**BIOL 380 CRN 87788 Research Experience in Biology (Fall 2023)**

**Morphological Measurements and Bird Functional Traits**

Instructor – Professor Tracy Marchant

The Department of Biology holds an extensive collection of bird study skins within its Natural History Collection. These specimens were collected by Biology faculty and graduate students for a variety of research purposes, primarily related to population and community ecology. Most specimens date from the 1950s to 1970s. A diversity of species are represented ranging from emperor penguins to hummingbirds, with migratory species forming the bulk of the collection. This BIOL 380 project will make use of this collection to measure select morphological variables relevant to various avian functional ecology/evolution questions. Students will learn several basic skills applicable to birds morphometrics and data analysis, and build their knowledge of bird morphology, diversity, ecology, and evolution. Another outcome of this project will be to add the various morphometric measurements to the Department of Biology Natural History Collection Database and to contribute this information to the global research community through open-source databases such as the Global Biodiversity Information Facility (https://www.gbif.org/).

Students will meet twice per week through-out the Fall 2023 term (Tuesday and Thursday 5:30 to 7:30 pm) to hear from experts in avian biology and conduct their research. A literature review and presentation are also required. This course can accommodate a maximum of 10 students.

For more information contact Professor Marchant at tracy.marchant@usask.ca.

Some Selected Readings:

Anderson et al (2019). Consistent declines in wing lengths of Calidridine sandpipers suggest a rapid morphometric response to environmental change. PLOS One. https://doi.org/10.1371/journal.pone.0213930

Feilich & López-Fernández (2019). When does form reflect function? Acknowledging and supporting ecomorphological assumptions, *Integrative and Comparative Biology*. 59: 358–370 https://doi.org/10.1093/icb/icz070

Tobias et al. (2022) AVONET: morphological, ecological and geographical data for all birds. *Ecology Letters*, 25, 581–597. https://doi.org/10.1111/ele.13898