

**MASTER OF SCIENCE IN
ORAL MICROBIOLOGY
Program code: 1211**

INTRODUCTION

The Department of Bio-clinical Sciences (Faculty of Dentistry) offers a Master of Science program in **Oral Microbiology**. The program, which is thesis based, aims to provide the student with a fundamental knowledge in oral microbiology among dentists and graduates from other disciplines. Advances in the understanding of oral microbiota and oral microbe-host interactions lead to improved possibilities to reduce the burden of dental diseases. The program only offers thesis option.

According to the University Council decision dated 4/2/2007, Thesis students admitted with effect from September 2007 are exempted from the comprehensive examination.

PROGRAM REQUIREMENTS

32 TOTAL COURSE CREDITS

23 COMPULSORY COURSES (credits in parenthesis)

| | | |
|----------|---------------------------------------------|-----|
| 0510-501 | Biostatistics and Computer in medicine | (2) |
| 0520-501 | General microbiology | (2) |
| 0520-504 | Immunity and infection | (2) |
| 0520-519 | Molecular microbiology | (3) |
| 1211-501 | Oral microbiology I | (3) |
| 1211-502 | Oral microbiology II | (3) |
| 1211-503 | Oral Infections | (2) |
| 1211-504 | Journal club | (1) |
| 2000-501 | Scientific writing and communication skills | (3) |
| 2000-503 | Ethics and Professionalism | (2) |

9 COMPULSORY COURSES

| | | |
|----------|--------|-----|
| 1211-597 | Thesis | (0) |
| 1211-598 | Thesis | (0) |
| 2000-599 | Thesis | (9) |

COURSE DESCRIPTION

**1211-501: ORAL MICROBIOLOGY I
CR: 3**

The course comprises lectures, interactive sessions including theoretic and practical tutorials followed by students' supervised laboratory training. The lectures will give an overview of the current classification of oral microbiota, culture-dependent and culture-independent methods used for their detection and characterization, bacterial community life style as multispecies biofilms in the oral cavity, virulence mechanisms and new technology for the analysis of oral bacterial communities. To promote implementation of obtained knowledge pre-distributed literature will be discussed after each lecture in a seminar followed by laboratory sessions. One-to-one discussions on the lecture topics with the lecturers will be scheduled. Scientific oral presentations will be trained regularly. In addition to providing knowledge of the oral microbiome the multifaceted course is planned to enhance students' own curiosity and initiative as well as motivate them to train their scientific communication skills.

**1211-502: ORAL MICROBIOLOGY II
CR: 3**

The course is a continuation of the Course "Oral Microbiology I". It includes classes in lecture- and interactive seminar-format as well as provides scheduled individual discussions with the teachers. The topics of the course include microbiology of human oral cavity in oral health and disease, from infants to old age, microbiota of various dental diseases and mucosal infections, principles of antimicrobial resistance and underlying mechanisms as relates to individual oral species and biofilms. Similar to "Oral Microbiology I" pre-distributed scientific literature on the topics of the lectures will be discussed in seminars with the lecturers. The course encourages students to apply theoretic knowledge to practice and find their interest areas to deepen and widen their knowledge.

**0520-503: ORAL INFECTIONS
CR: 2**

The course introduces the players and mechanisms cooperating in the oral cavity to protect the host against microbial intruders. The students will comprehend the complexity of the oral ecosystem that comprises an abundant normal microbial flora and recognize the hitherto known mechanisms how the host can maintain homeostasis consistent with health or fail, leading to disruption of homeostasis and disease. Knowledge will be obtained of the systemic effects of oral infections and vice versa. Pathogenesis of dental diseases and oral mucosal yeast infections and the underlying cellular and molecular processes will be discussed in detail. An epidemiological up-date will be given about the distribution and determinants of the most common dental diseases, complexity of built-in biosocial systems, future prospects in developed and developing countries and about factors that promote oral health and reduce the burden of dental diseases. Similar to courses Oral Microbiology I and II the pre-distributed scientific literature on the topics of the lectures will be discussed in seminars with the lecturers. The course encourages students to apply learned theory to practice and find their interest areas.

**1211-504: JOURNAL CLUB
CR: 1**

The weekly Journal club will be arranged during the second year of the MSc education. In addition to articles selected by the teachers each student chooses articles from own interest area. The goals are to train critical reading of scientific publications, to gain knowledge wider than from own interest area only, to get to know the style, scope and scientific level of a variety of journals and to establish a professional habit for continuous reading of scientific literature.

**1211-597: THESIS
CR: 0**

**1211-598: THESIS
CR: 0**

**2000-599: THESIS
CR: 9**