**Capstone Students**

• *Erin, class of 2017, medical education concentration:* Erin’s capstone project focuses on an assessment of how medical gross anatomy courses evaluate student knowledge, understanding, and competency. She interviewed faculty at Netter SOM to find out their goals and objectives for the students’ learning of anatomy. She then ran focus groups of students from the class of 2017, asking about their experiences with anatomy evaluation and assessment. She presented her findings at the 2015 Experimental Biology meeting, as part of the American Association of Anatomists conference. She plans to submit a manuscript with preliminary data in the spring of 2017. She has also interviewed several anatomy faculty members from other medical schools in order and is working on a “white paper” on best practices for anatomy education in terms of the writing of learning objectives that are directly tested in practical examination settings. I have been involved in this project as a co-mentor (with Jessica Devine, QU School of Education), assisting Erin with development of interview questions, abstract editing, poster design, manuscript review, and connecting Erin with colleagues of mine at other programs, including Dr. Kristi Lewton (USC), Dr. Rebecca Fisher (University of Arizona, Phoenix), and Dr. Larry Rizzolo (Yale University).

• *Tyler, class of 2018, basic, clinical, and translational research concentration*: Tyler took Evolutionary Medicine in the spring of 2015 and was fascinated with a paper we read by Dr. Holly Dunsworth (University of Rhode Island) on the energetics of pregnancy. Her hypothesis is that human babies have a 9-month gestation due to energy limitations to the mother, rather than some mismatch between baby head and mother pelvis dimensions. Tyler approached me about working with Holly and me on his capstone. We designed a project to test the hypothesis by dosing captive marmoset monkeys (small South American monkeys with a tendency to twin births) with double-labeled water. Tracking the amount of label in the urine post-dosing allows for a gold-standard measurement of the energy burned during a given time. We will study the energetic differences between singleton and twin pregnancies and between juvenile, non-pregnant adult, pregnant adult, and lactating adult monkeys. The study will begin spring 2017 at the Texas Biomedical Research Center. An additional collaboration with Dr. Herman Pontzer (Hunter College, CUNY) will provide Tyler with training in the lab procedures required to analyze the urine for traces of the labeled isotopes. A non-human primate model will provide excellent pilot data for future studies on human pregnancy.

• *Dirk, class of 2018, global, public, and community health concentration*: Dirk is interested in the effects of pregnancy on bone. While several studies have suggested that bone loss during pregnancy is minimal and quickly rebuilt postpartum, we believe that we may be able to capture a more detailed picture of bone during pregnancy than previous studies. Most studies have relied on small sample sizes and used non-radiating methods of measuring bone density, or taken measurements only of weight bearing bones. We have a small portable DXA scanner that uses extremely small amounts of radiation and measures density of the intermediate phalanx of the middle finger, a non-weight bearing bone. We believe that measuring BMD of the finger several times during pregnancy may show more subtle loss of mass than one or two measurements of large, weight-bearing bones. We are collaborating with the Seton Women’s Center in Bridgeport, Connecticut where 15-20 women will enroll starting summer 2016. Dirk is particularly interested in the combination of factors such as skin color, low UV exposure, high soda consumption, high BMI, and low activity might have on BMD in pregnancy, and if we are able to include a large enough patient population in the study, I believe he could uncover some very interesting data.

• *Jillian, class of 2018, medical education concentration*: Jillian approached me after I lamented the lack of a large, functional eye model to her collaborative classroom during a session on the cranial nerves. She had personally struggled with learning the functions of the extraoccular muscles and thought that a hands-on functional model would have helped her. She then designed a project to build two types of models: a heavy-duty, large-scale version made of durable materials that could be used in a medical school classroom/lab setting (collaborating with students and faculty in the School of Engineering for assistance with model design and construction), and a small-scale, less durable version a medical student on a limited budget could make using easily available supplies. She is then planning to enroll willing classmates in a short study to test the model’s efficiency. She will divide the students into three groups: one group will build and then use their own model, one group will have access to a pre-built model but will not build one themselves, and a third control group will have no access to the models. She will provide a pre- and post-test of basic and board-level questions on eye muscle function and see if either access to a model or instruction in hands-on creation of a model improve understanding of eye muscle function.

• *Kayla, class of 2019, medical education concentration*: Kayla is interested in comparing how embryology is taught in different medical schools and advising the faculty at Netter on best practices to help shape how we teach embryology in the future.

• *Hubert, class of 2019, medical education concentration*: Hubert is working on the anatomy website for Netter (see Summer Students section below) and will design a test to study its effectiveness in helping students prepare for anatomy lab.

• *Florence, class of 2020, medical communication concentration*: Florence is going to develop 3-4 YouTube videos about specific evolutionary medicine topics aimed at high school and college students.

**Research Assistants**

*• Nathan:* Nate spent the spring semester of 2015 assisting me to collect pilot data comparing bone mineral density of the finger (measured using a small, portable DXA scanner) to that of the distal radius (measured using the large, clinical DXA scanner). We collaborated with Alicia Giamio, professor in diagnostic imaging and collected measurements from 60+ students, staff, and faculty.

• *Brendan*: Brendan assisted with a research project that I started with a colleague, Dr. Andrea Taylor (Touro). A spin-off from my dissertation and post-doctoral work involves studying how strength in one skeletal element predicts strength in others. Brendan worked with me to collect data on the skeletal strength of four sooty mangabeys (*Cercocebus atys)* which we will compare with data Dr. Taylor collects on the morphology and strength of the muscles overlying the bones.

**Summer Students**

*• James & Erin:* James and Erin applied for summer funding in 2014 to design a dissection website for Netter. They worked very hard to complete a partial dissection of a donor, taking hundreds of photographs and hours of video. They edited the pictures and videos and built a website from scratch. They presented the partial site to the class of 2018 and recruited students (Matt and David) to continue the project in 2015.

*• Matt & David:* Matt and David followed James and Erin’s lead and, during summer 2015, completed their own full dissection of one donor and partial dissection of a second. They made great progress on the website and presented their work at the summer research symposium in fall 2015.