

## COURSE PROGRAM FALL TERM 2023



Seasonality effects on wildlife populations. ©Dilşad Dağtekin

*“All have their worth and each contributes to the worth of the others.”*

— J.R.R. Tolkien, *The Silmarillion*



Dear members

We would like to warmly welcome our new students; **Anna Sofia Görlich, Chantal Hischier, Martina Jélic, Wenbo Yu** who recently joined our PhD program.

A warm welcome too for **Frank Pennekamp** and **Rodrigo Cámara Leret** who joined the PhD Program in Ecology as a PI.

Congratulations to **Jeanine Brantschen, Estelle Clerc, Nadine Keller, Christian Schano, Leila Schuh, Stephanie Witczak** and **Chongmeng Xu** who successfully defended their PhD theses.

Thank you to **Dilşad Dağtekin** for our cover photo.

We are excited to introduce the new course program. We are now in the fifth version of the *Ecological Theories* course, thank you to you all for your continued support with this series. We would like to thank all PI's you have contributed to and established this course as one of the essential course.

We continuously update our list of offered courses and **call students and PI's for suggestions for special cutting-edge course topics for Spring and Fall 2024.**

Students:

We would like to remind you to register for mobility at ETHZ and UZH respectively to make sure your ECTS get added to your transcript of records. The ETHZ will make an exception for students who are in their first semester and add ECTS with a certificate, but not for students who have been there for several semesters.

PI's:

We can assist you to find a qualified graduate student as we are the access point to all international students that apply for a PhD in Ecology within the Life Science Zurich Graduate School. The next recruiting rounds are in July and December 2023.

Please let us know about your *successes* that we can celebrate!

Please contact Debra Zuppinger-Dingley ([phdecology@ieu.uzh.ch](mailto:phdecology@ieu.uzh.ch)) directly for any questions, feedback, or suggestions.

With best regards,



Prof. Dr. Anna-Liisa Laine  
Program director



Dr. Debra Zuppinger-Dingley  
Program Manager



***Cover: Seasonality effects on wildlife populations.***

***Seasonality effects on wildlife populations across different data resolutions***

*Dilşad Dağtekin*

We all know the environment that species live in is affecting their demographic strategies and population responses. We see these effects through resources, disturbances, and inter- and intra-species interactions. Since most natural environments are seasonal, all these things can vary with seasonal cycles, and in turn change the population dynamics. Seasonality effects have been recognized for a long time in the population ecology field, yet not many studies take this into account because they collect data at annual steps which makes environmental parameters look constant within a year. However, not taking seasonality effects into account can cause biased estimation of population parameters. In addition, data collection at different resolutions, such as presence/absence (low resolution) or individual-based data (high resolution), can help researchers answer more detailed questions. With these in mind, in my PhD thesis I am checking seasonality effects on wildlife populations by using data from different species and different resolutions coming from two different systems. These are camera-trap data (presence/absence, low resolution) of 8 large-mammal species from north-western forests of Turkey and live-trapping data (individual-based, high resolution) of gray mouse lemurs (*Microcebus murinus*) from the Kirindy Forest in Madagascar. I am checking seasonality effects on a span of ecological questions from habitat-use patterns to survival and reproduction by using different population models within a Bayesian framework. By doing so, I am covering a span of species and systems and show that seasonality can affect them differently. I hope that my thesis will contribute to possible conservation actions and future studies for understanding of fundamental mechanism in population dynamics.

**SUBJECT- SPECIFIC MATTERS**

Department	Course	LH	ECTS
IEU	ECO 364 Ecological Theories 5	14	1
IEU	ECO 397 Cutting Edge Research Club	28	2

**METHODS**

Department	Course	LH	ECTS
IEU	ECO 353 Introduction to Structural Equation Modeling	14	1
PSC	Introduction to Machine Learning for Plant Scientists Block 1	14	1
PSC	Introduction to Machine Learning for Plant Scientists Block 2	28	2
IEU	UWW 250 Spatial Ecology and Remote Sensing	28	2
IEU	UWW 271 Contemporary Analysis for Ecology	56	4

**TRANSFERABLE SKILLS**

Department	Course	LH	ECTS
IEU	ECO 311 Writing a Scientific Manuscript	28	2

**RESEARCH SEMINARS**

Department	Seminar	LH	ECTS
EE	ECO 401 Presentation/Organization at Zurich Interaction Seminar (or equivalent)	-	1
IEU	BIO 605 Seminar for evolutionary biology and environmental studies	-	-
IEU	BIO 606 BEEES Seminar (Behaviour, Ecology, Environment and Evolution)	-	-

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IEU: Department of Evolutionary Biology and Environmental Studies

EM: Institute of Terrestrial Ecosystems, EE: Experimental Ecology

14 LH (lesson hours) = 1 ECTS = 30 hours of work (including preparation, participation, homework). ECTS credits are given according to the standards of European Credit Transfer System. BIO605 & BIO606 are not bookable and are recommended to be attended by all PhD students.

## 2. COURSE DESCRIPTION: SUBJECT-SPECIFIC MATTERS

<b>ECO 364</b>	<b>Ecological Theories 5</b>
Course tutors	Anita Narwani, Beat Frey, Gilda Varliero, Jukka Jokela, Felix Herzog, Janine Bolliger, Lukas Keller
Date / Time	12 -14 September 2023, 9:00 – 17:00
Place	University of Zurich.
Content	<p>This Ecological Theory course provides PhD students with the opportunity to interact with leaders in the field of ecology working in Zurich. The course supports the development of students in the interdisciplinary field of ecology and immerses them into active research areas. Students are given an overview of the development, and principles underpinning major ecological theories.</p> <p>The sessions introduce students to the interface between conceptual and experimental research and methods of testing for ecological theory. The topics are focused on active research lines conducted here in Zürich. Each morning and afternoon session focuses on different fields and approaches in ecology research. The session includes a lecture and breakout groups to provide the opportunity to convert this into practical application.</p>
ECTS credits	Active participation in the course is needed to obtain 1 ECTS credit.
<b>Registration</b>	<p>Module booking <a href="mailto:phdecology@ieu.uzh.ch">phdecology@ieu.uzh.ch</a>, include your Surname, Name, student number, email address, PhD program and your institution.</p> <p>Priority will be given to students registered in the PhD Program in Ecology; however other PhD students may attend if there are available places. Registration by 05 September 2023, cancellation by 12 August 2023.</p>

**ECO 397      Cutting Edge Research Club**

Date / Time	14 September, 16 November 2023, 18 January 2024 9:00 – 10:00 (Every two months, dates in 2024 to be announced)
Place	TBC.
Content	<p>Global change and biodiversity research is essential for improved conservation planning, policy, and management. We will reflect on recent published peer-reviewed journal articles fundamental to global change and biodiversity research.</p> <p>The aim of this club is to delve into cutting-edge research papers to develop new insights and understanding of the research to flesh out the student's knowledge in many areas of global change and biodiversity research. Students will critically examine how collaboration may increase the interdisciplinarity and transdisciplinarity needed to bridge the gaps between research disciplines within global change and biodiversity research.</p>
ECTS credits	<p>Each student, individually or in pairs, presents two seminars including a summary and prepared discussion questions. The summary should include brief descriptions of:</p> <ul style="list-style-type: none"><li>- background of the presenter's research and its relevance to global change and biodiversity,</li><li>- aims of the research in the paper,</li><li>- methods used in the paper,</li><li>- key results in the paper,</li><li>- a discussion of most important conclusions and implications for the research in the paper.</li></ul> <p>Attendance of 12 meetings is required for 2 credit points (equal to 60 study hours).</p> <p>Active participation throughout the course.</p>
<b>Registration</b>	<p>Module booking <a href="mailto:phdecology@ieu.uzh.ch">phdecology@ieu.uzh.ch</a>, include your Surname, Name, student number, email address, PhD program and your institution. Priority will be given to students registered in the PhD Program in Ecology, and the University Priority Program in Global Change and Biology however other PhD students may attend if there are available places. Registration by 10 September 2023, cancellation by 15 August 2023.</p>

## COURSE DESCRIPTION: METHODS

ECO 353	Introduction to Structural Equation Modeling
Course tutor	Dr. Frank Pennekamp
Date / Time	16-18 January 2024, 9.00-17.00
Place	TBA
Content	<p>Structural equation models are increasingly used in ecology and evolution to disentangle the complex direct and indirect interactions that occur in nature. This course is an introduction to structural equation modeling (SEM) aimed at biologists who want to answer questions in observational and experimental settings.</p> <p>Day 1: Introduction to SEM (philosophy of SEM, comparison with linear/multiple regression, history, assumptions/limitations), introduction to the teaching dataset, fitting your first SEM (model checking and interpretation)</p> <p>Day 2: Further worked examples with teaching dataset, model comparison, evaluation (GOF etc.), interpretation and pruning, visualization of SEMs.</p> <p>Day 3: Self-study with opportunities provided to consult with lecturers. Students will have the opportunity work on datasets and their own data.</p> <p>Dr. James Grace will be available for group/one-on-one meetings in the afternoon.</p> <p>At the end of the course, participants are able to 1) fit a SEM model to data, 2) assess the model fit, 3) interpret the fitted model, 4) visualize the fitted model and 5) report the model such that others can evaluate the evidence in support of the model.</p>
ECTS credits	Active participation in the course is needed to obtain 1 ECTS credit points.
<b>Registration</b>	<p>Module booking <a href="mailto:phdecology@ieu.uzh.ch">phdecology@ieu.uzh.ch</a>, include your Surname, Name, student number, email address, PhD program and your institution. Registration until 01 November 2023, cancellations until 07 October 2023</p> <p>Priority will be given to students registered in the PhD Program in Ecology; however other PhD students may attend if there are available places.</p>

<b>PSC course</b>	<b>Introduction to Machine Learning in Plant Sciences Block1</b>
Course tutor	Prof. Dr. Jan Dirk Wegner (UZH)
Date / Time	20 -22 November, 2023, 9:00 – 18:00
Place	TBA
Content	<p>Course Description This course will introduce machine learning with emphasis on plant sciences. In Module 1 we will discuss topics like data pre-processing, feature extraction, clustering, regression, and classification. Both modules consist of 50% lectures and 50% hands-on programming in python, where students will directly implement learned theory as a software to help solving problems in plant sciences.</p> <p>Course Program / Learning Objectives Students with a non-technical background will be introduced to machine learning. Emphasis is on hands-on programming and implementation of basic machine learning concepts to demystify the subject, equip participants with all necessary insights and tools to develop their own solutions, and to come up with original ideas for problems related to the context of plant sciences. Specific importance is placed upon the reconciliation of the predictions, which have been generated by automated processes, with the realities. By the end of the course, students will be able to decide where (and where not) to use machine learning, what method to choose for what research task, and how to critically evaluate model outputs in the context of plant sciences.</p> <p>Prior Knowledge: Students should bring their laptops to the exercises because we will program on laptops directly. It is required that students enrolling in this course have successfully passed a course in basic data science and are familiar with programming (preferably in Python). Teaching assistants will help with all programming exercises.</p>
ECTS credits	Participation in Module 1 yields 1 ECTS. Special Note: Module 1 is a prerequisite for taking Module 2. To attend Module 2, please register separately in “Introduction to Machine Learning in Plant Sciences Module 2”
<b>Registration</b>	<p>Module booking through registration for PSC Courses. PSC course registration is located within the ETH Zurich course registration system:  <a href="https://ethz.ch">https://ethz.ch</a>  Footer at the bottom of the website: Staffnet - More services - Courses, continuing education.  Direct link: <a href="https://ethz.ch/staffnet/en/service/courses-continuing-education/details.90660.html">https://ethz.ch/staffnet/en/service/courses-continuing-education/details.90660.html</a>  Select Plant Sciences/Ecology  Registration usually opens on 1 July.</p>

<b>PSC course</b>	<b>Introduction to Machine Learning in Plant Sciences Block 2</b>
Course tutor	Prof. Dr. Jan Dirk Wegner (UZH)
Date / Time	3.11; 24.11; 13.12.2023, 9:00 – 18:00
Place	TBA
Content	<p>Course Description: In Module 2, we will take first steps towards modern deep learning. Module 2 also includes homework that has to be submitted. In addition, a discussion round will allow to give feedback to the individual assignments and student`s own data processing pipeline for module 2 on 13th December.</p> <p>Course Program / Learning Objectives Students with a non-technical background will be introduced to machine learning. Emphasis is on hands-on programming and implementation of basic machine learning concepts to demystify the subject, equip participants with all necessary insights and tools to develop their own solutions, and to come up with original ideas for problems related to the context of plant sciences. Specific importance is placed upon the reconciliation of the predictions, which have been generated by automated processes, with the realities. By the end of the course, students will be able to decide where (and where not) to use machine learning, what method to choose for what research task, and how to critically evaluate model outputs in the context of plant sciences.</p> <p>Prior Knowledge: Students should bring their laptops to the exercises because we will program on laptops directly. It is required that students enrolling in this course have successfully passed a course in basic data science and are familiar with programming (preferably in Python). Teaching assistants will help with all programming exercises.</p>
ECTS credits	Participation Module 2 and successful fulfilment of the homework assignments yields. 2 ECTS. Special Note: Module 1 is a prerequisite for taking Module 2. To attend Module 2, please register separately in “Introduction to Machine Learning in Plant Sciences Module 2”
<b>Registration</b>	<p>Module booking through registration for PSC Courses. PSC course registration is located within the ETH Zurich course registration system:  <a href="https://ethz.ch">https://ethz.ch</a>  Footer at the bottom of the website: Staffnet - More services - Courses, continuing education.  Direct link: <a href="https://ethz.ch/staffnet/en/service/courses-continuing-education/details.9066o.html">https://ethz.ch/staffnet/en/service/courses-continuing-education/details.9066o.html</a>  Select Plant Sciences/Ecology  Registration usually opens on 1 July.</p>

**UWW 250****Spatial Ecology and Remote Sensing**

Course tutor	Prof. Gabriela Schaepman-Strub
Date / Time	Tue, 07.11.2023 14:00 - 18:00, Wed, 08.11.2023 08:00 - 17:00, Thu, 09.11.2023 08:00 - 17:00, Fri, 10.11.2023 08:00 - 17:00, Tue, 14.11.2023 14:00 - 18:00, Wed, 15.11.2023 08:00 - 17:00, Thu, 16.11.2023 08:00 - 17:00, Fri, 16.11.2023 08:00 - 17:00
Place	TBA
Content	<p>This course is an introduction to scientific concepts and methods in spatial ecology. Spatial ecological patterns and processes are discussed and methods to assess and analyze spatial relations are introduced. The course has a focus on satellite-derived environmental and ecosystems data and their spatial analysis with respect to vegetation distribution and activity, and animal movement.</p> <p>The course includes lectures, hands-on computer labs, and a literature study relating to the theory. The lectures introduce the spatial component of ecological questions and methods to assess spatial patterns and relationships with processes. During computer labs, the students will run exercises to introduce them to ArcGIS and get first skills in handling spatial data (including remote sensing data) and analyses.</p> <p>Towards the end of the course, students do their own project based on their own or provided scientific data sets. The aim of the course is to develop knowledge and spatial analytical and mapping skills that can be applied in the master or PhD thesis to solve ecological questions and present results meaningfully.</p>
ECTS credits	Active participation in the course is needed to obtain 2 ECTS credit points.
<b>Registration</b>	Please register online at <a href="#">UZH</a>

**UWW 271**      **Contemporary Analysis for Ecology**

Course tutor	Prof. Pascal Niklaus
Date / Time	18.09.2023 - 18.12.2023, Mon 13:00-14:45, Tuesday 13:00-14:45
Place	TBA
Content	<p>This course introduces data analysis and the design of experiments. The main focus is on the analysis of data from designed experiments using linear model and analysis of variance. Although the statistical software "R" will be used, the emphasis is on principles of data analysis and the interpretation of results. No introduction to R will be provided.</p> <p>Course participants can bring their own laptop (PC or Mac) if they prefer, after downloading R from: <a href="http://stat.ethz.ch/CRAN/">http://stat.ethz.ch/CRAN/</a></p>
ECTS credits	4 ECTS, Exam
<b>Registration</b>	Please register online at <a href="#">UZH</a>

## TRANSFERABLE SKILLS

### ECO 311 Writing a Scientific Manuscript

Course tutor Dr Michael O'Brien

Date / Time 04.12.2023 - 08.12.2023, 09:00-17:00

Place TBA

Content This course will give an overview of the structure and style of a scientific manuscript and provide a process for how to construct a manuscript for submission to a scientific journal. I will provide examples of different approaches to the writing process and common tips, tricks and pitfalls along the way. We will work step-by-step through the process of writing the sections of a scientific manuscript.

We will start each session with a lecture on aspects of writing a manuscript covering the language and structural components of each section including methods, results, introduction, discussion, abstract, cover letters and responding to reviewers. Practical work will be to draft your own manuscript for submission to a peer-reviewed journal.

These writing workshop sessions will include drafting sections, reviewing the manuscripts of others and writing a cover letter to the editor of the journal. Therefore, daily contributions of written material are expected, writing is an intense working process.

Day 1 - General approach and structure

- How to revise
- Methods & Results section
- The importance of graphics

Methods & Results section

Day 2 - Review Methods & Results

- Introduction

Introduction section

Day 3 - Review Introduction

- Discussion (key points, conclusions, structure and subheadings)

Discussion section

Day 4 - Review Discussion

- Abstracts, Titles, Keywords

Open writing all sections

Day 5 - Cover letters

- Submission
- Responding to reviewers
- Grant writing

Open writing all sections

Learning Outcome

By the end of this course, you should feel confident with preparing a scientific manuscript while gaining techniques to increase the impact of your work. I emphasize that you will learn to explain your work and

conclusions to a distant third person named: "The Reader". In addition, the course will help you become more comfortable with the submission and review process, which is a predominant part of publishing scientific research. The overall output of the course is to have a completed a draft manuscript for submission to a peer-reviewed journal.

#### Prior Knowledge

You must have at least have preliminary results including figures that can form the foundation of your manuscript. However, ideally, everyone will have a rough draft or outline as well.

ECTS credits

Active participation in the course is needed to obtain 2 ECTS credit points.

#### Registration

Module booking [phdecology@ieu.uzh.ch](mailto:phdecology@ieu.uzh.ch), include your Surname, Name, student number, email address, PhD program and your institution.

Priority will be given to students registered in the PhD Program in Ecology; however other PhD students may attend if there are available places. Bookings until 01 December 2023, cancellations until 04 November 2023.

## RESEARCH SEMINARS

<b>ECO 401</b>	<b>Zurich Interaction Seminar Experimental Ecology: Population Biology and Genetics</b>
Organization	The seminar is organized by students from the participating universities, usually from the <a href="#">Institute of Integrative Biology</a> at ETH Zurich and the <a href="#">Institute of Evolutionary Biology and Environmental Studies</a> at the University of Zurich. For the current organizers see <a href="#">here</a> .
Duration and time	Every second week, start on 26.9.2023 to 30.01.2021. For details and an overview of the running program see: <a href="http://www.tb.ethz.ch/education/zis.html">http://www.tb.ethz.ch/education/zis.html</a>
Place	ETH Zentrum CHN building room P12.
Content	PhD students will receive a credit point for active participation (including a talk) at the Zurich Interaction Seminar or an equivalent series. A credit points will also be given to students who organize a seminar series or a conference themselves.
ECTS credits	1
<b>Registration</b>	ETH students register at <a href="#">myStudies</a> for the course <i>Experimental Ecology: Population Biology and Genetics</i> , number <a href="#">551-0740-00L</a> . UZH students: ZIS is officially registered in the <a href="#">PhD program in Ecology</a> under the name of <a href="#">ECO401</a> .

**SEBES  
BIO 605**

**Seminar for Evolutionary Biology and Environmental Studies**

Organization	Department of Evolutionary Biology and Environmental Studies, University of Zurich, Winterthurerstrasse 190, CH-8057 Zurich
Duration and time	Every Tuesday from 16:15–18:00
Place	University of Zurich Irchel, room TBA
Content	- For an overview of the running program visit: <a href="http://www.ieu.uzh.ch/seminars.html">http://www.ieu.uzh.ch/seminars.html</a>  - Attending the SEBES is strongly recommended for all students of the PhD Program in Ecology. For information about speaker invitations contact Maja Weilenmann.
ECTS credits	None
Information	M. Weilenmann ( <a href="mailto:maja.weilenmann@ieu.uzh.ch">maja.weilenmann@ieu.uzh.ch</a> )
<b>Registration</b>	No booking is required

**BEEES  
BIO 606**

**Behavior, Ecology, Environment and Evolution Seminar**

Organization	Department of Evolutionary Biology and Environmental Studies, University of Zurich, Winterthurerstrasse 190, CH-8057 Zurich
Duration and time	Every Thursday from 12:15–13:45
Place	University of Zurich Irchel, room TBA
Content	For an overview of the running program visit: <a href="http://www.ieu.uzh.ch/seminars.html">http://www.ieu.uzh.ch/seminars.html</a>  Attending the BEEES is recommended for all students of the PhD Program in Ecology. For information about speaker invitations contact Maja Weilenmann.
ECTS credits	None
Information	M. Weilenmann ( <a href="mailto:maja.weilenmann@ieu.uzh.ch">maja.weilenmann@ieu.uzh.ch</a> )
<b>Registration</b>	No booking is required

### 3. USEFUL LINKS

Useful links	A selection of links that offer additional information about your PhD and cross institutional courses that are offered at University of Zurich and ETHZ: <a href="http://www.ieu.uzh.ch/teaching/phd/graduate/links.html">http://www.ieu.uzh.ch/teaching/phd/graduate/links.html</a>
PhD program in Ecology	<a href="http://www.ieu.uzh.ch/en/teaching/phd/graduate.html">http://www.ieu.uzh.ch/en/teaching/phd/graduate.html</a>
Other courses	
LSZGS	The LSZGS offers a variety of inter-disciplinary or soft skill courses. Students may attend these courses without cost. For more information and for registration visit the website: <a href="http://www.lifescience-graduateschool.ch/index.php?id=96">http://www.lifescience-graduateschool.ch/index.php?id=96</a>
GRC	The GRC offers a variety of transferable skills courses. Students may attend many of these courses without cost. For more information and for registration visit the website: <a href="https://www.ueberfachliche-kompetenzen.uzh.ch/en.html">https://www.ueberfachliche-kompetenzen.uzh.ch/en.html</a>
ZGSM	Courses of the Zurich Graduate School in Mathematics can be attended for free (excluding courses where additional payments to all participants apply). For more information, visit: <a href="http://www.zurich-graduate-school-math.ch">http://www.zurich-graduate-school-math.ch</a>
PhD Programs	Courses of all LSZGS PhD programs, such the partner programs Plant Science Centre and Evolutionary Biology. Students are free to take courses of other programs; however, the number of participants might be limited and availability based on priority given to own members. Plant Science Centre: <a href="http://www.plantsciences.ch/education/graduate_study/courses_ps">http://www.plantsciences.ch/education/graduate_study/courses_ps</a>
UZH/ETHZ	Students can take courses offered by their respective host institution where they are matriculated, for example the Graduate Campus UZH offers transferable skills for PhD candidates: <a href="http://www.ueberfachliche-kompetenzen.uzh.ch/phd_en.html">http://www.ueberfachliche-kompetenzen.uzh.ch/phd_en.html</a> , or the courses offered by ETHZ on teaching skills: <a href="http://www.usys.ethz.ch/education/doctorate/index_EN">http://www.usys.ethz.ch/education/doctorate/index_EN</a>
External courses	Courses from external institutions can be attended in agreement with the thesis committee and the program coordinator.

### 4. REGULATIONS OF THE PHD PROGRAM IN ECOLOGY

#### 4.1 GENERAL INFORMATION

### *Mission Statement*

The aim of the PhD Program in Ecology is to enhance the research competence of PhD students in the interdisciplinary field of ecology, and to support the education of transferable skills for a future career within or outside an academic institution.

### *Organization*

The program is governed by the program director and the associated research groups, and is organized by the program coordinator. The associated research groups are experts in the field from the University of Zürich (UZH), the Swiss Federal Institute of Technology Zürich (ETH) and the affiliated organizations Eawag, Agroscope and WSL.

### *Certificate*

PhD students of UZH and ETH participate during 4 years in the program. In addition to the UZH or ETH diploma, the student will receive a certificate stating the successful participation in the PhD Program in Ecology. At UZH the certificate is needed to register for the thesis defense.

### *Further information*

All documents, including the semester course program are available on the homepage: <http://www.phd-ecology.uzh.ch/>

## **4.2 ACCEPTANCE**

### *Application*

Candidates apply directly through the homepage of the Life Science Zurich Graduate School (LSZGS: <http://www.lszgs.ch/>) for admission to the PhD Program in Ecology (track 1). The official LSZGS interviews are organized in February and September, calendar week 6 and 36. Applications outside the official interviews (track 2) are possible if a student is employed in a PhD position. Please contact the coordinator of the PhD Program in Ecology [phdecology@ieu.uzh.ch](mailto:phdecology@ieu.uzh.ch).

### *Acceptance interview*

Acceptance to the program is granted based on an interview. The interview includes a presentation by the candidate, followed by questions on the candidates scientific competences. At least three official representatives of the PhD Program in Ecology are present. A protocol of the interview will be signed by all members of the acceptance committee. The following requirements will be tested:

- training in Ecology / Environmental Sciences (equivalent to 10 ECTS) and in Mathematics (incl. Statistics) / Physics (together equal to 6 ECTS);
- evidence of excellent communication skills in English during the interview

Acceptance form: [http://www.phd-program.org/Documents\\_Ecology.zip](http://www.phd-program.org/Documents_Ecology.zip)

### *Fast track*

Fast track candidates of the Specialized MSc Environmental Sciences can enter the PhD Program in Ecology directly through a combined acceptance interview.

### *Admission*

Candidates are required to have a Master's degree or equivalent when they start their PhD. All candidates have to apply for admission and matriculation at the University of Zurich or ETH Zurich and fulfil the requirements of the respective host institution. A detailed description of the application and admission procedures can be found on the following web pages:

UZH: <http://www.mnf.uzh.ch/en/studies/students/doctoral-studies-at-mnf.html>

ETH: [http://www.rektorat.ethz.ch/doctorate/application/index\\_EN](http://www.rektorat.ethz.ch/doctorate/application/index_EN)

PhD students who successfully passed the acceptance interview have to submit their registration form to the program coordinator: [phdecology@ieu.uzh.ch](mailto:phdecology@ieu.uzh.ch)

## **4.3 THESIS COMMITTEE**

### *Formation of thesis committee*

The thesis committee ensures that PhD students receive the best possible supervision during the PhD and a mentoring for the academic or non-academic career beyond the PhD. It supports the PhD student with expertise and advice throughout the thesis work. In case of emerging problems that cannot be sorted out directly by a meeting between the student and the supervisor, the thesis committee members and/or the program manager should act as go-betweens. The members of the thesis committee are selected jointly by the thesis supervisor and the student at the start of the PhD, but not later than 6 months after the official date of employment. The thesis committee consists of 3-4 persons:

- The direct thesis supervisor (must be a member of the PhD Program in Ecology)
- The official thesis supervisor (must be a member of the Science Faculty (MNF) of the UZH or of D-BIOL / D-USYS of the ETHZ, or have Promotionsrecht).  
This function is not required if the direct supervisor satisfies these criteria
- At least one additional member of the MNF UZH / D-BIOL ETH / D-USYS ETH (or a person with Promotionsrecht)
- At least one external member who has the right to supervise PhD students at his/her home institution

The committee selects a chairperson for the thesis committee meeting, who must not be the PhD student's supervisor. The chairperson checks that all committee members received the student reports and that both—the PhD student and the supervisor—have the opportunity to talk to the committee in absence of the other party.

### *Thesis committee meeting*

At least once a year the PhD student organizes a meeting with the thesis committee. The PhD student distributes the relevant documents before the meeting to all members. The results of the meeting will be protocolled and signed by the committee members. After the thesis committee meeting, the PhD student

submits the thesis meeting report to the coordinator of the PhD Program in Ecology.

Thesis Meeting Report: [http://www.phd-program.org/Documents\\_Ecology.zip](http://www.phd-program.org/Documents_Ecology.zip)

The following time-plan should be followed:

- The first meeting takes place 3–6 months after the official start to discuss the research plan and to sign the doctoral agreement.

#### *Research plan*

Prior to the first meeting, the PhD student has to submit to all committee members and to the program coordinator a research proposal of ~2000 words (excluding references) describing his/her proposed project. The research proposal should be written in the form of a grant application and include:

- title or working title of the dissertation;
- a description of the research project, including the background of the research field, preliminary results, planned experiments, potential pitfalls and solutions;
- a timeline of the thesis, including mile-stones and a roadmap.

In case of unsatisfactory performance, the PhD student can repeat the proposal defense within three months. Should the PhD student fail a second time, he/she will be expelled from the program. The accepted proposal should be signed by the thesis committee at the end of the first meeting and the original submitted together with the Doctoral Agreement to the coordinator of the PhD Program in Ecology.

#### *Doctoral agreement*

The doctoral agreement outlines the expectations from the student and the thesis committee at the start of the PhD. The form should be filled out and signed at the first thesis committee meeting and should be submitted together with the research plan to the coordinator of the PhD Program in Ecology. The information should be updated in the subsequent meetings and any changes have to be communicated to the manager of the PhD Program in Ecology. The following points should be addressed in the doctoral agreement:

- Members of the thesis committee
- Curriculum, including planned internal and external lectures, seminars and courses
- Contribution to teaching (see below)

Doctoral agreement:

<http://www.ieu.uzh.ch/en/teaching/phd/graduate/links.html>

- Second meeting after 18 months and third meeting after 30 months to present results and evidence of progress. For all subsequent meetings, the PhD student

has to submit to the committee members and to the program coordinator a progress report (up to 1000 words) two weeks before the meeting. The progress report can be substituted by a manuscript, provided that the PhD student's contribution is significant and clearly identifiable.

- Final meeting 6 months before registration for the exam.

#### 4.4 CURRICULUM

##### *Structure*

PhD students attend program courses for a minimum of 12 ECTS credit points during their PhD; these are subdivided into four categories (see table below). The internal courses are communicated to all members of the program before semester start and they are listed in the UZH online semester plan

“Vorlesungsverzeichnis”: <http://www.vorlesungen.uzh.ch>

PhD students at ETH and other Swiss universities have to first register as “Gaststudent” at UZH to book courses directly, or alternatively contact the program coordinator until the registration is approved. Registration as “Gaststudent” at UZH:

[http://www.uzh.ch/studies/application/mobilitaet/applyhsudoktorat\\_en.html](http://www.uzh.ch/studies/application/mobilitaet/applyhsudoktorat_en.html)

Registered PhD students from all Swiss universities can book courses through the “Modulbuchung” at UZH and the earned ECTS will be automatically accredited to the “Leistungsausweis” at their home university. Registration for courses through “Modulbuchung” at UZH: [http://www.students.uzh.ch/booking\\_en.html](http://www.students.uzh.ch/booking_en.html)

##### *Scientific Integrity Course:*

The Scientific Integrity course is compulsory for all Life Science Zurich Graduate PhD students. The course must be completed in the first year of their PhD. This regulation is in effect from 1 February 2016.

Internal courses, seminars and lectures of the four categories can be complemented with courses from the LSZGS graduate school, partner PhD programs and the UZH or ETH. In agreement with the program coordinator and the thesis committee PhD students can also attend external courses. PhD students must collect a certificate for courses that are not booked through the institutional systems of UZH (Modulbuchung: see above) or ETH (myStudies) and get them accredited to their student account by the respective faculty (UZH) or department (ETH). In case of doubt the thesis committee will decide about the accountability and allocation of ECTS credits. One ECTS corresponds to a total work load of 30 hours (incl. preparation and homework). Oral/poster contributions can be each accredited with one ECTS and need to be certified by the PhD supervisor.

Categories	ECTS
Subject-specific matters (incl. special lectures)	3
Methods	3
Transferable skills	3
Research seminars (incl. oral/poster contributions)	2
Free choice	1
Total	(min. 12)

Additional courses the program accepts:

– Graduate School courses

The LSZGS offers a variety of interdisciplinary and soft-skill courses. Students may attend these courses for free. For more information and for registration visit the website: <http://www.lifescience-graduateschool.ch/index.php?id=96>. Courses of the Zurich Graduate School in Mathematics can be attended for free (excluding courses where additional payments to all participants apply). For more information visit: <http://www.zurich-graduate-school-math.ch>

– Courses of all LSZGS PhD programs, such as the partner programs Plant Science Centre and Evolutionary Biology. Students are free to take courses of other programs; however, the number of participants might be limited and availability based on priority given to own members.

– Courses offered by UZH/ETH

Students can take courses offered by their respective host institution where they are matriculated, for example, the Graduate Campus UZH offers transferable skills for PhD candidates: [http://www.ueberfachliche-kompetenzen.uzh.ch/phd\\_en.html](http://www.ueberfachliche-kompetenzen.uzh.ch/phd_en.html), or the courses offered by ETH on teaching skills: [http://www.usys.ethz.ch/education/doctorate/index\\_EN](http://www.usys.ethz.ch/education/doctorate/index_EN)

– Courses from external institutions

In agreement with the thesis committee and the program coordinator.

### *Teaching hours*

The PhD student and the supervisor list the planned teaching hours in the doctoral agreement. PhD students at MNF UZH have to report planned and absolved teaching hours to the “Fachbereich Biologie / Geowissenschaften”. Teaching hours include the support of lectures on the Bachelor/Master level, exam supervision and correction, and others. Teaching at the Science Education Center (within the disciplines of life science, mathematics, physics, chemistry, geography and biology) can be accredited as teaching hours. Total hours is between 100-420 hours.

Teaching hours form: <http://www.biologie.uzh.ch/Studium/Doktorat.html>

### *Certificate*

In addition to the UZH/ETH Diploma, the PhD student receives a certificate from

the PhD Program in Ecology stating the successful participation in the program. The program director and manager will sign the certificate.

#### **4.5 THESIS DEFENSE**

##### *Registration*

The PhD student has to submit and defend a thesis describing his/her original research carried out during the course of the PhD studies. The thesis defense complies with the rules of the host institution:

- UZH <http://www.mnf.uzh.ch/en/studies/regulations-information-sheets/doctoral-studies.html>
- ETH [http://www.rektorat.ethz.ch/doctorate/admin/doc\\_exam/index\\_EN](http://www.rektorat.ethz.ch/doctorate/admin/doc_exam/index_EN)

The thesis committee decides whether the PhD student has passed or not. In exceptional cases, the committee can recommend the students for distinction to the UZH/ETH. This recommendation has to be accompanied by two letters of reference from external reviewers. Distinction is intended for top ~5% of PhD students. The final degree is conferred by either the UZH or the ETH, depending on the academic affiliation of the research group.

The date and title of the defense must be communicated to the program coordinator no later than one week in advance.

##### *Data backup*

Together with the registration for the doctoral examination the PhD student has to hand over the thesis and the complete data used to produce the thesis, including meta information and where necessary analysis scripts, on a data storage medium to the coordinator of the PhD Program in Ecology.

## 4.6 PRESENTATIONS AND PUBLICATIONS

For any oral/poster presentation, it is recommended to use this logo.

<http://www.ieu.uzh.ch/en/teaching/phd/graduate/links.html>

### *Confidentiality*

The exchange of scientific data and unpublished results is fundamental for the PhD Program in Ecology. Such information is strictly confidential and should not be shared prior to publication by any of its members. The protection of intellectual property as outlined by the associated institutions needs to be assured.