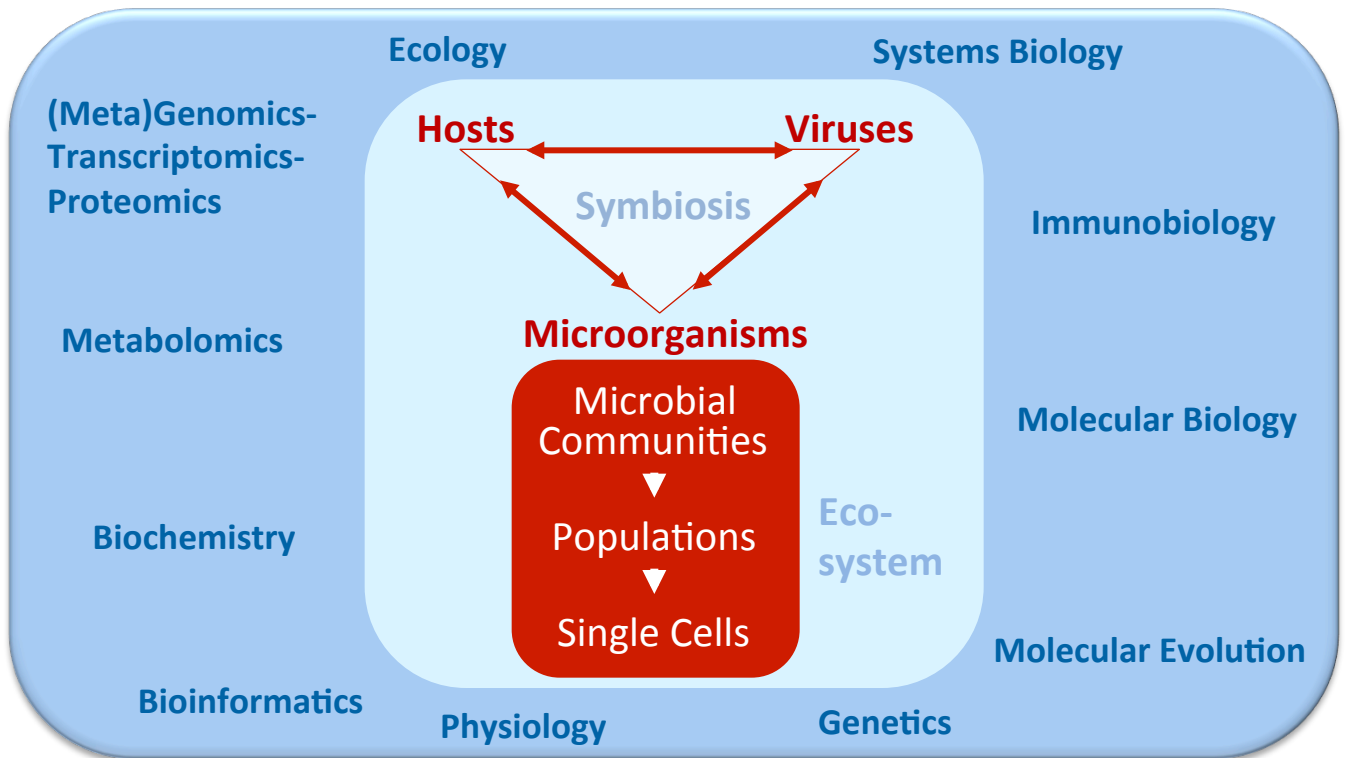


Microbial Ecology in the Master

Molecular Microbiology, Microbial Ecology, and Immunobiology_MMEI

Top Level Research and Training
at the Interface between
Microbiology, Ecology, Biogeochemistry,
Immunobiology, Molecular Biology & Evolution



Microorganisms are **essential to the well-being of animals and humans** and are the **keepers of Earth's ecosystems**.

Understanding of the chemical and molecular interactions between microorganisms, viruses, symbiotic hosts, and the environment requires **holistic approaches** and **collaboration across different scientific disciplines**.

The Faculty

Department of Microbiology and Ecosystem Research

Division of Microbial Ecology

<http://www.microbial-ecology.net>



Michael Wagner



Matthias Horn



Holger Daims



Alexander Loy



Dagmar Wöbken



David Berry



Jillian Petersen

Division of Computational Systems Biology

<http://compsysbio.univie.ac.at>



Thomas Rattei



Stefanie Widder

Department of Ecogenomics and Systems Biology

Division of Genetics in Ecology

<http://genetics-ecology.univie.ac.at>



Christa Schleper



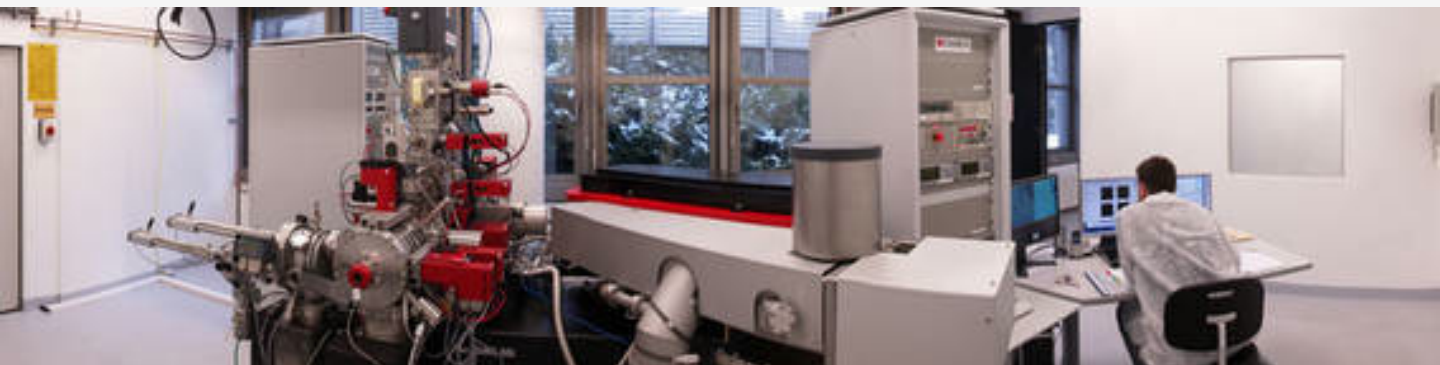
Simon Rittmann



Silvia Bulgheresi

Core Facility for Advanced Isotope Research in the Life Sciences

<http://nanosims.univie.ac.at>



Check out our websites and get in contact with us for further information!



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Program Overview

Students are trained in **interdisciplinary sciences** such as **microbial ecology, symbiosis research, immunobiology, molecular biology, phylogeny and evolution, functional genomics and genetics, and bioinformatics.**

They interact with **internationally renowned researchers**, and acquire **extensive practical experience** through courses in **top-class laboratories with high-end instrumentation.**

Graduates will have **excellent Career Opportunities** in Academic Research & Education, Molecular Diagnostics, Clinical & Environmental Consulting and Management, and the Biomedical/Biotech/Pharmaceutical Industry.

1. Mandatory Module **Introduction_MMEI I**.....**30 ECTS**
 - a. **Introduction** (VO, 5 ECTS)
NOTE: You have to pass the exam to qualify for parts b and c in this module!
 - b. **Practical Microbial Ecology** (UE, 10 ECTS)
 - c. **Advanced Techniques in Microbial Ecology** (UE, 10 ECTS; SE, 5 ECTS)
Choose a second UE from the Practical Molecular Microbiology, Microbial Ecology and Immunobiology courses and a SE
2. Alternative Mandatory Module **Microbial Ecology_MMEI II-2**.....**30 ECTS**
 - a. **Proseminar Microbial Ecology_MMEI II-2.1** (PS, 5 ECTS)
 - b. **Advanced Microbial Ecology_MMEI II-2.2** (10 ECTS)
Choose several courses from a selection of VO, UE, and PS
 - c. **Advanced Scientific Practice in Microbial Ecology_MMEI II-2.3**
(UE, 15 ECTS)
3. Mandatory Module **Interdisciplinary Subjects_MMEI III**.....**15 ECTS**
Choose several courses from alternative modules of the Masters Molecular Microbiology, Microbial Ecology, and Immunobiology (MMEI), Genetics and Developmental Biology (MGE), and Molecular Biology (MMB) and other master courses in Biology and Biological Chemistry. Selection of courses needs prior approval by the SPL (Dr. Barbara HAMILTON)
4. Mandatory Module **Additional Skills for Biologists_M-WZB**.....**15 ECTS**
Selection of courses needs prior approval by the SPL (Dr. Barbara HAMILTON)
5. Master thesis (25 ECTS) and oral defense (5 ECTS).....**30 ECTS**

Lectures and Courses in English!



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Courses

MMEI I Introduction in Molecular Microbiology, Microbial Ecology and Immunobiology

Winter Semester

300364 **VO Research topics in Molecular Microbiology, Microbial Ecology and Immunobiology**

3 Stunde(n), 5,0 ECTS credits

Alexander Loy, Michael Wagner, Christa Schleper, and other lecturers for Molecular Microbiology and Immunobiology

300484 **UE Practical Course in Molecular Microbiology, Microbial Ecology and Immunobiology - Diversity and function of uncultured microbes in medical and environmental samples**

6 Stunde(n), 10,0 ECTS credits

Dagmar Wöbken, David Berry

300307 **UE Practical Course in Molecular Microbiology, Microbial Ecology and Immunobiology - Molecular genetic and postgenomic analyses of microbial communities and model organisms**

6 Stunde(n), 10,0 ECTS credits

Christa Schleper, Silvia Bulgheresi, Simon Rittmann

Summer Semester

300347 **SE Advanced Techniques in Molecular Microbiology, Microbial Ecology and Immunobiology – Molecular Phylogeny and Evolution**

4 Stunde(n), 5,0 ECTS credits

Matthias Horn, Holger Daims



MMEI II Microbial Ecology

MMEI II-2.1 Proseminar Microbial Ecology

Winter Semester

300487 [PS Proseminar Microbial Ecology](#)

3 Stunde(n), 5,0 ECTS credits

Matthias Horn , David Berry , Silvia Bulgheresi , Holger Daims , Alexander Loy , Christa Schleper , Michael Wagner , Dagmar Wöbken

MMEI II-2.2 Advanced Microbial Ecology

Winter Semester

300281 [VO Symbiosis - concepts and model systems](#)

3 Stunde(n), 5,0 ECTS credits

Monika Bright , Silvia Bulgheresi , Matthias Horn , Wolfgang Miller

300114 [SE Current Topics in Molecular Microbial Ecology and Evolution 1](#)

2 Stunde(n), 3,0 ECTS credits

Matthias Horn , Holger Daims , Alexander Loy

300366 [SE Advances in Molecular Microbial Ecology and Evolution \(parallel courses\)](#)

2 Stunde(n), 3,0 ECTS credits

Michael Wagner , Holger Daims , Matthias Horn

Presentation of own research results by Master and PhD students

300060 [SE Bioinformatics for metagenomics and metatranscriptomics](#)

3 Stunde(n), 5,0 ECTS credits

Thomas Rattei

Courses

MMEI II-2.2 Advanced Microbial Ecology

Summer Semester

300019 [VO Computational methods in microbial ecology](#)

2 Stunde(n), 3,0 ECTS credits

Thomas Rattei , David Berry

300114 [SE Current Topics in Molecular Microbial Ecology and Evolution 2](#)

2 Stunde(n), 3,0 ECTS credits

Matthias Horn , Holger Daims , Alexander Loy

300366 [SE Advances in Molecular Microbial Ecology and Evolution \(parallel courses\)](#)

2 Stunde(n), 3,0 ECTS credits

Michael Wagner , Holger Daims , Matthias Horn

Presentation of own research results by Master and PhD students

MMEI II-2.3 Scientific Practice in Microbial Ecology

Winter Semester

300401 [UE Scientific Practice in Microbial Ecology](#)

12 Stunde(n), 15,0 ECTS credits

Michael Wagner , David Berry , Silvia Bulgheresi , Holger Daims , Matthias Horn , Alexander Loy , Simon Rittmann, Christa Schleper, Dagmar Wöbken

Individual course (small research project), which is typically performed directly prior to a Master thesis. Topic and dates should be arranged directly with the supervisors

Summer Semester

300401 [UE Scientific Practice in Microbial Ecology](#)

12 Stunde(n), 15,0 ECTS credits

Michael Wagner , David Berry , Silvia Bulgheresi , Holger Daims , Matthias Horn , Alexander Loy , Simon Rittmann, Christa Schleper , Dagmar Wöbken

Individual course (small research project), which is typically performed directly prior to a Master thesis. Topic and dates should be arranged directly with the supervisors



Courses

MMEI III Interdisciplinary Subjects

Winter Semester

300359 [SE+UE Stable Isotopes in Ecology - Stable Isotope Tracing](#)

3 Stunde(n), 5,0 ECTS credits

Wolfgang Wanek, Andreas Richter

300435 [VO Biogeochemistry and Ecosystems](#)

3 Stunde(n), 5,0 ECTS credits

Andreas Richter, Gerhard Herndl

Summer Semester

300315 [VO Modelling Ecological Systems](#)

2 Stunde(n), 3,0 ECTS credits

Stefanie Widder

300022 [UE Practial Course in Modelling of Ecological Systems](#)

2 Stunde(n), 2,0 ECTS credits

Stefanie Widder

M-WZB Additional Skills for Biologists

You might choose any of the other courses that you have not yet taken!

Winter Semester

Bachelor courses

300027 [VO Ökosystem-Ökologie und Biogeochemie](#)

2 Stunde(n), 3,0 ECTS credits

Andreas Richter, Wolfgang Wanek

Lecture in German

Summer Semester

