

|                         |                                                                    |
|-------------------------|--------------------------------------------------------------------|
| <b>Degree Programme</b> | <b>Bachelor of Science 'Human Movement in Sports and Exercise'</b> |
| <b>Module</b>           | <b>Research Design and Statistics</b>                              |
| <b>Module Number</b>    | <b>4</b>                                                           |

|                      |                          |
|----------------------|--------------------------|
| <b>1</b>             | <b>Basic information</b> |
| Semester             | 2.-3. semester           |
| Credit points (CP)   | 11                       |
| Workload (h) - total | 330                      |
| Duration of module   | 2 semesters              |
| Status of module     | mandatory Module         |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>2</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Profile</b> |
| Objective of the module/integration into the curriculum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |
| The aim of the module is a fundamental examination of the research methods of all disciplines dealt with in the degree programme, including a corresponding application of the skills and abilities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |
| Content of Module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |
| <p>Basic knowledge of research methods (experimental design, statistic quality criteria) and statistics (probability theory, descriptive statistics and inferential statistics) will be imparted within the lecture. In "Interpretation Methods in Statistics", students will learn to use different complex statistical strategies to test for differences (e.g. inferential statistics/structure analyses, general linear models [GLM] and others) as well as for correlations (reliability analysis, correlation and regression analysis). The seminar also deals with experimental plans and the implementation of own research projects. The "SPSS Tutorial" will provide basic practical experiences with the software and allows the application of statistical tests to real data sets. The seminar "Data Analysis with Matlab" conveys fundamental practical experience with the software and permits use with real data sets.</p> |                |
| Learning outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |
| <p>The students acquire the skills and knowledge necessary to carry out all stages of a research project independently. Besides, they learn specific skills in two programs in two seminars so that the knowledge gets applied to practical use. The written coursework, therefore, serves the purpose of applying theoretical and practical knowledge in research methods and statistics to a specific question. The module builds on the fundamental communication, writing, and presentation skills of module 1 and improves them regarding the research context.</p>                                                                                                                                                                                                                                                                                                                                                                    |                |

| <b>3 Module Structure</b> |             |  |                                                       |                                |                       |                              |
|---------------------------|-------------|--|-------------------------------------------------------|--------------------------------|-----------------------|------------------------------|
| Components of module      |             |  |                                                       |                                |                       |                              |
| No.                       | Course type |  | Course                                                | Status<br>(mandatory/elective) | Workload (h)          |                              |
|                           |             |  |                                                       |                                | Attendance<br>(h)/SWS | Individual<br>study time (h) |
| 1                         | L           |  | Basic Introduction to Research Methods and Statistics | m                              | 30 (2 SWS)            | 90                           |
| 2                         | S           |  | SPSS Tutorial                                         | m                              | 30 (2 SWS)            | 30                           |
| 3                         | S           |  | Data Analysis with Matlab                             | m                              | 15 (1 SWS)            | 30                           |
| 4                         | S           |  | Interpretation Methods in Statistics                  | m                              | 30 (2 SWS)            | 75                           |
| Options within the Module |             |  | none                                                  |                                |                       |                              |

| 4                                                 |  | Examination concept                                                                                                                                                                                                                                                                                                                                                                                                                |                     |            |                               |
|---------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------|-------------------------------|
| Degree-Relevant Examination(s)                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |            |                               |
| No.                                               |  | Type                                                                                                                                                                                                                                                                                                                                                                                                                               | Duration/<br>Length | course no. | Weighting for<br>Module Grade |
| 1                                                 |  | Exam in Basic Introduction to Research Methods and Statistics                                                                                                                                                                                                                                                                                                                                                                      | 60 min.             |            | 65%                           |
| 2                                                 |  | Seminar paper/ written documentation of project                                                                                                                                                                                                                                                                                                                                                                                    | 20 pages            |            | 35%                           |
| Weighting of Module Grade for Final Overall Grade |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    | 6%                  |            |                               |
| Required Coursework                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |            |                               |
| No.                                               |  | Type                                                                                                                                                                                                                                                                                                                                                                                                                               | Duration/<br>Length | course no. |                               |
| 1                                                 |  | Short and extensive coursework is necessary for the preparation, realization, and post-processing of courses. Short and extensive coursework includes e.g. protocols (approx. 1–2 pages) and written/oral assignments (approx. 10 pages/10–15 minutes), respectively. The type of coursework will be announced at the beginning of the course. Duration and extent of coursework will be oriented towards the underlying workload. |                     | LV No. 1   |                               |
| 2                                                 |  | Short and extensive coursework is necessary for the preparation, realization, and post-processing of courses. Short and extensive coursework includes e.g. protocols (approx. 1–2 pages) and written/oral assignments (approx. 10 pages/10–15 minutes), respectively. The type of coursework will be announced at the beginning of the course. Duration and extent of coursework will be oriented towards the underlying workload. |                     | LV No. 2   |                               |
| 3                                                 |  | Short and extensive coursework is necessary for the preparation, realization, and post-processing of courses. Short and extensive coursework includes e.g. protocols (approx. 1–2 pages) and written/oral assignments (approx. 10 pages/10–15 minutes), respectively. The type of coursework will be announced at the beginning of the course. Duration and extent of coursework will be oriented towards the underlying workload. |                     | LV No. 3   |                               |
| 4                                                 |  | Short and extensive coursework is necessary for the preparation, realization, and post-processing of courses. Short and extensive coursework includes e.g. protocols                                                                                                                                                                                                                                                               |                     | LV No. 4   |                               |

|  |                                                                                                                                                                                                                                                              |  |  |  |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
|  | (approx. 1–2 pages) and written/oral assignments (approx. 10 pages/10–15minutes), respectively. The type of coursework will be announced at the beginning of the course. Duration and extent of coursework will be oriented towards the underlying workload. |  |  |  |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|

| 5                                         | Requirements                                                                                                                                                                                                                                                                                         |  |  |  |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Module related participation requirements | Successful completion of M1 and M2 is strongly recommended but not mandatory.                                                                                                                                                                                                                        |  |  |  |
| Credit points                             | The credit points for the module are awarded if the module has been successfully completed overall, i.e. it has been demonstrated by passing all examinations and coursework that the learning outcomes assigned to the module have been acquired.                                                   |  |  |  |
| Attendance                                | In all courses, 100% participation is recommended. However, in the seminars, 80% attendance is necessary because personal guidance and feedback when handling data can only be given within class. Anyone who exceeds the number of permitted absences forfeits their right to take the examination. |  |  |  |

| 6                                  | CP - Distribution |        |
|------------------------------------|-------------------|--------|
| Attendance (= time of presentness) | LV No. 1          | 1 CP   |
|                                    | LV No. 2          | 1 CP   |
|                                    | LV No. 3          | 0,5 CP |
|                                    | LV No. 4          | 1 CP   |
| Degree-Relevant Examination(s)     | No. 1             | 2 CP   |
|                                    | No. 2             | 1.5 CP |
| Required Coursework                | No. 1             | 1 CP   |
|                                    | No. 2             | 1 CP   |
|                                    | No. 3             | 1 CP   |
|                                    | No. 4             | 1 CP   |
| Sum CP                             |                   | 11 CP  |

| 7                  | Module offer            |  |
|--------------------|-------------------------|--|
| Cycle/Timing       | every SS                |  |
| Module Coordinator | Prof. Dr. Bernd Strauss |  |
| Faculty            | FB07                    |  |

| 8                                                  | Mobility/Recognition           |  |
|----------------------------------------------------|--------------------------------|--|
| Usability in other study programs                  | none                           |  |
| Module title                                       | Research Design and Statistics |  |
| English Translation of module component of field 3 | are in english                 |  |

| 9 | Additional Information                                                                                                                                                                                                                                                            |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <p>Courses 1, 2, and 3 are offered in the first semester of the module. Courses 4 and 5 are offered in the second semester of the module.</p> <p>All seminars are in English. All reading and writing assignments will be in English, as well as all exams and presentations.</p> |