**Title**: Evaluation of Zebra finch (*Taeniopygia guttata*) reproduction, behavior, and physiologic stress

**Department:** Biomedical Engineering (Division of Comparative Medicine)

**Supervisors**: Niora Fabian, MS, DVM, DACLAM (PI); Alanna Backx, MSc, DVM

**Estimated hours per week:** Flexible; 5-15 (semester); up to 30-40 (IAP, summer) pending funding

**Required skills/classes:** No laboratory experience required; rudimentary knowledge of statistics recommended

**Project description**:

The zebra finch (*Taeniopygia guttata*) is an important animal model of vocal learning, neurobiology,

and physiology. Despite their extensive use, there is a lack of data on the basic husbandry

requirements of zebra finches, which may impact their welfare and utility as a biomedical research model. This work will contribute to our study that aims to compare various parameters of zebra finch health and welfare while housed under two different artificial lighting conditions to optimize their husbandry and welfare in captivity.

We are looking for a motivated UROP student who wants an immersive experience in both bench-top research and data analysis. The aims of this project are to: 1) characterize reproductive outcomes for MIT’s zebra finch breeding colony (10% time commitment); 2) assess behavior using a video recording and ethogram-based system (40% time commitment); and 3) assist with performing a corticosterone ELISA assay and data analysis to evaluate physiologic stress in zebra finches (40% time commitment). If desired, there will also be ample opportunity to learn about zebra finch colony maintenance, husbandry, and clinical care.

The project timeline is approximately 8-12 months, and we are hoping for the UROP student to be available during this time (with flexibility allowed during exam periods).

Findings from this project will support future peer-reviewed publications and national conference abstracts on strategies to optimize the husbandry and welfare of zebra finches used in biomedical research; we expect to acknowledge the student as a co-author.

**Lab environment:**

Dr. Fabian is a clinical and research veterinarian with the Division of Comparative Medicine (DCM) as well as a lab within the Department of Mechanical Engineering. Dr. Backx is a DCM laboratory animal medicine resident. There will also be opportunities to observe or participate in clinical activities outside of the outlined research project, if desired. The student also has the opportunity to present his or her work at DCM research meetings.