

Michael DiGaetano

**Graduation Year:** Senior

**College:** Science

**Major(s):** Science-Business

**Minors(s):** N/A

**Scholar Group Membership:** no

**Did you received other funding for this project?:** no

**Could you have completed this project without CUSE funding?** No

**More details on CUSE funding assistance?** Just straight up could not have done it. Also, I may be in a publication in a top journal in the field because of this research.

**Project Title:** Examining Neuropathic Pain Pathways

**Project Location:** South Bend, IN

**ND Faculty Mentor:** Dr. Patrick Sheets

**Project Type:** Research Assistantship

**Why did you undertake this project/experience?** Deepen your knowledge of a topic or issue, Prepare for graduate school (MA or PhD), Prepare for professional school (MD, MBA, JD)

**Did your funded experience help you:**

**[Deepen your understanding of your coursework or field of study]:** Yes

**[Discern your interests and post-bac goals]:** A Little

**[Become confident in your ability to set and achieve your goals]:** A Little

**[Gain a more nuanced view of local, national, or global communities]:** A Little

**[Improve your written and verbal communications skills]:**Yes

**Tell us about your experience.**

I have been researching pain pathways in the brain in order to better elucidate specific connections and responses. My area of focus was on the morphology differences between pain and control models. Throughout the summer, I have been performing some of the neurosurgical procedures on the mice in addition to the reconstruction of the neurons (my primary purpose). After the surgeries and the electrophysiological patching procedures to locate specific neurons, I prepare the brain slice for imaging. Then, I image the neuron using a 2-Photon microscope and reconstruct the neuron in three dimensions to focus on the morphology and shape. Finally, I ran a Sholl analysis which creates concentric spheres around the soma to quantitatively measure branching and length. It's been quite the productive summer.

**Describe the impact this project had, both on you as a student-scholar and on the people you worked with.**

Coming into college, I did not even plan on conducting serious research, presuming I would focus more on clinical medicine and service work. However, I continue to surprise myself in the progress I have made in such a short time. As a student, I have gained a better understanding of pain and neuronal physiology. However, my abilities as a scholar have brightly shone through



