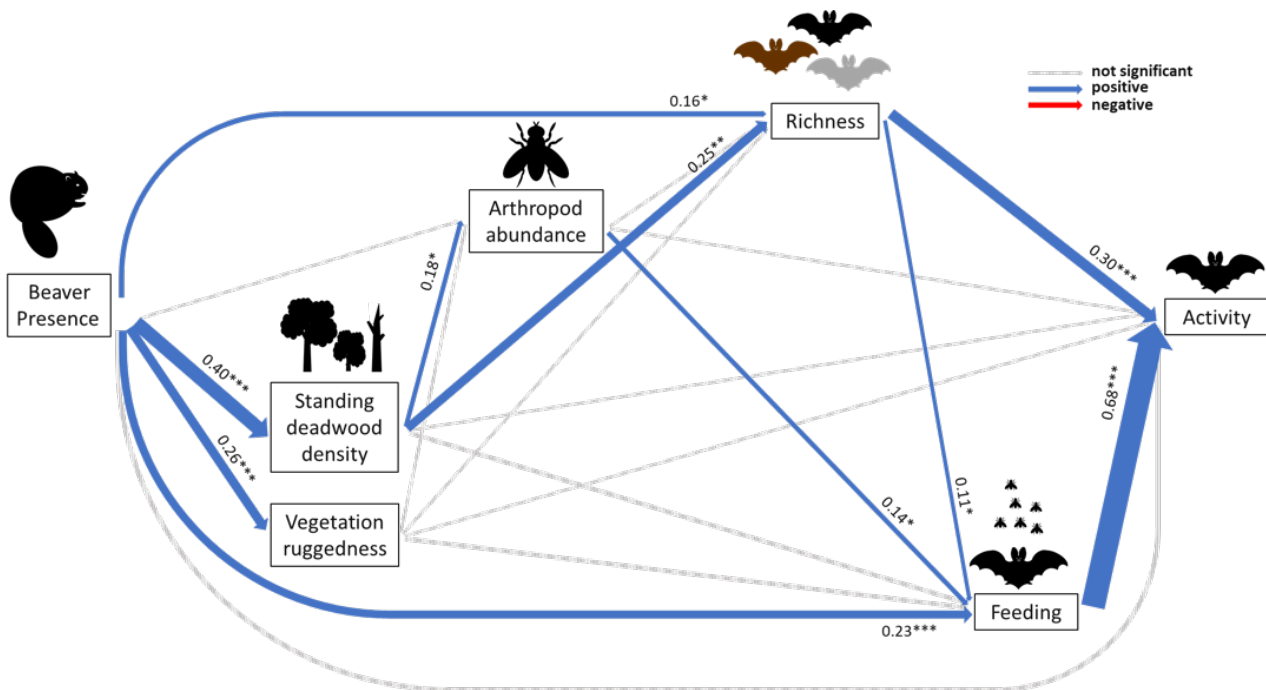




COURSE PROGRAM FALL TERM 2024



Beavers influencing bat presence. Beaver influence bat activity directly and indirectly through the change of the environment, leading to an increased habitat heterogeneity and changed arthropod community.

©Valentin Moser

"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; **Lukas Bierhoff, Thea Bulas, Red Calore, Nalonda Chatterjee, Sebastian Ruile** who recently joined our PhD program.

Congratulations to **Benedetta Catitti, Giorgia Camperio Ciani, Dilşad Dağtekin, Antonia Ettwein, Natalia Gourgoulianni, Tanja Graf-Sostizzo, Thais Guillen, Maija Jokinen, Sara Meier, Fernando Pedraza Pérez, Philippe Tschanz** who successfully defended their PhD theses.

Thank you to **Valentin Moser** for our cover image.

We are excited to introduce the new course program. We are now in the seventh 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 courses.

We continuously update our list of offered courses and **call students and PI's for suggestions for special cutting-edge course topics for Spring 2025.**

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 December 2024 and July 2025.

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

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

With best regards,



Prof. Dr Jordi Bascompte
Program director



Dr Debra Zuppinger-Dingley
Program Manager



Cover: Beavers influencing bat presence. Beaver influence bat activity directly and indirectly through the change of the environment, leading to an increased habitat heterogeneity and changed arthropod community. © Valentin Moser

The impact of beavers on blue-green ecosystems

Valentin Moser

As ecosystem engineers, beavers (*Castor fiber*) modify aquatic (blue) and terrestrial (green) ecosystems through building dams and felling trees. The resulting elevated water level and open canopy can benefit different species groups and communities. However, compared to aquatic taxa, the impacts of beaver-engineering on terrestrial taxa and across the blue-green gradient are poorly understood. In my PhD, we sampled biodiversity together with ecosystem properties like soil and water chemistry, as well as ecosystem functions like decomposition rates in 16 systems across Switzerland to better understand how beavers change ecosystems. For bats, our results show correlations between beaver activities and a higher bat presence in these systems. Beaver engineering changes habitat heterogeneity and arthropod abundance, correlated with higher bat species richness, bat activity, and feeding activity. The volume of standing deadwood, a critical resource for bat roosting and foraging, had the strongest correlations with bat presence. Our findings suggest that beavers create heterogeneous landscapes that offer highly diverse ecological niches. By creating environments rich in resources and complexity, beavers may act as natural restoration agents, supporting diverse populations of bats and other species groups. Our results could underscore the importance of integrating beaver management into conservation strategies to restore and enhance aquatic and riparian ecosystems.

SUBJECT- SPECIFIC MATTERS

Department	Course	LH	ECTS
IEU	ECO 364 Ecological Theories 7	14	1
IEU	ECO 380 Effective Science-Policy Collaboration in Biodiversity Management	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
PSC	Compositional Data Analysis	14	1
IEU	EEE 334 Biodiversity from Species to Landscape Scale – Concepts and Methods in Spatial Ecology and Remote Sensing	28	2
IEU	EEE 352 Contemporary Analysis for Ecology	56	4

TRANSFERABLE SKILLS

Department	Course	LH	ECTS
LSZGS	Transferable and Methodological Skills Courses	-	-

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)	-	-

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

ECO 367	Ecological Theories 7
Course tutors	Rodrigo Cámara-Leret, Frank Pennekamp, Piet Spaak, Marcel van der Heijden, Niels Verhulst, Blake Matthews
Date / Time	10 -13 September 2024, 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.
Registration	<p>Module booking phdecology@ieu.uzh.ch, 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 01 September 2024, cancellation by 10 August 2024.</p>

ECO 380 Effective Science-Policy Collaboration in Biodiversity Management

Course tutors External and Internal lecturers

Date / Time 20 - 21 November 2024 – 8:30 -17:00

Place Dübendorf, Empa-Eawag Campus, FLUX Building F Floor.

Content The main objective of this workshop is to increase participants awareness of how science-policy engagement for biodiversity management functions at the global, national, cantonal, and municipal level. Participants will be introduced to some of the challenges at the science-policy interface and how to deal with them. Participants will learn from practitioners how a science-policy-interface needs to be managed to be policy relevant. Participants will be able to:

- identify different stakeholders at the Science-Policy Interface for Biodiversity (local, regional, national, and international)
- learn about different formats and levels of engagement at the Science-Policy Interface
- understand the terminologies used during the workshop (stakeholders, policy makers, Science-Policy Interface, Science-Policy Engagement, citizens)
- identify some of the main challenges and strategies at the Science-Policy Dialogue
- create a draft Science-Policy Engagement Plan of their respective project (linking theory to practice and pre-assessment comparison).

ECTS credits Active participation in the course is needed to obtain 1 ECTS credit.

Registration Applications can be made here. Please include your PhD program and your student number, and your host institution. If you have any questions please contact, Debra Zuppinger-Dingley (phdecology@ieu.uzh.ch) and Dechen Lham (dechen.lham@eawag.ch(. Registration by 31 July 2024, cancellation by 10 August 2024.

ECO 397	Cutting Edge Research Club
Date / Time	19 September, 17 October, 221 November, 05 December 2024, 21 January 2025 9:00 – 10:00
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"> - background of the presenter’s research and its relevance to global change and biodiversity, - aims of the research in the paper, - methods used in the paper, - key results in the paper, - a discussion of most important conclusions and implications for the research in the paper. <p>Attendance of 12 meetings is required for 2 credit points (equal to 60 study hours).</p> <p>Active participation throughout the course.</p>
Registration	<p>Module booking 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, 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 2024, cancellation by 19 August 2024.</p>

COURSE DESCRIPTION: METHODS

ECO 353	Introduction to Structural Equation Modeling
Course tutor	Dr. Frank Pennekamp
Date / Time	05 - 07 November 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.
Registration	<p>Module booking phdecology@ieu.uzh.ch, include your Surname, Name, student number, email address, PhD program and your institution. Registration until 01 November 2024, cancellations until 04 October 2024.</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>

PSC course	Introduction to Machine Learning in Plant Sciences Block1
Course tutor	Prof. Dr. Jan Dirk Wegner (ETHZ)
Date / Time	20 - 22 November 2024, 9:30 – 16:30
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”
Registration	<p>Module booking through registration for PSC Courses. PSC course registration is located within the ETH Zurich course registration system: https://ethz.ch Footer at the bottom of the website: Staffnet - More services - Courses, continuing education. Direct link: https://ethz.ch/staffnet/en/service/courses-continuing-education/details.9066o.html Select Plant Sciences/Ecology Registration usually opens on 1 July.</p>

PSC course	Introduction to Machine Learning in Plant Sciences Block 2
Course tutor	Prof. Dr. Jan Dirk Wegner (ETHZ)
Date / Time	25 – 11 November 2024, 9:30 – 16:30
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 fulfillment 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"
Registration	<p>Module booking through registration for PSC Courses. PSC course registration is located within the ETH Zurich course registration system: https://ethz.ch Footer at the bottom of the website: Staffnet - More services - Courses, continuing education. Direct link: https://ethz.ch/staffnet/en/service/courses-continuing-education/details.90660.html Select Plant Sciences/Ecology Registration usually opens on 1 July.</p>

PSC course	Compositional Data Analysis
Course tutor	Prof. Dr. Matthias Templ, FHNW School of Economics
Date / Time	13-15 January 2025, 9:00 – 17:00
Place	TBA
Content	<p>Course Description: Compositional data analysis is a methodology used to describe the parts/compounds of a whole, conveying relative information. Typical examples in different fields are: geology (geochemical elements), medicine (body composition: fat, bone, lean), food industry (food composition: fat, sugar, etc.), chemistry (chemical composition), ecology (abundance of different species), agriculture (nutrient balance ionomics), environmental sciences (soil contamination), plant science (water, carbon and nitrogen content, composition of soil or microbial communities, species composition) and genetics (genotype frequency). This type of data appears in most applications, and the interest and importance of consistent statistical methods cannot be underestimated. Compositional data analysis is the solution to the problem of how to perform a proper statistical analysis of this type of data i.e., to solve the problem of spurious correlation as it was named by Karl Pearson. This course will provide an overview of compositional data analysis, drawing on the fundamental concepts from the referenced book (https://doi.org/10.1007/978-3-319-96422-5), but will tailor the complexity to suit applications in plant sciences, offering a more accessible approach to the subject matter.</p> <p>Prior Knowledge: Participants should bring their laptops to the exercises with the R software environment and a suitable editor (e.g. RStudio) installed.</p>
ECTS credits	Students will actively participate during the course. On the third day, students are expected to complete a practical assignment including a presentation in their group. Using a case/data set from their own research area or dissertation project, they will be able to apply some of the concepts learned in the course. A draft report, submitted 3 weeks after the course and incorporating the presentation discussions, should summarize the findings in approximately 3 pages.
Registration	<p>Module booking through registration for PSC Courses. PSC course registration is located within the ETH Zurich course registration system: https://ethz.ch Footer at the bottom of the website: Staffnet - More services - Courses, continuing education. Direct link: https://ethz.ch/staffnet/en/service/courses-continuing-education/details.9066o.html Select Plant Sciences/Ecology Registration usually opens on 1 July.</p>

EEE 334 Biodiversity from Species to Landscape Scale – Concepts and Methods in Spatial Ecology and Remote Sensing

Course tutor	Prof. Gabriela Schaeppman-Strub, Dr Jakob Assmann
Date / Time	17 September – 9 October 2024; Tue 13:00-17:00, We 08:00-17:00, Thu 08:00-17:00, Fri 08:00-17:00, to 9.10
Place	8.30-12.00 in Y34Y02 and 13.00-17.00 in Y01F50
Content	<p>Global change reshapes biodiversity and ecosystem functions, feeding back to the climate system and threatening nature's contributions to people. Monitoring and analysing these changes have become a critical component of biosphere science. This course provides you with the theoretical understanding and the skills to tackle biodiversity related research questions across spatial and temporal scales with the help of concepts, data and methods from remote sensing and spatial ecology.</p> <p>Lectures introduce key concepts and you will answer real-world questions in outdoor and computer labs, providing you with foundations in optical remote sensing and ArcGIS. The course will not only prepare you for a MSc or PhD thesis, but also for professional settings. Assessment by individual assignments and a team project.</p> <p>Learning Outcome</p> <ul style="list-style-type: none">• Understand biodiversity as part of the biosphere, by acknowledging its functions, complexity and interactions within the Earth system.• Apply systems thinking for biodiversity monitoring and analysis, with awareness of length scales of processes and data• Understanding signal contribution of biodiversity in optical remote sensing data to inform robust monitoring and analysis of biodiversity (e.g. application of spectral variability hypothesis)• Integrate a variety of data types (e.g. GPS, satellite-derived essential climate and biodiversity variables, plot data) into spatial analysis to answer real-world questions during labs (e.g. Arctic biodiversity and ecosystem functioning, movement ecology, urban biodiversity)• Basic knowledge of geospatial analysis tool (ArcGIS) and remote sensing data sets and portals that support biodiversity research• Assessed knowledge and skills using a combination of short assessments during labs and lectures and testing skills through team project.
ECTS credits	0.5 (sum of grades of assessments during course) and 0.5 (team project grade).
Registration	Please register online at UZH

EEE 352 Contemporary Analysis for Ecology

Course tutor	Prof. Pascal Niklaus
Date / Time	16.09.2024 - 16.12.2024, Mon 13:00-14:45, Tuesday 10:15-12:00
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: http://stat.ethz.ch/CRAN/</p>
ECTS credits	4 ECTS, Exam
Registration	Please register online at UZH

TRANSFERABLE SKILLS

FOR REGISTRATION INFORMATION SEE [HERE](#)

Course	Course Instructor	Dates	Venue
Argumentation in Scientific Writing	Malte Engel	Thu 20.06.2024 (9:00 - 15:00) Fri 21.06.2024 (9:00 - 15:00)	Online Course
Storytelling & Storyboarding Science at Locarno Film Festival	Samer Angelone	Wed 14 through Sat 17 August 2024, 9:00-17:00	Locarno
Marine Ecology and Art field course	Jaboury Ghazoul Juanita Schläpfer	Mon 19.08.2024 through Fri 23.08.2024 (9:00-17:00)	Scotland
BIO 661 Scientific Writing & Effective Communication	George Hausmann	22, 27, 29 August & 3 September 2024, 14:00-17:00	UZH, Irchel Campus
Speaking with Confidence and Impact	Millie Baker	Thu 12.09.2024 (09:00 - 17:00) Fri 13.09.2024 (09:00 - 17:00)	UZH, Irchel Campus
Effective Visual Communication of Science	Jernej Zupanc	12 September 2024 (09:00-17:00)	UZH/ETH
7th Science Filmmaking Marathon	Samer Angelone	Thu 12.09.2024 (09:00 - 17:00) Fri 13.09.2024 (09:00 - 17:00) Sat 14.09.2024 (09:00 - 17:00)	UZH/ETH
Presenting Science	Millie Baker	Mon 16.09.2024 (09:00 - 17:00) Tue 17.09.2024 (09:00 - 17:00)	UZH, Irchel Campus
Negotiation Skills for Scientists	Rob Thompson	Mon 23.09.2024 (09:00 - 17:00) Tue 24.09.2024 (09:00 - 17:00)	UZH/ETH
Storytelling & Storyboarding Science at Zurich Film Festival	Samer Angelone	3-5 October 2024 (whole days)	Zurich Film Festival

RESEARCH SEMINARS

ECO 401	Zurich Interaction Seminar Experimental Ecology: Population Biology and Genetics
Organization	The seminar is organized by students from the participating universities, usually from the Institute of Integrative Biology at ETH Zurich and the Institute of Evolutionary Biology and Environmental Studies at the University of Zurich. For the current organizers see here .
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: http://www.tb.ethz.ch/education/zis.html
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
Registration	ETH students register at myStudies for the course <i>Experimental Ecology: Population Biology and Genetics</i> , number 551-0740-00L . UZH students: ZIS is officially registered in the PhD program in Ecology under the name of ECO401 .

**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: http://www.ieu.uzh.ch/seminars.html - 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 (maja.weilenmann@ieu.uzh.ch)
Registration	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: http://www.ieu.uzh.ch/seminars.html 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 (maja.weilenmann@ieu.uzh.ch)
Registration	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:
PhD program in Ecology	http://www.ieu.uzh.ch/en/teaching/phd/graduate.html
Other courses LSZGS	The LSZGS offers a variety of inter-disciplinary or 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
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: https://www.zgsm.ch/index.php?id=current_course_progr0
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: https://www.plantsciences.uzh.ch/en/teaching/coursecatalogue.html
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: https://www.grc.uzh.ch/en/skills or the courses offered by ETHZ https://ethz.ch/students/en/doctorate/transferable-skills.html
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.

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

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: <https://www.mnf.uzh.ch/en/studium/informationen-f%C3%BCr-phd-studierende/Anmeldung.html>

ETH: <https://ethz.ch/de/doktorat.html>

PhD students who successfully passed the acceptance interview have to submit their registration form to the program coordinator: 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 coordinator 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 chairman for the thesis committee meeting, who must not be the PhD student's supervisor. The chairman 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:

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

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 coordinator 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”:

<https://studentservices.uzh.ch/uzh/anonym/vvz/index.html#>

PhD students in the program have to first register for mobility at UZH and ETHZ to book courses directly. Registration at UZH:

<https://www.uzh.ch/en/studies/application/chmobilityin.html>

Registration at ETHZ: <https://ethz.ch/en/studies/non-degree-courses/special-students/special-students-university-of-zurich.html>

Registered PhD students from all Swiss universities can book courses and the earned ECTS will be automatically accredited to the “Leistungsausweis” at their home university.

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. Courses of the Zurich Graduate School in Mathematics can be attended for free (excluding courses where additional payments to all participants apply).

– 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 or the courses offered by ETH.

– 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.

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:

https://www.lifescience-graduateschool.uzh.ch/en/PI/requirements_end_PhD.html

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 manager 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 thesis supervisor.