

**AGRO-932 Spring 2022**  
**HW1 (100 points):**  
**Due Date: Feb. 15th, 2022 at 11 AM**

Simulate an NGS dataset for two populations with a small reference genome ( $< 1$  Mb) of your choice, each population with 10 diploid individuals, to address a hypothesis about population differentiation.

1. Establish a version-controlled directory system to host the project (paste the link here). Show your work in the GitHub repository in a user-friendly and reproducible manner.
2. Describe your simulation strategy and the hypothesis to test (positive, negative, or neutral selection).
3. Calculate thetas for each population and compute  $F_{st}$  between the two populations.
4. Visualize and briefly interpret your results.