Abstract of proposed student project (1 page limit. This should mirror the aims page of a grant and CLEARLY indicate the student's role.)

Rationale: Time, financial, and administrative constraints often limit large data analyses in veterinary ophthalmology. We hypothesize that increasing the collaborative effort between institutions will result in a better understanding of the demographics, progression, treatment success, sequelae, and long-term prognosis of one of the least understood ocular diseases in veterinary ophthalmology: feline diffuse iris melanoma (FDIM). Despite being the most common ocular tumor in cats (approximately two-thirds of primary ocular neoplasia; Kayes & Blacklock 2022), little information is available on the relationship between feline iris pigmentation and the formation of or transformation to melanoma. FDIM has a highly variable presentation, ranging from slow, benign progress to distant metastasis and death. One study on 34 FDIM cats suggested that early enucleation is important to avoid premature death due to cancer metastasis as decreased survival was noted compared to age-matched controls (Kalishman et al. 1998). Prior to eye removal, there are currently no in vivo methods of identifying iris melanocytic neoplasia, nor an understanding of what indices are important for monitoring progression or malignant transformation. In fact, differentiation between iris melanosis and FDIM can only be determined by histologic examination. Featherstone et al. (2020) reported on iris biopsy for the diagnosis of FDIM in 7 cats, although the technique is invasive and there no reported indication for timing, clinical characteristics, or whether (and when) repeated biopsy would be necessary.

Study objectives: The objective of this study is to determine the clinical characteristics, risk factors, progression, treatment success, sequelae, and long-term prognosis of feline diffuse iris melanoma. A secondary objective is to determine what risk factors and prognostic indicators are associated with early death, with or without enucleation, and to provide a set of guidelines for managing FDIM.

Study design and methods: First, previously published papers will be classified by the type of effect size and will then be subjected to different types of meta-analyses. Second, all medical records on FDIM patients will be harvested from an assembled team of 64 clinics (23 institutions), followed by quantitative analyses using descriptive statistics and generalized linear mixed models. Data collection has begun, and will continue with student help until June 2023.

Preliminary data: The largest available study evaluated 47 cats with FDIM for histologic and immunohistochemical predictors of clinical behavior of FDIM (Wiggans et al. 2016). Other studies, as listed above, consist of even fewer FDIM cases. Although these studies provided valuable information regarding histologic predictors of metastasis, long-term prognosis following enucleation, and possible methods of sampling, larger multi-center prospective studies are required to evaluate the incidence, risk factors, prognostic indicators, and outcomes of common periparturient conditions in goats. A dataset from 2 institutions has been curated for preliminary analysis, and already is greater than ten times the size of all previously published studies.

Student role: The student will collate and organize all data from each institutional dataset and will perform statistical analysis on the data with guidance and supervision from Dr. Moore. With the results, the student will prepare a manuscript for publication and a poster.