff and external teaching staff
Type of module	Elective module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Leading athletes and sports organizations; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam: Cognitive competence test (ub) Preliminary assessments
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that awarded for the seminar assessment.

Learning outcomes/skills:

After completing this module, students will:

- have a basic understanding of organizations (in sport) and the principles of organization.
- have a solid understanding of the structures, functions and challenges of sports organizations in high-performance sport
- be acquainted with the special demands placed on managers in elite sport and their influence on the athletic and personal development of athletes

After completing this module, students are able to:

- use organizational theories to analyse organizations they know or organizations relevant to their professional field
- analyse and apply management approaches and models in the context of athlete management and organizational management
- use communicative and strategic management tools in a targeted manner

- assess complex organizational processes in sports organizations, including planning, motivation and conflict management, and plan suitable action strategies for organizational development
- reflect on ethical issues and social responsibility in the management of athletes and sports organizations
- identify and analyse specific challenges of management in high-performance sports and develop practical solutions.

Module content:

- Structures of different sports organizations
- Management styles and models in high-performance sport
- Athlete management: Motivation, development and conflict management
- Individual and team-related management strategies
- Strategic management of sports organizations
- Communication and decision-making processes in management contexts
- Value-oriented management: Fairness, transparency and integrity in competitive sport.

Further information:

Module: Diagnostics and training in sport psychology

Diagnostics and training in sport psychology					**Abbr.: DiaTr.**
Semester **3**	**Usually completed in semester 3**	**Offered yearly**	**Duration** **1 semester**	**hrs/wk** **2**	**ECTS credits** **5**

Module coordinator	Univ.-Prof. Dr. Sabine Schäfer-Cerasari
Teaching staff	2 members of the external teaching staff
Type of module	Elective module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. International diagnostics and training in psychology; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam: Cognitive competence test (b)
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that achieved in the end-of-module examination.

Learning outcomes/skills:

After completing this module, students will:

- have a systematic overview of the subject matter, methods, principles and problems of sport psychology
- have acquired a basic understanding in the following areas: physiology, learning and memory, perception and attention, cognition, motivation, groups and teams, and leadership
- have a deeper appreciation of psychological stress in sport, diagnostic strategies and methods, psychoregulative techniques and psychological coaching.

After completing this module, students are able to:

- describe the psychological demands of different types of sport and different sport situations
- diagnose mental problems in training and competition
- describe and critically assess psychological interventions
- plan, implement and evaluate practical psychological interventions in both individual and team sports.

Module content:

- Diagnostic methods and techniques from a psychological perspective
- Performance optimization in sport
- Psychological techniques for regulating motivation in sport
- Psychological techniques of emotion regulation in sport
- Psychological techniques for optimizing motor control in sport (mental skills training)
- Team diagnostics
- Coaching

Further information:

Module Performance analysis & data science

Performance analysis & data-science					**Abbr.: PerfAn**
Semester **4**	**Usually completed in semester 4**	**Offered yearly**	**Duration** **1 semester**	**hrs/wk** **2**	**ECTS credits** **5**

Module coordinator	Jun.-Prof. Dr. Pascal Bauer
Teaching staff	Members of departmental teaching staff
Type of module	Elective module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Performance analysis; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam, cognitive competence test (b)
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that achieved in the end-of-module examination.

Learning outcomes/skills:
After completing this module, students are able to:

- critically evaluate physical, technical and tactical performance components of diverse sports
- critically evaluate methods and metrics for quantifying performance in sport
- independently apply standard data science methods (e.g. clustering, classification, regression) using sport datasets in established programming languages (e.g. Python, R).
- critically discuss complex concepts of performance analysis with practitioners
- conduct structured video analyses independently
- describe fields of application (e.g. stress management, scouting, match analysis) and established fields of work and roles in elite sport (e.g. head of performance, data scientist, data analyst)

Module content:

- Basic concepts of performance analysis (physical, technical and tactical)
- Basic concepts in data science (e.g. clustering, classification, regression, validation)

- Introduction to the use of established programming languages (e.g. Python, R) based on datasets in sport
- Introduction to established key performance indicators of diverse sports (e.g. expected goals, strokes gained, …)

Further information:

Module: Coaching and communication in the elite sport environment

Coaching and communication in the elite sport environment					**Abbr.: CoachCom**
Semester 4	**Usually completed in semester 4**	**Offered yearly**	**Duration 1 semester**	**hrs/wk 2**	**ECTS credits 5**

Module coordinator	Univ.-Prof. Dr. Sabine Schäfer
Teaching staff	Members of departmental teaching staff
Type of module	Elective module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Coaching and communication in the elite sports environment; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam, cognitive competence test (b)
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that achieved in the end-of-module examination.

Learning outcomes/skills:
After completing this module, students will:

- have a fundamental appreciation of theories of communication and understand the significance of emotional/relational aspects in communication: content and relational levels of meaning
- have a deeper understanding of conversation strategies and of questioning and negotiating techniques

After completing this module, students are able to:

- deal with culturally grounded differences in communicative behaviour in a professional and empathetic manner
- respond to the individual needs of clients when planning and implementing interventions

Module content:

- Theories of communication

Further information:

Module: Skill acquisition in motor and cognitive domains

Skill acquisition in motor and cognitive domains					**Abbr.: SkillAqu**
Semester 3	**Usually completed in semester 3**	**Offered yearly**	**Duration 1 semester**	**hrs/wk 2**	**ECTS credits 5**

Module coordinator	Univ.-Prof. Dr. Sabine Schäfer
Teaching staff	Members of departmental teaching staff
Type of module	Elective module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Skill acquisition in motor and cognitive domains; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam, cognitive competence test (b)
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that achieved in the end-of-module examination.

Learning outcomes/skills:
After completing this module, students will:

- have a thorough grounding in the commonalities and differences between motor learning and cognitive learning processes

After completing this module, students are able to:

- support learners in the acquisition of motor and cognitive skills optimize motor learning and cognitive learning processes while taking account of the learner's psychological state
-

Module content:

• Theories and findings relating to cognitive and motor learning

• Findings from expertise research

• Discussion of the implications of theories and scientific findings for practical applications

Further information:

Module: Testing in high-performance sport

Testing in high-performance sport					**Abbr.: TestingHP**
Semester 1 or 4	**Usually completed in semester 1 or 4**	**Repeat cycle every three semesters**	**Duration 1 semester**	**hrs/wk 2**	**ECTS credits 5**

Module coordinator	Univ.-Prof. Dr. Stefan Panzer
Teaching staff	Members of departmental teaching staff
Type of module	Elective module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Testing in high-performance sport; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam, cognitive competence test (b)
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that achieved in the end-of-module examination.

Learning outcomes/skills:
After completing this module, students will:

- have a thorough understanding of sport-specific, performance-relevant parameters and recording them using modern measurement and analysis methods
- be acquainted with the development, implementation and analysis of field tests (e.g. agility, velocity, jump performance) and be able to apply advanced technologies for performance diagnostics
- understand the practical relevance of diagnostic techniques in diverse elite sports and their application in order to optimize training and competition

- have a basic knowledge of the scientific literature on tests and measurement methods in high-performance sport and their transfer to practice.

After completing this module, students are able to:

- measure and critically evaluate performance-relevant parameters taking into account sport-specific requirements
- develop, adapt and conduct tests and measurement protocols to address specific problems
- work on problems of practical relevance in elite sport using modern diagnostic methods
- analyse and interpret data from different measurement methods and prepare it in a comprehensible manner for athletes and coaches
- transfer research findings on test methodology and measurement methods to practical applications
- develop and apply feedback mechanisms to provide athletes and coaches with data-based feedback.

Module content:

- Development and implementation of field tests (e.g. agility, velocity, jump performance).
- Introduction to modern technologies for recording and analysing performance-relevant parameters (e.g. movement and muscle activity measurement).
- Analysis and interpretation of data from sports diagnostics
- Planning and implementation of data collection under real conditions in practice
- Literature research and development of scientifically grounded test protocols
- Feedback of results to athletes and coaches (preparation of reports, feedback discussions)
- Comparison and evaluation of different test methods and their validity in sports practice
- Relevant basic theories on diagnostic methods and their application in high-performance sport.

Further information:

Module: Advanced research methods and statistics in social sciences

Advanced research methods and statistics in social sciences					**Abbr.: AdvResMeth**
Semester 1 or 4	**Usually completed in semester 1 or 4**	**Repeat cycle every 3 semesters**	**Duration 1 semester**	**hrs/wk 2**	**ECTS credits 5**

Module coordinator	PD Dr. Werner Pitsch
Teaching staff	Members of departmental teaching staff
Type of module	Elective module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	S. Advanced research methods and statistics in social sciences; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam, cognitive competence test (b)
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that awarded for the seminar assessment.

Learning outcomes/skills:

After completing this module, students will:

- have a knowledge of survey and analysis methods that extends beyond the methods regularly used in individual disciplines of sports science
- understand multi-factor, multivariate and non-linear complex statistical methods.

After completing this module, students are able to:

- structure complex problems and issues appropriately in order to develop an empirical-scientific approach to them
- apply appropriate measurement methods, statistical models and analytical tools to complex problems and issues
  present and interpret the results of such analyses in an understandable way.

Module content:

- Models of individual performance development
- Analysis of social and economic networks

- Indirect survey methods

Further information:

Module: Science and medicine in football

Science and medicine in football					**Abbr.: SciMedFoot**
Semester 1 or 4	**Usually completed in semester 1 or 4**	**Repeat cycle every 3 semesters**	**Duration 1 semester**	**hrs/wk 2**	**ECTS credits 5**

Module coordinator	Univ.-Prof. Dr. Tim Meyer
Teaching staff	Meyer, PhD students
Type of module	Elective module in the Master's degree programme 'High-Performance Sport', may also be attended by students on other degree programmes
Teaching and learning formats / Hours per week	S. Science and Medicine in Football; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam, cognitive competence test (b)
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that achieved in the end-of-module examination.

Learning outcomes/skills:
After completing this module, students will:

- have a thorough appreciation of the interactions between physiology, health and football, understand the current issues at local and international level and know how to apply this knowledge in a performance-related context.
- have the knowledge to analyse, plan and develop training programmes and implement performance diagnostic tools for specific players and/or situations.
- have a comprehensive knowledge of football science literature.

Module content:

- Current topics in football research; e.g. current methods for quantifying physical stress during the season of professional football players; the most important match parameters in professional football and how they can be interpreted with regard to stress and susceptibility to injury
- Ability to identify the currently used training methods and the opportunities to improve individual and team performance.

- Current methods for preparing football players for busy fixture lists, national or international travel and different environmental conditions.
- Evidence-based recovery methods used by top clubs in both the pre-season period and during the season.
- Epidemiology of injuries in professional football, including analysis of injury situations and how these could be prevented through the use of injury prevention tools (e.g. screening procedures, targeted training guidelines).
- The (temporal) development of the playing characteristics of female professional football.
- Current 'football-specific' performance tests. Are these tests really football-specific, and if so, how do they relate to the actual game?
- Analysis of current methods of talent identification and in particular training approaches in youth football.
- Influences of psychological stressors in football.

Further information:

Module: Infectious diseases in high-performance sport

Sports hygiene					**Abbr.: InfecDis**
Semester 4	**Usually completed in semester 4**	**Repeat cycle every three semesters**	**Duration 1 semester**	**hrs/wk 2**	**ECTS credits 5**

Module coordinator	Univ.-Prof. Dr. Tim Meyer
Teaching staff	Prof. Tim Meyer, Prof. Barbara Gärtner
Type of module	Elective module in the Master's degree programme 'High-Performance Sport', may also be attended by students on other degree programmes
Teaching and learning formats / Hours per week	S. Infectious diseases in high-performance sport; 2 hrs/wk, 5 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam, cognitive competence test (b)
Student workload	Total: 150 hours Contact teaching time: Seminars: 23 hours Preparatory and follow-up activities / Exercises / Assignments: Seminars: 127 hours
Grading information	The grade awarded for the module is that achieved in the end-of-module examination.

Learning outcomes/skills:

After completing this module, students will:

- be acquainted with how to recognize infectious diseases and susceptibility to spreading among athletes
- understand the factors that influence the likelihood of an outbreak of infectious diseases in sports circles/teams
- have an appreciation of sport-specific and group-specific aspects of hygiene and susceptibility to infection
- be acquainted with the specific methods of infectiological research and their differences to 'typical' studies
- have an understanding of the effectiveness of prevention methods against infectious diseases in the athletic environment

After completing this module, students are able to:

- differentiate between different types of infections in athletes
- characterize different ways in which infections spread and analyse their effects on a sport-specific basis
- assess the risk to teammates from infected athletes
  assess typical routes of infection spread among athletes
- plan preventive measures to avoid infectious diseases in training groups.

Module content:

- Infectious agents and transmission routes
- Types of immune response
- Changes in the immune response due to high-performance sports training
- General principles of infection prevention (including vaccination)
- Documented outbreaks of infection in sport (case studies)
- Skin infections and high-performance sport
- Airborne infections and elite sport
- Covid-19 and elite sport
- GI infections (fecal-oral transmission) and elite sport
- Vector-borne infections and elite sport
- Parenteral infections and elite sport

Further information:
Sports hygiene is a relatively new research field that has received greater attention following the Covid-19 pandemic and deals with the protection of athletes from infectious diseases. Due to the lack of prospective scientific work in this field, the seminar primarily draws on case reports and case series, using specific epidemiologic methods to study the incidence of infectious diseases in athletes and teams/groups. Introductions to the principles of infectiology, immune mechanisms and vaccination are placed in context with sport-specific topics, which are taught by the students through presentations and on-site visits. The topics are selected based on the number of participating students.

Module: Project / work placement / internship

Project / work placement / internship					**Abbr.: Intern**
Semester **3-4**	**Usually completed in semester 3**	**Offered yearly**	**Duration** **1 semester**	**hrs/wk** **2**	**ECTS credits** **10**

Module coordinator	Dr. Sabrina Forster
Teaching staff	Four members of departmental teaching staff and external teaching staff
Type of module	Elective module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	P. Project or a work placement / internship lasting four weeks; 10 credits
Prerequisites	None
Student assessments/examinations	End-of-module exam: Certificate issued by the company or organization hosting the work placement / internship or project and a student report (ub).
Student workload	Total: 300 hours Contact teaching time: Work placement / internship / project: 200 hours Preparatory and follow-up activities / Exercises / Assignments: Work placement / internship / project: 100 hours
Grading information	This module is ungraded.

Learning outcomes/skills:

- Students who undertake a project have the opportunity to tackle a specific question of scientific interest and thus learn about the advantages and disadvantages of carrying out in-depth scientific research.
- Students who undertake a work placement or internship will become acquainted with working in the international high-performance sport sector and thus learn about the advantages and disadvantages of working with elite athletes.
- The work on a project or work placement / internship should lead to the development of potentially relevant questions for a student's Master's thesis.

Module content:

- Participation in a specific project in the field of sports science or sports medicine
- Work placement / internship at a national or international facility for high-performance sport (e.g. working at a school with an elite sports development programme, at an Olympic training base or at an international partner institution)

Further information:

Module: Master's Thesis

Master's Thesis					**Abbr.: Thesis**
Semester **4**	**Usually completed in semester 4**	**Offered yearly**	**Duration** **1 semester**	**hrs/wk** **2**	**ECTS credits** **20**

Module coordinator	Prof. Sabine Schäfer
Teaching staff	Four members of departmental teaching staff
Type of module	Mandatory module in the Master's degree programme 'High-Performance Sport'
Teaching and learning formats / Hours per week	
Prerequisites	
Student assessments/examinations	Master's thesis (b)
Student workload	Total: 600 hours Preparatory and follow-up activities / Exercises / Assignments: Work placement / internship / project: 600 hours
Grading information	The grade awarded for the module is that for the module element 'Master's thesis'

Learning outcomes/skills:

The Master's thesis is the final assignment that completes the Master's degree programme. Students are required to produce a written document (Master's thesis) in which they address a question of relevance in the field of sport science by applying the knowledge that they have acquired in a scientifically rigorous manner and by making appropriate use of the available scientific literature. The arguments and results are to be presented in a cogent and didactically sound manner that reflects a high level of scientific rigour.

Further information:

ECTS overview

Modules	ECTS	hrs/wk
Mandatory section		
Research design and evaluation	20	8
Medicine and physiology in high-performance sport	15	6
Biomechanics and motor control	15	6
Developing the elite athlete	10	4
Training and competition in elite sport	15	6
Social issues in elite sport	10	4
Electives section		
Leading athletes and sports organizations	5	2
Diagnostics and training in sport psychology	5	2
Performance analysis and data science	5	2
Coaching and communication in the elite sport environment	5	2
Skill acquisition in motor and cognitive domains	5	2
Testing in high-performance sport	5	2
Advanced research methods and statistics in social sciences	5	2
Science and medicine in football	5	2
Project / work placement / internship	4	2
Module: Master's Thesis	20	8