

GRADUATE CORE II - 2026 (BIOLOGY 613) - TuTh 10:00 - 11:15AM (Scheduled 11 AM)

Lectures & Readings: <https://www.duckdna.org/syllabi/core/>

13 Jan Mutation & Drift

Assigned Reading: Lynch, M., Ackerman, M. S., Gout, J. F., Long, H., Sung, W., Thomas, W. K., & Foster, P. L. (2016). Genetic drift, selection and the evolution of the mutation rate. *Nature Reviews Genetics*, 17(11), 704-714.

15 Jan Effective Population Size

Assigned Reading: Charlesworth, B. (2009). Effective population size and patterns of molecular evolution and variation. *Nature Reviews Genetics*, 10(3), 195-205.

20 Jan Inbreeding

Assigned Reading: Charlesworth, D., & Willis, J. H. (2009). The genetics of inbreeding depression. *Nature reviews genetics*, 10(11), 783-796.

22 Jan Population Subdivision

Assigned Reading: Holsinger, K. E., & Weir, B. S. (2009). Genetics in geographically structured populations: defining, estimating and interpreting F_{ST} . *Nature Reviews Genetics*, 10(9), 639-650.

27 Jan Migration & Gene Flow

Assigned Reading: Feder, J. L., Egan, S. P., & Nosil, P. (2012). The genomics of speciation-with-gene-flow. *Trends in Genetics*, 28(7), 342-350.

29 Feb Linkage Disequilibrium & Recombination

Assigned Reading: Otto, S. P., & Lenormand, T. (2002). Resolving the paradox of sex and recombination. *Nature Reviews Genetics*, 3(4), 252-261.

03 Feb Selection 1

Assigned Reading: Bamshad, M., & Wooding, S. P. (2003). Signatures of natural selection in the human genome. *Nature Reviews Genetics*, 4(2), 99-110.

05 Feb Selection 2

Assigned Reading: Hahn, M. W. (2008). Toward a selection theory of molecular evolution. *Evolution*, 62(2) 255-265.

10 Feb Adaptive Introgression

Assigned Reading: Graham, A. M., & McCracken, K. G. (2019). Convergent evolution on the hypoxia-inducible factor (HIF) pathway genes EGLN1 and EPAS1 in high-altitude ducks. *Heredity*, 122(6), 819-832.

Assigned Reading: Graham, A.M., Peters, J.L., Wilson, R.E., Muñoz-Fuentes, V., Green, A.J., Dorfsman, D.A., Valqui, T.H., Winker, K. and McCracken, K.G., 2021. Adaptive introgression of the beta-globin cluster in two Andean waterfowl. *Heredity*, 127(1), 107-123.

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