

GRADUATE CORE II - 2025 (BIOLOGY 613) - TuTh 11:00AM - 12:15PM

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

- 14 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.
- 16 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.
- 21 Jan** **Inbreeding**
- 23 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** **Zoom Link TBA (3:30 PM)**
- 28 Jan** **No Class**
- 30 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.
- 04 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.
- 06 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.
- 11 Feb** **Selection 2**
Assigned Reading: Hahn, M. W. (2008). Toward a selection theory of molecular evolution. *Evolution*, 62(2) 255-265.
- 13 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.

Prof. Kevin G. McCracken
Office - Cox 188
kevin.g.mccracken@gmail.com
907-378-2100