

Winter Semester Courses 2010/2011

Winter Semester Dates 2010/2011

Official dates of instruction: 18.10.2010 – 11.02.2011

Within the regular semester dates:

Block I:	18.10.2010 – 05.11.2010
Block II:	08.11.2010 – 26.11.2010
Block III:	29.11.2010 – 23.12.2010
Block IV:	10.01.2011 – 12.02.2011

Elective courses:

Courses in this category are either weekly or have not been assigned to a specific block. Please keep this in mind when planning your semester!

Required courses for third semester students:

- **Individual Research Training 3 (IRT3)**

Schedule: all semester

ECTS: 10

Module: P 9.1

The goal of this module is for students to conduct a larger semester-long independent pilot study as preparation for their Master's thesis, in which they will collect preliminary data. They are also trained in the writing of grant proposals, as well as writing their own proposal which includes a budget and a time-plan (also see Skills 4). Students will also be preparing high-quality scientific presentations and conducting scholarly discussions on the topics of presentations, in order to further improve their ability to communicate verbally about science. After conducting the study, a final report in the style of a scientific manuscript (10,000 - 30,000 characters) needs to be written.

- **Skills 4: Grant Writing Seminar**

Schedule: Monday 14:00 – 15:00

ECTS: 2

Module: P 9.2

Students will learn how to write a grant proposal, following the guidelines of big funding agencies. They will learn how to make a time plan and budget. They get an overview of the most important grant agencies in Germany and Europe. They also learn how to compile a good job application, including CV and statement of interest.

- **Seminar & Discussion 3: Hot Topics in Evolution, Ecology and Systematics**

Schedule: Monday 15:15 – 16:45

ECTS: 3

Module: P 9.3

Students read and discuss scientific publications on hotly debated topics in ecology, evolution and systematics. They will further improve their experience with presentations in different formats, asking critical questions about papers, participating in and leading discussions.

Block Courses for Third Semester Students

No set dates, go to preliminary meeting or contact instructor:

- **Biology of Lichens**

Instructor: Agerer, Beck

ECTS: 3

Module: P 10.0.13/14

Preliminary meeting: 18.10.2010, 17:00, C 00.013

- **Palynology Lecture and Exercise**

Instructor: Heubl

ECTS: 1.5

Module: P 10.0.22/23

Preliminary meeting: 18.10.2010, 17:00, C 00.013

- **Fungal Interactions: Mycorrhiza (Lecture and Practical)**

Instructor: Agerer

ECTS: 3

Module: P 10.0.15/16

- **Evolutionary Ecology Modelling II**

Instructor: Gabriel

ECTS: 6

Module: P10.0.48

Dates and times will be discussed upon completion of Evolutionary Ecology Modelling I (see “Elective Courses”)

Block I

- **Population Genetics II – Theoretical Population Genetics (Part I)**

Instructor: Stephan

Times: Wednesday, Thursday, Friday from 13:00 – 15:00 (lecture)

Dates: Block I

ECTS: 3

Module: P 10.0.27

The lecture is separated in part I and part II: Part I takes place from 18.10. - 05.11. Part II takes place from 08.11. - 26.11. For Part II it is necessary to finish part I. For the EES Module the lecture has to be combined with the lecture “Computational Methods in Evolutionary Biologie” Tuesday 9-11 and Thursday 9-11 in C00.013 and the practical course “Computational Methods in Evolutionary Biologie” Tuesday 11-12 and Thursday 15-17 C00.005.

- **Molecular Clock Dating – A Practical Introduction**

Instructor: Renner

Times: more or less daily, from 11:00 – 13:00

Dates: Block I & partially Block II

ECTS: 3

Module: P 10.x.x

Lectures in this block course will present the theory and practice of molecular clock dating and will show how clocks are being used in biogeography (as well as other disciplines). Students will analyze published or original data sets (or their own data), using available computer software (e.g., Sanderson’s r8s and Rambaut et al.’s BEAST). Students will be required to give two short talks (by student teams) as well as write up a report on the results of a research assignment.

Block II

- **Population Genetics II – Theoretical Population Genetics (Part II)**

Instructor: Stephan

Dates: Block II

Times: Wednesday, Thursday, Friday from 13:00 – 15:00 (lecture)

ECTS: 3

Module: P 10.0.27

The lecture is separated in part I and part II: Part I takes place from 18.10. - 05.11. Part II takes place from 08.11. - 26.11. For Part II it is necessary to finish part I. For the EES Module the lecture has to be combined with the lecture “Computational Methods in Evolutionary Biologie” Tuesday 9-11 and Thursday 9-11 in C00.013 and the practical course “Computational Methods in Evolutionary Biologie” Tuesday 11-12 and Thursday 15-17 C00.005.

- **PERL for Beginners**

Instructors: Stephan, Hutter

Dates: Block II

ECTS: 3

Module: P 10.0.33

Block III

- **A Gentle Guide to Mathematical Modelling**

Instructors: Metzler, Hutzenthaler

Dates: Block III

Times: 09:00 – 11:00

ECTS: 3

Module: P 8.0.65/66

At the end of the course, students are going to be familiar with the mathematical modeling of basic problems from biology (examples: Tree-branch model (exponential growth), mouse-cat population (predator-prey), flu dynamics, HIV-model of Phillips (1996), logistic growth model, Lotka-Volterra model of competition, epidemiological models of disease spread). In addition, students will learn how to 'read' at least simple models of research papers. Using life cycle diagrams and flow diagrams, students shall translate simple biological problems into mathematical equations. We will begin with discrete time problems which lead to recursive equations. Later we consider continuous time problems which translate into differential equations. In the last part we proceed to elementary questions from theoretical population genetics which result in random dynamics. In exercise classes, students are going to practice turning toy problems into mathematical equations.

- **Phylogenetics I**

Instructors: Balke, Haszprunar, Metzler, Schrödl

Dates: Block III

Times (lectures): Tuesdays and Thursdays from 09:00 – 11:00

Times (practicals): Tuesdays from 11:00 – 12:00 and Thursdays from 15:00 – 17:00

ECTS: 3

Module: P 10

Block IV

- **Experimental Evolutionary Ecology**

Instructors: Gabriel, Laforsch, Wolinska

Dates: Block IV

ECTS: 3

Module: P 8.0.23

- **Phylogenetics II**

Instructors: Haszprunar, Metzler, Schrödl

Dates: Block IV

Times (lectures): Tuesdays and Thursdays from 09:00 – 11:00

Times (practicals): Tuesdays from 11:00 – 12:00 and Thursdays from 15:00 – 17:00

ECTS: 3

Module: P 10

Elective Courses

- **Malacology**

Instructors: Haszprunar, Nützel, Ruthensteiner, Schrödl

Dates: 10.01.2011 – 21.01.2011

Times: 08:00 – 12:00

ECTS: 6

Module: P10

Preliminary meeting on Tuesday, 27.10.2009, 9:15 am, Raum B01.045. Registration via email: haszi@zsm.wmn.de. The lecture concentrates on anatomy, phylogeny and diversity of animal groups, while the practical focusses on different malacological methods (REM, field work, histology, molecular, paleontologic, dissection).

- **PAMM Course**

Instructor: Haszprunar

Dates: 14.03.2011 – 18.03.2011

Times: 09:00 – 17:00

ECTS: 3

Module: P 8.0.61/62

Theory and practice (with PC) of phylogenetic analysis of morphological and molecular data. Software TNT, Mr. Bayes.

- **An Introduction to R: Practical Course and Exercise**

Instructors: Hutzenthaler, Metzler

Dates: 14.02.2011 – 25.02.2011

Times: 09:00 – 12:30

ECTS: 3

Module: P 8.0.67/68

R becomes more and more important for analysing data in biology. Therefore it is important to learn it. R is a free statistics software and can be downloaded from www.r-project.org. In the beginning of the course, we become familiar with R by typing in some simple commands. Then we learn how to simulate data and how to apply standard statistical tests. Necessary theoretical background will be provided in accompanying lectures. At the end of the course, students are going to be familiar

with a selection of statistical features of R. Requirements: None; Language: German or English (depending on preference)
Questions: Please send any questions to hutzenthaler@biologie.uni-muenchen.de

- **Evolutionary Ecology Modelling I**

Instructor: Gabriel

Dates: 28.03.2011 – 13.04.2011

Times: 09:30 – 17:00

ECTS: 6

Module: P 8.0.7/8

This course, which consists of both lectures and exercises, will provide an overview of models and modeling approaches. During the lectures, students learn about various population growth models, different population interactions, simple quantitative and population genetics, and stochastic processes. The theory is applied to an example such as the evolution of pesticide resistance. Students learn methods such as time continuous models, time discrete models, individual-based models, and modeling of stochastic processes. During the exercises, students will analyze and apply different modeling approaches. They will be trained to outline, develop, and run a model using programming tools. Please note: when signing up for the course, students must select another block in which to complete their independent modeling project.

- **Earth Life Interactions II**

Instructor: Wörheide

Dates: 28.02.2011 – 04.03.2011

Times: will be announced

ECTS: 3

Module: P10.0.47

In this course we will discuss how new body plans evolve (topics like evo-devo, gene regulatory networks, microRNAs, transposable elements will be covered) in the context of events at the end of the Precambrian and the Cambrian Explosion.