

Introduction to Evolutionary biology for Infection biologists

12-13 May 2016

Leibniz-Institut für Zoo- und Wildtierforschung (IZW)
Alfred-Kowalke-Straße 17, 10315 Berlin



12 May 2016 morning : Evolutionary Ecology (Block 1)

9:00-10:05	1.Principles of evolutionary biology & population biology	Heribert Hofer direktor@izw-berlin.de
10:15-11:20	2.(theoretical) principles of host-pathogen interactions: co-evolution, virulence, ecological impact, evolutionary impact	Justyna Wolinska wolinska@igb-berlin.de

11:30-12:00

Practical link lead by a student

Key insight: How do organismal and cellular perspectives differ, why are they both necessary for each other? The importance of variation.

12 May 2016 afternoon : Evolution & Phylogeny (Block 2)

13:00-14:00	1.Phylogeny and evolutionary trees	Joerns Fickel fickel@izw-berlin.de
14:10-15:10	2.Models for evolutionary trees & phylogenies: Maximum likelihood, maximum parsimony, Bayesian probabilities, phylodynamics...	Dino McMahon dino.mcmahon@fu-berlin.de
15:20-16:20	3.Bayesian phylogeography: A tutorial	Sibelle Vilaça vilaca@izw-berlin.de

16:20-16:40

Practical link lead by a student

Key insight: How to better understand the classification methods and their interests, and how these methods can help us to better understand our pathogens of interest, their relationships with others, etc.

13 May 2016 morning : Population genetics and genomics, and evolution (Block 3)

9:00-10:00	1.Population genetics & its relevance to understand evolution	January Weiner january.weiner@mpiib-berlin.mpg.de
10:10-11:10	2.Neutral theory of evolution, signatures of selection, etc.	January Weiner
11:20-12:20	3.Genome evolution & Human genome evolution	January Weiner

12:20-12:40

Practical link lead by a student

Key insights: Modeling populations underlying selection and genetic drift - is "beanbag" genetics still relevant? How do genomes evolve? Evolution as a tinkerer: innovation through duplication and sub-functionalization; 2R genome duplications. Why do we have such a large genome? Do humans evolve? Junk DNA & it is true that 80% of our genomes are under selection?

13 May 2016 afternoon : Technical issues on genomics & evolutionary theory (Block 4)

13:40-14:40	1.Technologies and bioinformatics method that enable biological conclusion to be drawn from large genome wide datasets	Emanuel Heitlinger emanuel.heitlinger@hu-berlin.de
14:50-15:50	2.Identification of episodes of positive selection in genome wide studies	Emanuel Heitlinger
16:00-16:20		
16:30-17:30	3.Perspective : Evolutionary theories in the concept of wildlife conservation	Bettina Wachter wachter@izw-berlin.de

Key insights: Which are the key challenges, and how can they be successfully overcome, to answering insightful research problems within an evolutionary genomics context?

Each part would be 45min lecture + 15min discussion + 10min coffee break
For more precise information, please send an email to: alice.balard@fu-berlin.de
For registration, please send an email to Silke Ehle at: ehle@izw-berlin.de