

ADAPTATION (OEB 278)

Seminar: Thursday 12:00-2:45, HUH room 125

Class Website: <https://canvas.harvard.edu/courses/50047>

Instructors:

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Course description: This course will cover broad topics in adaptation including the causes and consequences of local adaptation, plasticity, genotype by environment interactions, genomics/genetics of adaptation, and adaptive radiations. This will be a discussion-based course focused on primary scientific literature.

Structure and assignments: Each week we will read primary literature and discuss the material in class. Prior to each class, students will write a paragraph reflecting on the readings. There will be a 5 page writing assignment due towards the end of the semester. Students will have an opportunity to receive and provide comments on each other's work and a final revised paper will be due at the end of the course.

January 31: What is adaptation?

February 7: Identifying and quantifying local adaptation

February 14: Adaptive potential – Quantifying genetic variation, heritability, response to selection

February 21: Adaptation across space – Populations, clines, and migration

February 28: Types of selection – Directional, disruptive, and frequency-dependent, balancing

March 7: Levels of selection – selfish genes to species-level selection

March 14: The genetic basis of adaptation

March 21: SPRING BREAK

March 28: Genomic and genetic signatures of adaptation

April 4: Plasticity and environmental response

Topic and paper abstract due

April 11: Adaptation and speciation

Full-draft of paper due

April 18: Inter-specific interactions – Coadaptation and character displacement

April 25: Adaptive radiations

May 9: Final paper due