# Module Description Module B – Applied Microbiology (optional for students of Microbial Systems)

**Course of studies: Biochemistry and Molecular Biology**

| **1) Information to the module** | |
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| Module code | 02-94-03 APP MICRO |
| Title of the module | Applied Microbiology |
| Usage in degree programs | Master program Biochemistry and Molecular Biology (BMB) – Microbial Systems |
| Recommended content-related requirements | |
| Learning content | The module consists of two parts, **Project Management** and **Food Microbiology.**<br>In Part Project Management, the module provides students with practical access to project management and is based on internationally accepted concepts and standards of project management. By understanding the life cycle of a project, the students acquire knowledge and practical experience that enable them to work in a project environment and to manage a small to medium project. Students will learn critical success factors, techniques, terminology, and rules that are necessary to plan, control, and successfully complete such projects in critical measures for project success such as performance, deadlines, costs, and stakeholder satisfaction. Aspects of the management of a project team are treated as well as the methodological aspects for controlling successful projects.<br>In Part Food Microbiology, basic theoretical and practical knowledge on the application of microbiological and biochemical tools for the examination and preparation of food will be provided. This also includes legislative regulations, manuals of methods, and laboratory documentation. The course is focused on the application of microbiological and biochemical tools for the examination and preparation of foodstuffs. Lecture: Introduction to food microbiology and legislation, spoilage and preservation, pathogenic and toxinogenic microorganisms, alternative methods for examination of food, disinfection and hygiene monitoring. Practical course: Lab safety, sample preparation and calculation of colony counts, detection of *Salmonella* spp. and *Listeria monocytogenes* in different foodstuffs, natural fermentation of sauerkraut, confirmation of bacteria by commercially available identification kits and immunological assays, examination of different foodstuffs for the relevant microbiological parameters, documentation and presentation of results according to international standards. |
| Learning objectives/Learning outcomes/Competence | Project management:<br>After completion of the module, the participants are expected to: |

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| | - be aware of the most important international standards as well as the basic methods of project management and their fields of action on the basis of IPMA ICB 3;<br>- evaluate and, in principle, assess the role and integration of project management in modern enterprises;<br>- to develop and reflect project planning through an example of their professional practice;<br>- can understand and analyze the critical factors of successful teamwork within a didactic scenario, as well as reflect their role in the team.<br>Food microbiology:<br>In depth understanding of the application of microbiological and biochemical tools for the examination and preparation of food abilities as well as legislative regulations;<br>basic ability to prepare and examine different food samples according to respective guidelines or directives; ability to use international manuals of methods. |
| Calculating student workload | Lecture 2SWS 28 hours<br>Project work 1.5 SWS 21 hours<br>Self study 131 hours<br>**180 hours** (Project management)<br>Food microbiology:<br>Practical work 1.5SWS 21 hours<br>Lecture 1SWS 14 hours<br>Self study, Protocols 55 hours<br>**90 hours** (Food microbiology)<br>**270 hours** |
| Language of tuition | English |
| Module representative | Prof. Dr. Reinhold-Hurek |
| Frequency | Each winter term |
| Duration | 1 semester |
| Credit points | 6 (Project management)+ 3 (Food microbiology) |
| SWS | 6 (3.5 SWS Project management + 2,5 SWS Food microbiology) |
| **2) Information to the module examination** | |

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| Kind of examination (MP, KP, TP) | 2 TP (partial examinations, 1 TP Project management + 1 TP Food microbiology) |
| Learning achievements (PL, SL, PVL) | 2 PL |
| Type of examination | Project management (6CP): presentation<br>Food microbiology (3CP): written exam) |
| Duration of examination | 20 minutes for each examination |
| Submission deadline | |
| Percentage | each examination 100 percent |
| **3) Information to the module courses** | |
| **VAK number/title of the courses** | Food microbiology<br>02-317-7-410 |
| Frequency | Each winter semester |
| Are there any parallel courses? | No |
| Language | English |
| Instructors | Prof. Dr. Matthias Nagel |
| Teaching methods | **Practical course work** + lectures |
| Literature | |
| **VAK number/title of the courses** | Project management |
| Frequency | Each winter semester |
| Are there any parallel courses? | No |
| Language | English |
| Instructors | Dr. Anja Karin Albrecht / Dr. Tina Peer |
| Teaching methods | Lectures (2 SWS) + project work (1.5 SWS) |

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| Literature | |