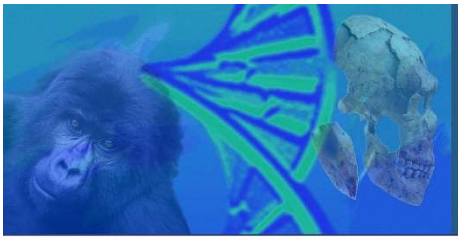

The Leipzig School of Human Origins
An International Max Planck Research School
A Co-Operation between Leipzig University &
Max Planck Institute for Evolutionary Anthropology

UNIVERSITÄT LEIPZIG

RESEARCH ACADEMY LEIPZIG

# Supplementary seminars

Academic Year 2017/18

**Summary:**



# 1) Weekly seminars:

### a) Department of Primatology

- **Department Seminar (Prof. Dr. Christophe Boesch) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, U2.50
  Tuesday, 11:00-12:00
  1h/week for 1 semester, 30h incl. 15h of course time
  Active participation, oral assignment

- **Field Meeting (Prof. Dr. Christophe Boesch) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, U2.50
  Monday, 14:00-15:00
  1h/week for 1 semester, 30h incl. 15h of course time
  Active participation, oral assignment

- **Lab Meeting (Dr. Linda Vigilant) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, U2.50
  Monday, 13:00-14:00
  1h/week for 1 semester, 30h incl. 15h of course time
  Active participation, oral assignment

- **Journal Club Primatology (Prof. Dr. Christophe Boesch) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, U2.50

Thursday, 15:00-16:00
1h/week for 1 semester, 30h incl. 15h of course time
Presentation of a scientific paper with grade

- **Hormone Journal Club (Dr. Tobias Deschner) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, U2.50
  Wednesday, 10:00-11:00
  1h/week for 1 semester, 30h incl. 15h of course time
  Active participation, oral assignment

**b) Department of Evolutionary Genetics**

- **Lab Seminar (Prof. Dr. Svante Pääbo) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Seminar area Genetics, 3rd floor
  Thursday, 13:00-14:00
  1h/week for 1 semester, 30h incl. 15h of course time
  Active participation, oral assignment

- **Journal Club Population Genetics (Prof. Dr. Svante Pääbo) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Seminar area Genetics, 3rd floor
  Friday, 13:00-14:00
  1h/week for 1 semester, 30h incl. 15h of course time
  Active participation, oral assignment

**c) Department of Human Evolution**

- **Journal Club Human Evolution (Prof. Dr. Jean-Jacques Hublin) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Seminar room 4th floor
  Friday, 11:00-13:00
  2h/fortnightly for 1 semester, 30h incl. 15h of course time
  Presentation of a scientific paper with grade

- **Dept. of Human Evolution: Internal Talk Series (Prof. Dr. Jean-Jacques Hublin) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Seminar room 4th floor
  Wednesday, 13:00-15:00
  2h/fortnightly for 1 academic year (2 semesters)
  30h incl. 15h of course time
  Presentation with grade

**d) Department of Human Behavior, Ecology and Culture**

- **Journal Club Human Behavior, Ecology and Culture (Prof. Dr. Richard McElreath) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Seminar area Human Behavior, 1rd floor
  Thursday, 11:00 am 1h/week for 1 semester, 30h incl. 15h of course time
  Active participation, oral assignment

# 2) Workshops

- **Data Simulation for Linear Models in R, Part II (Roger Mundry) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Room U0.26
  April 16-20, 2018 from 10:00 to ca. 12:00 (maybe more)

- **Data Simulation for Linear Models in R, Part I (Roger Mundry) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Room U0.26
  April 9-13, 2018 from 10:00 to ca. 12:00 (maybe more)

  **Course Outline:**
  Usually, when we fit linear models, we don't know what the 'truth' about the data we analyse is and hope that the model uncovers this 'truth' (or at least reveals something about it). However, this is not necessarily the case. The example probably most well known is lack of power; that is, a model doesn't reveal significance despite the effect in question actually existing in reality, for instance, due to a lack data. More generally, for each model we fit we have to face the possibility that the results only to some extent reflect the processes investigated but in parts also reflect problems with the model. This becomes even more of an issue when the models used are recent developments with in part little known properties (such as GLMMs) and/or when the combination of model complexity and sample size pushes the borders (as frequently happens).
  The primary aim of this course is to teach you how to simulate data in a framework of linear models and using R. The cool thing about simulated data is that one knows exactly what is 'truth' (because one has generated the data). Hence, one can then use these data for evaluating what some statistical analysis reveals about them and then compare the results with truth. The perhaps most familiar use of simulated data is 'power analysis' (determining the probability of an analysis to reveal significance, given a certain effect and sample size, an alpha level and a test). However, it can also be used to address questions such as 'does the method do what I think it does?', 'does the method do what people think it does?', 'does bias in sampling translate into bias in the estimates?', 'how does an analysis behave when its assumptions are violated?', 'what is the probability that the model converges at all?', 'what is the expected width of confidence intervals', 'what is the precision of the estimated coefficients?', and many others.
  The course has three main aims (in order of increasing importance):
  - teaching you how to simulate data and conduct power analyses in a wider sense (i.e., addressing the kinds questions mentioned above);
  - teaching a bit about programming in R. In fact, its somewhat in the nature of simulations that more or less the same set of operations needs to be done many times. In the course you shall learn how to automate things in R (using loops or parallelization), writing code that is somewhat tolerant to errors, speed things up where possible, how to store results, writing your own functions, etc.; nothing really fancy, though, just the basics needed to program such simulations;
  - finally, and this (in my view) is the major aim of the course, enhancing the understanding of linear models and what the link between them an 'life' (in either direction) is.
  In fact, simulating data means that one needs clear hypotheses about life and an equally clear understanding of how these hypotheses translate into model coefficients (and eventually a response). So in case you are not quite sure whether you really understood the precise meaning of such things like interactions, link functions, or

random intercepts and slopes, the course might be useful for you.
In case you consider taking part you need to be aware that having a fairly good grasp on linear models as I teach them in the linear models course are an essential prerequisite for the data simulation course (so you probably should have participated in my linear models course). You also should bring some level of interest in programming (but knowledge of a programming language is not required), and shouldn't be too shy of a little bit of math.
The course will take two weeks with classes taking place each weekday from 10:00 on and lasting some one to two (maybe three) hours. However, the course will be accompanied by plenty of mandatory exercises which will be an essential part of the course (the solutions will be discussed the next day) and likely absorb up to three hours per day. Please be aware that this will be the first time I teach it, so it certainly will be somewhat 'experimental' and I can only make guesses about how much time it will take.

- **Linear Models and Their Application in R, Part III (Roger Mundry) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Room U0.26
  March 19-23, 2018 from 10:00-14:00

- **Linear Models and Their Application in R, Part II (Roger Mundry) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Room U0.26
  March 12-16, 2018 from 10:00-14:00

- **Linear Models and Their Application in R, Part I (Roger Mundry) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Room U0.26
  March 5-9, 2018 from 10:00-14:00

  **Course Outline:**
  Linear models represent a flexible framework allowing the analysis of the effects of one or several (quantitative or qualitative) predictors on a single response (which can be, e.g., continuous, a count, or binary). As such they encompass, for instance (linear and non-linear) regression, ANOVA, ANCOVA, the Generalized Linear Model (e.g., logistic, Poisson, zero-inflated or negative binomial regression), and Mixed (a.k.a. hierarchical or multi-level) Models. As such, linear models allow to address a huge variety of questions using a unified conceptual and statistical framework.
  In the course I treat all the above, that is linear models from simple regression to Generalized Linear Mixed Models (GLMM). I begin with simple linear regression and then explain how this concept can be extended to model the impact of multiple predictors, categorical predictors, interactions and non-linear relationships (i.e., the 'general linear model'). Then I proceed with introducing the 'Generalized Linear Model' (i.e., logistic, Poisson, zero-inflated, and negative binomial regression). Finally I treat the (Generalized) Linear Mixed Model (i.e., models allowing the inclusion of random effects). Two further lessons will be devoted to how to formulate scientifically meaningful models and information theory based as well as multi model inference.
  Throughout the course I put much emphasis on the conceptual meaning and interpretation of the models rather than on their 'mechanics' (i.e., the mathematical background). Practically this means that we shall devote quite some time to understanding what such models reveal about 'life' (i.e., the process investigated) and particularly to understanding and interpreting interactions. In fact, I consider it an important component of the course to try teaching how models and 'life' are linked, i.e., how one can put hypotheses and questions about life into models and what these then reveal about it.

The course is largely centred around a null-hypothesis significance testing framework, largely because this still the by far most frequently used approach. However, I also explain the concept of information theory based inference (and if time allows we shall also practically apply it). Furthermore, the models themselves, i.e., their meaning, interpretation (and limitations), are unaffected by the philosophy used to draw statistical inference.
The course consists of roughly 50% theory and 50% practical applications during which we shall work ourselves through various models. As part of that, participants will also learn how to plot the results of the models treated and how to describe them in the methods and results sections of a paper. Finally, I put much emphasis on assumptions and how to check them.
The course requires some familiarity with the basic concepts of R and also some familiarity with general ideas/concepts of statistics. That is, participants should have some experience with R, for instance, knowing how to read a file into it and run some simple tests (e.g., t-test, ANOVA, or non-parametric tests) and create simple plots. Regarding this requirement, a couple of weeks before the course begins I'll make available two tutorials giving a general introduction to R and an introduction to plotting in R, and participants are expected to have a serious look at these (total of ca. 100 pages) before the course begins. Participants should also have some experience with applied statistics, and be somewhat familiar with things like null-hypothesis significance-testing, 'error level', etc...
The course takes three weeks with four hours of classes per workday and lessons build heavily upon one another. Hence, I advice every participant to keep these days free of other obligations and participate throughout (missing even just a few hours may make it very hard to catch up later). Also it probably pays a lot to invest extra time to go through the treated material again outside the teaching hours. The course is accompanied with plenty of handouts which will be made available during it.

- **Statistical Rethinking—A Bayesian Course with Examples in R and Stan (Richard McElreath) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, Room H4.10
  October 26, 2017 to January 26, 2018 twice a week for one hour
  Active participation, written assignment

- **Open Science Mini Series**
  MPI-EVA, Deutscher Platz 6, Room H4.10
  **Part I -- Open Access**
  April 24, 2018 from 14:00-16:00
  **Part II -- Open Data**
  April 25, 2018 from 15:00-17:00
  Active participation

- **Prospectives “Becoming A Post-Doc” (Dieter Lukas, Alexander Otte, Sabrina Walter)**
  MPI-EVA, Deutscher Platz 6, 4th floor seminar room
  June 26, 2018, 13:00-15:00
  Active participation

  **Course Outline:**
  "Prospectives" is a series that explores future career options in academia and beyond. Becoming a Post-Doc is the first issue of that series. Dieter Lukas, Alexander Otte, and Sabrina Walter will provide you with an overview of possibilities for continuing

your research career after you have received your PhD by pointing out which basic grant programms are available and what are the first steps. The event is intended for Early Career Researchers at all levels.

- **Plagiarism Workshop (Debora Weber-Wulff)**
  MPI-EVA, Deutscher Platz 6, 4th floor seminar room
  July 12, 2018, 10:00-14:00
  Active participation

  **Course Outline:**
  Weber-Wulff from Hochschule für Technik und Wirtschaft Berlin will provide a Workshop with Hands-on Session on Plagiarism. The first part of the Workshop will be devoted to definition and detection of plagiarism. For the second part a hands-on exercise is scheduled. For the hands-on session participants need to have 4 pages that they have written, referencing the work of others and the bibliography.

- **Scientific Writing, Primatology (Linda Vigilant) - 1 ECTS**
  MPI-EVA, Deutscher Platz 6, 4th floor seminar room
  November 5-9, 2018, 10:00-12:00, 13:00-15:00 daily (Mon-Fri)
  Active participation, written assignment