# Faculty of Mathematics and Technology: M.Sc. in Applied Mathematics



#### The Aims

The aim is to achieve consolidation in one of the applied areas of either business mathematics or biomathematics by means of a specific selection of subjects. Furthermore, the aim of the Master's degree is for students to acquire consolidated knowledge in the shared major areas of the probability theory, statistics and Stochastic analysis. Moreover, students on this course will acquire professional, specialised knowledge in the core mathematical areas of function analysis, optimisation, complex analysis and partial differential equations.

| <b>Employability and Career Prospects</b> |
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Master graduates will be able to take on challenging roles in research and development as well as in projects and management. As a result of their extensive, mathematical expertise they will be in a position to independently familiarise themselves with new, mathematical subject areas and work in an academic capacity.

This consolidated, technical education qualifies graduates to deal with challenging research and development tasks in the areas of rate fixing, risk analysis and risk management, or the development of biotechnological and biochemical procedures.

A typical area of application in the pharmaceutical industry is also represented, for example, by the planning and lead management of clinical studies and senior projects. According to information from the biometric association, the gap in demand expected particularly in this area will open the door to our graduates in terms of diverse development opportunities.

# Access to further study

This M.Sc. degree enables our successful graduates to apply for PhD programs. Specific regulations may apply.

| First semester   | Second semester   | Third semester   |                           |
|--|---|--|---------------------------|
| Mathematical<br>Models (5c)                                | Theory and<br>Numerical<br>Methods of<br>Partial Differential<br>Equations (7c) | Stochastic<br>Integration (8c)                               | Master<br>Thesis<br>(30c) |
| Function<br>Analysis (7c)                                  | Measure Theory,<br>Stochastic<br>Processes and<br>Martingale (10c)              | Multivariable<br>Statistics (7c)                             |                           |
| Optimisation (8c)  | Graduate Class<br>(3c)  | Special Topics<br>from the Subject<br>of Mathematics<br>(5c) |                           |
| Elective Module<br>I + II Business<br>Mathematics<br>(10c) | Elective Module III + IV Business Mathematics (10c)                             | Elective Module<br>V + VI Business<br>Mathematics (9c)       |                           |
| Elective Module<br>I + II<br>Biomathematics<br>(10c)       | Elective Module III + IV Biomathematics (10c)                                   | Elective Module<br>V + VI<br>Biomathematics<br>(9c)          |                           |

### **Prerequisites for admission**

**Exchange Students:** Nomination by partner university and successful application at RheinAhrCampus.

**Full-degree Students:** To get accepted to our Master program, applicants should have completed their diploma or bachelor's degree in a related field (such as natural sciences, engineering, applied mathematics) with an above-average academic performance. The final decision about admissions is made by the Examination Board.

More detailed information in German is available at the departmental website.

For further information please contact:

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