| Modul-Nr./ Module-Code | BMSB1800 |
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| **Modulbezeichnung / Module title** | **Mathematics and Data Literacy** |
| Semester or Trimester | 2nd |
| Dauer des Moduls / Duration of the module | 1 semester |
| Art des Moduls (Pflicht, Wahl, etc.) / Module type (Compulsory, Elective etc.) | Compulsory subject |
| Ggfs. Lehrveranstaltungen des Moduls / If applicable: Sub-modules | - |
| Häufigkeit des Angebots des Moduls / The module is offered … | Annually (summer semester) |
| Zugangsvoraussetzungen / Prerequisites for attending | None |
| Verwendbarkeit des Moduls für andere Module und Studiengänge / Applicability of the module for other modules and degree courses | This course is a preparatory course for further mathematically oriented subjects in BMS. In particular, this course provides the students with the fundamental mathematical and programming skills for Analytical Statistics. |
| Modulverantwortliche/r / Lecturer in charge | N.N. |
| Name der/des Hochschullehrer/s / Name of the lecturer | N.N. |
| Lehrsprache / Language of Instruction | English |
| Zahl der zugeteilten ECTS credits / Number of ECTS credits | 5 |
| Gesamtworkload und ihre Zusammen-setzung / Workload and its composition | 150 hours (86 h self-study; 64 h contact time) |
| SWS / Semester periods per week | 4 |
| Art der Prüfung / Assessment methods | Written examination (1 hour) with certificate for exercises |
| Gewichtung der Note in der Gesamtnote / Weight in final grade | 2 % |
| Qualifikationsziele des Moduls / Learning outcomes of the module | Knowledge & Understanding: Students gain essential insights into computer-based analysis of data while using standard tools from the field of descriptive statistics. Furthermore, the students learn the fundamentals of mathematical analysis. Applying knowledge and understanding The course addresses methodology by means of real-world examples and offers students the chance of applying the methodologies to use cases with data. Making judgements After the lecture the students are able to critically evaluate results of a data analysis in a broader context such as the origin of the data as well as its quality and representativity. |

| | Communication:<br>Results obtained are presented and discussed in class.<br><br>Learning skills:<br>The work carried out in this module prepares students for formal treatment of economic problems in their further studies and in their jobs. It encourages them to individually pursue further mathematical analysis of economic situations. The students are able to describe and interpret the data for a given situation and to derive consequences for necessary resources and optimisation. They know the limitation of learnt methods and can appreciate the contribution of others. |
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| Inhalte des Moduls / Syllabus | Data representation, data quality, computer-based exploratory data analysis, dependence between variables, confounder variables and causality, Mathematical analysis. |
| Lehr- und Lernmethoden des Moduls / Teaching Methods of the Module | 2 h/week lecture (seminar form) + 2 h/week exercises; accompanying tutorial |
| Besonderes / Special Features | Practical application of the methodology in PC labs. |
| Literatur / Literature | - Ben Jones (2020): Data Literacy Fundamentals: Understanding the Power & Value of Data, Data Literacy Pres.<br>- Karsten Lübke, Martin Vogt (2014): Angewandte Wirtschaftsstatistik: Daten und Zufall (FOM-Edition) Taschenbuch, Springer Gabler.<br>- Jordan Morrow (2021): Be Data Literate: The Data Literacy Skills Everyone Needs To Succeed, Kogan Page<br>- Knut Sysaeter, Peter Hammond, Arne Strom & Andrés Carvajal (2014) Essential Mathematics for Economic Analysis, Pearson<br>- Alex Douglas, Dean Roos, Francesca Mancini, Ana Couto, David Lusseau (2023) An introduction to R |