Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Module Catalogue

for the Subject

Exercise Science and Training

as a Master's with 1 major

with the degree "Master of Science"

(120 ECTS credits)

Examination regulations version: 2023
Responsible: Faculty of Human Sciences
Responsible: Institute of Sport Science

Contents

The subject is divided into

Learning Outcomes

Scientific Qualification

- The students acquire a deep understanding of fundamental constructs, theories and models, as well as training and diagnostic methods in sport and exercise science. They can identify and analyse various influencing factors on processes related to the development and maintenance of different functional systems through physical activity and/or training in the domains of sports. They are capable of categorizing, discussing, and addressing exercise science questions based on evidence. Furthermore, they are aware of current research questions in sport and exercise science and can present and discuss them in a nuanced manner.
- The students are familiar with and understand various specialized training tools and training methods, and practical concepts for the development and maintenance of different functional systems in various domains of sports. Using the acquired subject-specific and methodological competencies, they can highlight, classify, and compare the different advantages and disadvantages of specific training tools, methods, and action concepts. They can also derive recipient-specific implementations in the practical domains of sports.
- They can independently analyse, address, and present a research question in the field of sport and exercise science from various perspectives and objectives.
- The students acquire advanced methodological skills in scientific working, data set evaluation and data analysis, and scientific communication. They can independently identify and analyse these methods and evaluate and discuss them in the relevant context. They can select, apply, and interpret these methodological skills for specific questions in the field.
- The students are familiar with various valid and reliable diagnostic methods and monitoring technologies in various application areas of sports, and can choose, apply, and evaluate them in a way that is suitable for the intended recipients. They can analyse and interpret the results and derive recommendations for applied sports in different domains. The students develop methodological skills in practical work with various diagnostic procedures.
- The students are able to independently research, understand, critically evaluate current scientific literature, identify research gaps, and formulate innovative research questions.
- The students are capable of independently developing and conducting their own research projects in the field of sport and exercise science, evaluating them using scientific methods, and publishing the results according to scientific and systematic criteria. They master advanced techniques of data collection and analysis and can apply them to new research contexts, as well as relate findings to theoretical concepts, models, and theories.
- The students can publish their research findings not only in (scientific) journals but also present them at (international) conferences and defend them in scientific discussions. They are capable of preparing their results for specific target audiences and transferring them into popular science formats.
- Completing the M.Sc. in Exercise Science and Training also prepares students to apply for doctoral studies, thus enabling a potential academic and/or scientific career.
- The students possess the ability to transfer theoretical knowledge and research findings into practical applications in areas such as training, performance- and health diagnostics, as well as in contexts promoting health and well-being. They can develop and evaluate innovative training concepts and frameworks and assess their effectiveness in various sports and movement-related contexts.
- They are trained to foster dialogue between science and practice and act as a bridge between research institutions and practical sports stakeholders such as clubs, sports associations, and companies. This includes conveying scientific insights to coaches, athletes, other staff, and laypersons, as well as integrating practical experiences back into scientific research.

- The students acquire the skills to effectively transfer knowledge across various environments, contexts, and formats. They can clearly and concisely communicate complex scientific concepts and research findings to diverse audiences, including academic peers, practitioners, policymakers, and the general public. This involves adapting their communication style and content to different formats such as scientific publications, presentations, workshops, and digital platforms. They are capable of bridging the gap between theory and practice, ensuring that their knowledge dissemination promotes understanding, engagement, and application in real-world contexts.

Ability to take up qualified employment

- The students have acquired professional knowledge, serving as the foundation for independent action in various fields within the realm of sports science, including research-oriented institutions, clubs, sports associations, and companies within the sports industry. Furthermore, the competencies gained during the course enable self-directed learning. This process combines personal and social skills with the acquisition of professional knowledge. In addition, fundamental insights and knowledge about institutions and organizations are conveyed. The practical phase also serves the purpose of reflecting on one's own professional self-concept and professional ethics.
- The students have acquired professional knowledge to implement the conceptual development, planning, and dissemination of training processes into practice at the interface between science and practice.

Empowerment for civic engagement

- The graduates have developed the willingness and ability to contribute their skills to participatory processes and actively engage in decision-making.
- They possess broad knowledge of (sports) scientific and societal issues and can take well-founded positions.
- In research, knowledge transfer, and practical sports work, the students are aware of their ethical responsibilities and actively address the societal impacts of their work.

Personal development

- Graduates are capable of working independently and taking personal responsibility. They can collaboratively work with other individuals or groups. Graduates can convey their conclusions and the underlying information and motivations clearly, based on the current state of research. They are able to engage in discussions with experts, athletes, and laypersons on information, issues, and solutions at a scientific level.

Abbreviations used

Course types: **E** = field trip, **K** = colloquium, **O** = conversatorium, **P** = placement/lab course, **R** = project, **S** = seminar, **T** = tutorial, **Ü** = exercise, **V** = lecture

Term: **SS** = summer semester, **WS** = winter semester

Methods of grading: **NUM** = numerical grade, **B/NB** = (not) successfully completed

Regulations: **(L)ASPO** = general academic and examination regulations (for teaching-degree programmes), **FSB** = subject-specific provisions, **SFB** = list of modules

Other: **A** = thesis, **LV** = course(s), **PL** = assessment(s), **TN** = participants, **VL** = prerequisite(s)

Conventions

Unless otherwise stated, courses and assessments will be held in German, assessments will be offered every semester and modules are not creditable for bonus.

Notes

Should there be the option to choose between several methods of assessment, the lecturer will agree with the module coordinator on the method of assessment to be used in the current semester by two weeks after the start of the course at the latest and will communicate this in the customary manner.

Should the module comprise more than one graded assessment, all assessments will be equally weighted, unless otherwise stated below.

Should the assessment comprise several individual assessments, successful completion of the module will require successful completion of all individual assessments.

In accordance with

the general regulations governing the degree subject described in this module catalogue:

ASPO2015

associated official publications (FSB (subject-specific provisions)/SFB (list of modules)):

15-Feb-2023 (2023-21)

This module handbook seeks to render, as accurately as possible, the data that is of statutory relevance according to the examination regulations of the degree subject. However, only the FSB (subject-specific provisions) and SFB (list of modules) in their officially published versions shall be legally binding. In the case of doubt, the provisions on, in particular, module assessments specified in the FSB/SFB shall prevail.

Compulsory Courses

(80 ECTS credits)

Module title			Abbreviation
Theories and Models			06-EST-TAM-232-m01
Module coordinator		**Module offered by**	
holder of the Chair of Integrative and Experimental Exercise Science and Training		Institute of Sport Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Complex and interdisciplinary theories and models within and across various sports science disciplines (e.g., stimulus-response adaptation model, cybernetic model, 24-hour model, behavior change, systems theory, socio-economic model) in the training process for the development and maintenance of different (physiological, biomechanical, psycho-social) functional systems through physical activity and/or training in the fields of health, recreational, fitness, and/or competitive sports.

Intended learning outcomes

The students acquire in-depth and broad professional skills and methodological competences about current theories and models of processes for developing and maintaining different functional systems through physical activity and/or training in the fields of health sports, recreational sports, fitness sports and/or competitive sports. Students acquire the main methods and can theoretically provide a targeted implementation of current theories and models in the practical fields of health-related sports, recreational sports, fitness sports and/or competitive sports and improve their social competencies.

Courses (type, number of weekly contact hours, language — if other than German)

V (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 minutes)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title			Abbreviation
Advanced Training Methods			06-EST-ATM-232-m01
Module coordinator			**Module offered by**
holder of the Chair of Integrative and Experimental Exercise Science and Training			Institute of Sport Science
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Special training tools and training methods as well as specific concepts of action in relation to the motor abilities (e.g., blood flow restriction, vibration training, hypoxia training, velocity-based strength training, exercise snacks, unstructured training) to develop and maintain different (physiological, biomechanical, psycho-social) functional systems in the fields of health-related sports, recreational sports, fitness sports and/or competitive sports.

Intended learning outcomes

Students know and understand various special training tools, training methods and concepts of action for developing and maintaining different functional systems in the fields of health sports, recreational sports, fitness sports and/or competitive sports. With the acquired professional competencies and methodological competencies they illustrate, categorize, and compare the various advantages and disadvantages of specific training tools, training methods and concepts of actions, and can provide a targeted implementation in the fields of health-related sports, recreational sports, fitness sports and/or competitive sports.

Courses (type, number of weekly contact hours, language — if other than German)

V (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

written examination (approx. 60 minutes)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title			Abbreviation
Influencing Factors			06-EST-INF-232-m01
Module coordinator		**Module offered by**	
holder of the Chair of Integrative and Experimental Exercise Science and Training		Institute of Sport Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Intra- and interpersonal factors (e.g., genetic, gender-specific, biomechanical, age-related, physiological, psychological predispositions), organizational factors (e.g., infrastructural and temporal resources), environmental factors (e.g., altitude, heat, cold conditions), and socio-political factors (e.g., support structures, talent identification programs) influencing the processes of developing and maintaining various (physiological, biomechanical, psycho-social) functional systems through physical activity and/or training in the fields of health, recreational, fitness, and/or competitive sports.

Intended learning outcomes

The students are familiar with and understand various factors influencing the processes of developing and/or maintaining different (physiological, biomechanical, psycho-social) functional systems through physical activity and/or training in the fields of health, recreational, fitness, and/or competitive sports. They can analyze, categorize, and evaluate these influencing factors and derive audience-specific recommendations for action.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title			Abbreviation
Advances in Technologies			06-EST-TAD-232-m01
Module coordinator		**Module offered by**	
holder of the Chair of Integrative and Experimental Exercise Science and Training		Institute of Sport Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Technological and digital developments (e.g., apps and various wearable groups such as smartwatches, smart textiles, and adhesive sensors, artificial intelligence, training equipment, analysis software) related to the processes of developing and maintaining different (physiological, biomechanical, psycho-social) functional systems through physical activity and/or training in the fields of health, recreational, fitness, and/or competitive sports.

Intended learning outcomes

Students know and understand various technological and digital developments (e.g. apps and various wearable groups such as smartwatches, smart textiles and adhesive sensors, artificial intelligence, training devices, analysis software) for processes to develop and/or maintain different (physiological, biomechanical, psycho-social) functional systems through physical activity and/or training in the fields of health-related sports, recreational sports, fitness sports, and/or competitive sports. The students can explain, classify and evaluate them. They can use the technology to derive target group-specific recommendations in different sport practical settings.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Current Trends	06-EST-COT-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Current topics and trends on physiological, biomechanical, psycho-social aspects (e.g. analysis and control of micro- and macronutrient intake, nutritional supplements, sleep hygiene, new training methods, recovery strategies, training aids, technologies, current discussions on sports ethics [e.g., doping practices]) on processes for building and maintaining different (physiological, biomechanical, psycho-social) functional systems through exercise and/or training in the fields of health-related sports, recreational sports, fitness sports, and/or competitive sports.

Intended learning outcomes

The students know and understand current topics and trends about processes for developing and maintaining different (physiological, biomechanical, psycho-social) functional systems through physical activity and/or training in the fields of health-related sports, recreational sports, fitness sports, and/or competitive sports. They can analyze, classify, discuss and reflect on various and current topics and trends related to processes for developing and maintaining functional systems through physical activity and/or training.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Information Management	06-EST-INM-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Basic content (e.g. data literacy, databases, data aggregation) and concepts of information processing (e.g. API connection, client-server architecture, cloud computing, distributed systems), technologies as well as programming languages (e.g. R, Python, Statistica, XML and SPSS) and programming skills (writing scripts for data analysis, creating visualizations, statistical functions and modeling) are presented, discussed and applied.

Intended learning outcomes

Students know basic content (e.g. data literacy, databases, data aggregation) and concepts of information processing (e.g. API connection, client-server architecture, cloud computing, distributed systems), technologies and programming languages (e.g. R, Python, Statistica, XML and SPSS) and programming skills (writing scripts for data analysis, creating visualizations, statistical functions and modelling) and can describe, classify and apply these independently. They can apply basic programming concepts and programming languages and use them for themselves.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title			Abbreviation
Research Methods			06-EST-REM-232-m01
Module coordinator		**Module offered by**	
holder of the Chair of Integrative and Experimental Exercise Science and Training		Institute of Sport Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Advanced methodological skills in scientific work (e.g. literature research and literature management, study designs, systematic reviews, qualitative and quantitative methods, publication models, scientific writing) as well as knowledge and procedures to ensure good scientific practice (e.g. research ethics, informed consents for study participants, the replication crisis).

Intended learning outcomes

The students acquire advanced methodological competencies. The students know the advantages and disadvantages of advanced methods in scientific work and can classify them and compare them to other methods. They can identify these methods on their own and evaluate and discuss them in the respective context. The students can select, apply and interpret adequate research methods for specific questions related to the subject.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Diagnostic Methods	06-EST-DIM-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Diagnostic methods in in health-related sports, recreational sports, fitness sports and/or competitive sport, such as (sport) psychological (attention and concentration tests, sport-specific anxiety questionnaires, motivation diagnostics, self-confidence scales, recovery and stress questionnaires), anatomical (body height, body weight, body composition) and physiological (respiratory gases, blood lactate, blood glucose) diagnostics. Sport-specific diagnostics (e.g. jumping strength measurements and technique analyses) as well as comprehensive performance diagnostics in the main motor abilities and functional movement diagnostics can also be covered.

Intended learning outcomes

The students know various diagnostic methods in health-related sports, recreational sports, fitness sports, and/or competitive sports and can select, apply and evaluate them appropriately for a target group. Additionally, they can interpret the respective results and provide recommendations for sports practice. The students will be able to develop methodological skills in practical work with different diagnostic procedures.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title			Abbreviation
Monitoring Technology			06-EST-MOT-232-m01
Module coordinator		**Module offered by**	
holder of the Chair of Integrative and Experimental Exercise Science and Training		Institute of Sport Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
5	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Presentation of and working with monitoring technologies (e.g., smartwatch and app-based sensor technology, sensor technology in textiles and adhesive electrodes, near-body sensor technology, point-of-care diagnostics) to support the process of developing and maintaining different (physiological, biomechanical, psycho-social) functional systems through physical activity and/or training in the fields of health sports, recreational sports, fitness sports, and/or competitive sports. Targeted selection, application, evaluation, and interpretation of monitoring technologies and development of concepts and/or recommendations for health-related sports, recreational sports, fitness sports, and/or competitive sports.

Intended learning outcomes

The students know various monitoring technologies (e.g., smartwatch and app-based sensor technology, sensor technology in textiles and adhesive electrodes, near-body sensor technology, point-of-care diagnostics) in health-related sports, recreational sports, fitness sports, and/or competitive sports. They can select, apply, evaluate, interpret results and develop concepts and/or recommendations for action in relation to health-related sports, recreational sports, fitness sports, and/or competitive sports.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Research Project Skills	06-EST-RPS-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Basic and specialized theories of project management (e.g. waterfall model, agile project management (e.g. Scrum) or critical chain project management (CCPM)). The focus is on general project planning measures (e.g. creating project plans and schedules, resource allocation and risk management), practical methods for project documentation (e.g. protocols, reports and project management software (e.g. MS Project, Trello)) and methods for project evaluation (e.g. SWOT analyses and feedback procedures). These contents are specifically applied to the implementation and evaluation of sports science research projects (e.g. studies on training optimization, training interventions, performance diagnostics of teams, sports medical examinations or the organization of sports and knowledge transfer events).

Intended learning outcomes

Students acquire methodological skills in project planning, implementation and documentation as well as in critically reflected evaluation within the framework of a scientific project. The students know different theories and methods of (project) management in the (sport)scientific context and can describe and compare them with other methods. Students can select, apply and analyze theories and methods of (project) management in a future (sport)scientific project in a situation specific manner and interpret the results.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Data Analysis and Interpretation	06-EST-ANI-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Basic and advanced methods of statistical evaluation of data (e.g. data management, explorative data analysis, descriptive statistics, analytical statistics, measures of association, correlations, regressions, analysis of variance). Aspects of the selection, applicability and evaluation of statistical methods are discussed, analyzed and applied. Methods for the visual processing of data are discussed, analyzed and applied.

Intended learning outcomes

Students acquire methodological skills in basic and advanced methods of statistical evaluation of data. They know and understand these methods, can evaluate and compare them with other methods. The students can select and apply the appropriate statistical methods for specific questions of the subject and are able to interpret the results.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Science Communication	06-EST-SCC-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Presentation of various elements in science communication (e.g. scientific communication and presentation, scientific discussion and argumentation, scientific manuscript preparation, steps in the publication process, third mission). Possibilities for processing information and knowledge (e.g. infographics, PowerPoint presentations, scientific content in social media, podcasts) for different target groups in different areas of science communication are discussed and applied in practice.

Intended learning outcomes

The students acquire advanced professional skills and methodological skills in science communication. They acquire social and personal skills related to communication and cooperation in the context of science communication. The students are familiar with various media and channels of science communication and can assess and discuss the respective advantages and disadvantages of these areas based on specific examples. The students can prepare complex knowledge for different target groups.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Interaction of Science and Application	06-EST-SAI-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Presentation and discussion of current case studies on the implementation of evidence-based findings for (sports) scientific problem solving. Collaborative work processes (e.g. intervention studies, interdisciplinary research teams, workshops with coaches and athletes, co-creation processes, feedback loops, knowledge networks) between science and knowledge users will be presented and discussed with the aim of applying scientific evidence in a way that is appropriate to the target group. At the same time, methods (e.g. questionnaires, interviews, focus groups, observational studies, process analyses) are identified and discussed with which the implementation process can be evaluated.

Intended learning outcomes

The students acquire in-depth and extended professional and methodological skills for the collaborative implementation of scientific findings in practice. The students can identify, compare and evaluate essential methods for evaluating the implementation process. Students can apply key methods for evaluating the implementation process.

Courses (type, number of weekly contact hours, language — if other than German)

S (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Scientific Debate	06-EST-SCL-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Research, presentation and discussion of current (sports) scientific research results and methods in the field of building and maintaining different (physiological, biomechanical, psycho-social) functional systems through exercise and/or training in the fields of health, recreational, fitness and/or competitive sports. Presentation, reflection and application of basic debating techniques (e.g. argumentation techniques, rebuttals, structuring speeches, critical questioning, rhetorical devices).

Intended learning outcomes

Students can independently research, understand, critically interpret and discuss scientific publications on (sports) science research results and methods. Students can prepare and present (sports) science research results in a comprehensible and detailed manner, discuss them critically in the overall context of the topic and derive conclusions for sports practice and scientific work. Students know the basic techniques of debating and can recognize, classify and apply them.

Courses (type, number of weekly contact hours, language — if other than German)

P (2)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title			Abbreviation
Internship			06-EST-INT-232-m01
Module coordinator			**Module offered by**
holder of the Chair of Integrative and Experimental Exercise Science and Training			Institute of Sport Science
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Eight-week internship in an institution in the fields of health-related sports, recreational sports, fitness sports and/or competitive sports or in a scientific institution. The internship can be completed in Germany or abroad.

Intended learning outcomes

To gather experience with professional competencies and acquire professional knowledge in the fields of health-related sports, recreational sports, fitness sports and/or competitive sports, or in the scientific field. Acquisition of practical professional and methodological skills as well as social and personal skills during the internship. The students can practice, assess, evaluate and critically reflect practical relevant knowledge from their studies and transfer this knowledge to professional practice.

Courses (type, number of weekly contact hours, language — if other than German)

R (4)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

report on work placement (approx. 8 pages)
Language of assessment: English

Allocation of places

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Additional information

Duration of practical course: 8 weeks.
Prior to the placement, approval must be obtained from the placement supervisor.

Workload

300 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Compulsory Electives

(10 ECTS credits)

Module title			Abbreviation
Intervention & Implementation Project - Health			06-EST-PRH-232-m01
Module coordinator			**Module offered by**
holder of the Chair of Integrative and Experimental Exercise Science and Training			Institute of Sport Science
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
10	(not) successfully completed	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Planning, implementation and evaluation of a (sports) scientific project (e.g. training study, prevention project, evaluation study, replication study, practical training intervention, study or survey on physical activity behavior, survey, proof of concept) and/or design of a framework concept for practical implementation in different target groups with a health-promoting and health-maintaining focus.

Intended learning outcomes

Students can independently develop, implement, and evaluate (sport)scientific projects (e.g., for specific populations regarding maintaining, improving or regaining health) and/or design conceptual frameworks for practical implementation in different target groups with a health-promoting and health-preserving setting. The students acquire methodological, social and personal skills in the field of (sport)scientific project implementation and evaluation.

Courses (type, number of weekly contact hours, language — if other than German)

R (4)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

300 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Module title	Abbreviation
Intervention & Implementation Project - Performance	06-EST-PRT-232-m01

Module coordinator	Module offered by
holder of the Chair of Integrative and Experimental Exercise Science and Training	Institute of Sport Science

ECTS	Method of grading	Only after succ. compl. of module(s)
10	(not) successfully completed	--

Duration	Module level	Other prerequisites
1 semester	graduate	--

Contents

Planning, implementation and evaluation of a (sports) scientific project (e.g. training study, prevention project, evaluation study, replication study, practical training intervention, study or survey on physical performance, survey, proof of concept) and/or design of a framework concept for practical implementation in different target groups within recreational sports, fitness sports, or competitive sports.

Intended learning outcomes

Students can independently develop, implement and evaluate (sports) science projects (e.g. for specific populations with regard to maintaining, improving or regaining performance) and/or design framework concepts for practical implementation in different target groups within recreational sports, fitness sports, or competitive sports. Students acquire methodological, social and personal skills in the field of (sports) scientific project implementation and evaluation.

Courses (type, number of weekly contact hours, language — if other than German)

R (4)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Assessment group Seminar:
a) oral examination of one candidate each (approx. 30 minutes) or
b) presentation (15 to 30 minutes) with written elaboration (10 to 15 pages) or
c) portfolio (15 to 20 pages)
Language of assessment: English

Allocation of places

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Additional information

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Workload

300 h

Teaching cycle

Teaching cycle: once a year

Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)

Thesis

(30 ECTS credits)

Module title			Abbreviation
Master-Thesis			06-EST-MT-232-m01
Module coordinator		**Module offered by**	
holder of the Chair of Integrative and Experimental Exercise Science and Training		Institute of Sport Science	
ECTS	**Method of grading**	**Only after succ. compl. of module(s)**	
30	numerical grade	--	
Duration	**Module level**	**Other prerequisites**	
1 semester	graduate	--	

Contents

Independent preparation of an English-language document (Master thesis) to work on and answer a relevant question from the (sport) scientific field, under consideration of scientific standards. The research question, hypothesis, methods, results, discussion, and practical recommendations should be presented conclusively and comprehensibly and correspond to the international scientific standard.

Intended learning outcomes

Methodological and self-competence in scientific working and writing. Students can plan, structure, execute, evaluate, discuss, and write a scientific thesis, considering scientific standards. Based on the results of the Master thesis, students can derive recommendations for sports practice and future scientific work.

Courses (type, number of weekly contact hours, language — if other than German)

No courses assigned to module
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

Master's thesis (approx. 80 pages)
Language of assessment: English

Allocation of places

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Additional information

Time to complete: 6 months.
Registration on a continuous basis as agreed upon with supervisor

Workload

900 h

Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

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Module appears in

Master's degree (1 major) Exercise Science and Training (2023)