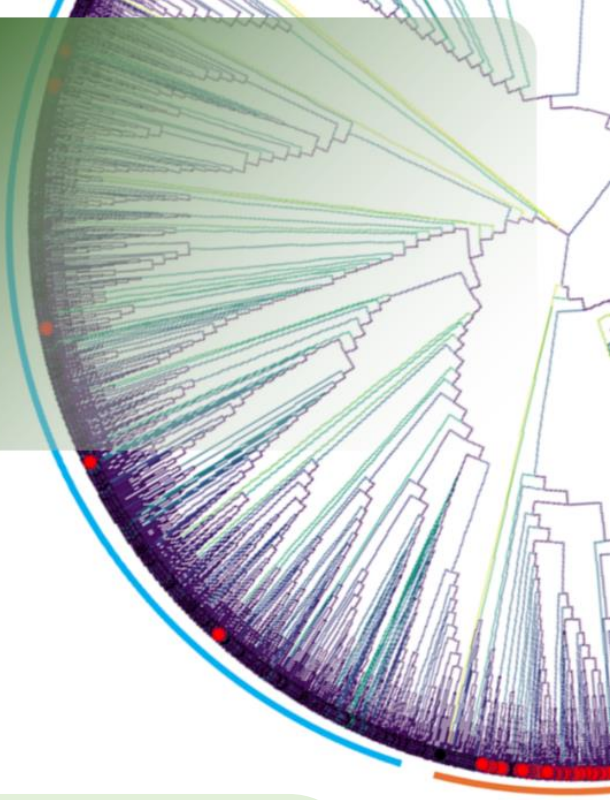
Unlocking the Potential of Phylogenetic Comparative Methods in Ecology, Agriculture, and Nature Conservation



3-7 November 2025

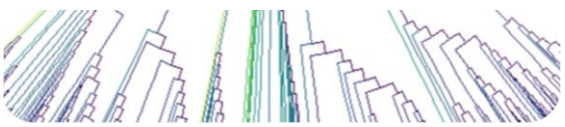
Workshop Schedule

Weekly Schedule

Monday | Nov 3rd	Basics, BM, independent contrasts and phylogenetic regression
Tuesday | Nov 4th	Discrete character evolution
Wednesday | Nov 5t	Ancestral state reconstruction and diversification (part I)
Thursday | Nov 6th	Phylogenetic community ecology and diversification (part II)
Friday | Nov 7th	Plotting and student's presentations

Daily schedule

9:30-11:00 am	Lectures & activities
11:00-11:30 am	Coffee break
11:30-1:30 pm	Lectures & activities
1:30-2:30 pm	Lunch
2:30-5:30 pm	Lectures & activities
5:30-6:00 pm	Coffee break
6:00-7:00 pm	Daily seminar
07:30 pm	Dinner and social activities



Tel-Hai
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120 שנה של חזון ועשייה

Detailed syllabus

Session	Subject	Relevant literature
UNIT 1: Basics of working with trees in R		
Lecture 1:	Introduction to the phylogenetic comparative method	
Exercise 1:	Introduction to working with phylogenies & comparative data in R	(R&H Chapter 1)
Challenge 1:	Reading & managing phylogenetic trees & data	(Practice Problems 1.1-1.3)
UNIT 2: Brownian motion, phylogenetic regression, & phylogenetic signal		
Lecture 2:	Brownian motion, PICs and PGLS	
Exercise 2A:	Phylogenetic generalized least squares regression	
Challenge 2:	PGLS	(Practice Problem 3.3)
Exercise 2B:	Brownian motion evolution & phylogenetic signal	(R&H Chapter 4)
UNIT 3: Discrete character evolution		
Lecture 3:	Discrete character evolution on phylogenies	
Exercise 3A:	Fitting discrete character evolution models to phylogenetic data in R	(R&H Chapter 6)
Challenge 3:	The extended M*k* model	(Practice Problems 6.1-6.2)
Exercise 3B:	Correlated and rate-heterogeneous discrete character evolution models	(R&H Chapter 7)
UNIT 4: Ancestral state reconstruction		
Lecture 4:	Ancestral state reconstruction for discrete & continuous characters	
Exercise 4:	Ancestral state reconstruction	(R&H Chapter 8)
UNIT 5: Others		
Lecture 5:	Introduction phylogenetic path analysis	
Exercise 5:	Other continuous trait evolution model	

Session	Subject	Relevant literature
UNIT 6: Phylogenetic community ecology & biogeography		
Lecture 6:	Introduction to phylogenetic community ecology	
Exercise 6:	Phylogenetic community ecology in R	(R&H Chapter 12)
Challenge 6:	Analysing phylogenetic community structure	(Practice Problem 12.1)
UNIT 7: Speciation and extinction		
Lecture 7:	Using reconstructed phylogenies to study the dynamics of species diversification	
Exercise 7A:	Introduction to studying diversification on phylogenies	(R&H Chapter 9)
Exercise 7B:	Fitting state-dependent diversification models in R	(R&H Chapter 11)
UNIT 8: Plotting phylogenies		
Exercise 8:	Plotting phylogenies using the R graphical device	

Field session

We will visit the ringing station near the workshop location (Agamon HaHula) to document bird species, take morphological measurements (such as wing length), and then use Vertlife (https://vertlife.org/) to create a phylogenetic tree based on the species captured during this activity.

Seminars by local researchers

Daily talks will be given by local researchers who use phylogenetic tools in their research, followed by a discussion on the topic.