Winter 2025 BIOL 380, 479, 480 – Avian Morphology and Physiology 

Broadly, my research is focused on how organisms bring oxygen into the body and transport oxygen to the muscle. To investigate this, I use migratory and resident songbirds, and am hoping to expand to include marine invertebrates. As my lab has just started, I am searching for undergraduate students who are interested in working with museum specimens and previously collected data.

Potential study topics – BIOL 380/480

- Wing and flight muscle morphology: I have previously collected data on flight muscle fiber type in 21 different songbird species that migrate different distances or are resident. How flight muscle phenotype is associated with wing morphology is unknown. I am looking for an undergraduate student interested in using museum species to investigate this association!
- I am open to over-seeing students who have a study question that could be fuelled by the museum collection!

BIOL 479

- I am willing to supervise students on a wide variety of topics dealing with invertebrate and vertebrate organismal biology, including physiology and the evolution of (in)vertebrates and the (in)vertebrate body. Please reach out with an idea if you are interested!

Summer Research Internship (NSERC USRA) / Fall 2025 BIOL 481

- Lung morphology and hibernation: During hibernation metabolism can drop up to 95% of euthermic values. In ground squirrels, breathing rate is markedly reduced, but oxygen is still required for survival. Lung surfactant type is known to be altered during hibernation in ground squirrels, but whether this is associated with changes in lung morphology is unknown. Using previously collected lung samples prepared for histology, you will gain skills in slicing paraffin embedded samples, staining with H&E, and image collection and analysis.
- Intestinal morphology in migratory and resident songbirds: Migratory birds have been reported to atrophy their gut to reduce the amount of weight they need to carry during migration. The changes in gut structure that occur have not been well document and whether there are seasonal changes in gut structure in resident species has also not been identified. Using previously collected intestine samples prepared for histology, you will gain skills in slicing paraffin embedded samples, staining with H&E, and image collection and analysis.

Please contact me, Dr. Catie Ivy (catherine.ivy@usask.ca) if you are interested or have questions!