



## PhD Programs of the Life Science Zurich Graduate School: Introduction to Structural Equation Modelling

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| <b>Lecturers:</b>     | Dr. Frank Pennekamp (UZH) & Dr. James Grace (Wetland and Aquatic Research Center, USA) |
| <b>Location:</b>      | ETHZ, Room tbd   |
| <b>Dates:</b>         | November 05-07, 2024   |
| <b>Time:</b>          | 9:00 – 18:00   |
| <b>Credit Points:</b> | 1 ECTS   |

### Course Description

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.

### Course Program / Learning Objectives

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).

Day 2: Further worked examples with teaching dataset, model comparison, evaluation (GOF etc.), interpretation and pruning, visualization of SEMs.

Day 3: Self-study with opportunities provided to consult with lecturers. Students will have the opportunity work on datasets and their own data. Dr. James Grace will be available for group/one-on-one meetings in the afternoon.

### Prior Knowledge:

Students should already have a basic knowledge and understanding of the R programming language, basic statistics (multiple regression, ANOVA), and be able to run regression models and interpret and visualize their output.

**Number of Participants:** 15

**Individual Performance and Assessment:** Active participation throughout the course. Full attendance. The assignment must be completed to obtain 1 ECTS.

**Setting:** This course is organized for PhD students of the Life Science Zurich Graduate School. Priority will be given to students registered in the PhD Programs, however other PhD students can attend if there are available places. Participating Master students will not be awarded ECTS credits unless agreed with the lecturer and the program coordinator prior to the course

**Note:** For registration please mail [phdecology@ieu.uzh.ch](mailto:phdecology@ieu.uzh.ch), include your student number, surname, name, email address and your PhD program. Although the course might appear being fully booked, please register anyway. The final list of participants will be arranged based on multiple factors after registration closure.