

Alexander M. Kirk

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Education:

*Estimated Fall 2022: Doctor of Philosophy; Integrative Biology - Physiology and Morphology
University of South Florida; Tampa, FL*

Bachelor of Science, Environmental Biology, Spring 2017
University of South Florida; Tampa, FL

Associate of Arts, Biology, May 2013
Indian River State College; Stuart, FL

Grants and Funding:

2017	Porter Family Award	\$500
2016	Student Green Energy Fund (PI)	\$208,000

Research Experience:

University of South Florida, May 2017 - Present

Research Assistant - PI: Dr. Ryan Carney

Generated photogrammetric reconstructions of the postcranial skeletal elements of *Archaeopteryx*. I developed a strategic multi-platform workflow in order to optimize the quality of reconstruction, with the aim of publishing a methods paper demonstrating these novel techniques.

University of South Florida, Feb 2017 - Present

Principal Investigator - **Student Green Energy Fund** - Advised by: Nainan Desai

I developed a plan for a sustainability project, requested funding, and was awarded \$208,000 to complete the project. The objective is to replace the heating system in the Campus Recreational Facility in order to efficiently heat the swimming pools and showers. I also work weekly on various projects, all with the goal of reaching climate neutrality in our Tampa campus.

University of South Florida, January 2017 - May 2017

Undergraduate Research Assistant - **Biofuels & Bioproducts** - PI: Dr. George Philippidis

Gained useful understanding of chemical engineering and organic chemistry in practice. I assisted in inoculating weekly algae cultures, both freshwater and saltwater variants. I analyzed nutrient uptake efficiency by adding nitrates and phosphates to the inoculum and measuring the remnants after 2 days. Once algae was cultured, I performed Folch, and Bligh and Dyer methodologies to extract lipids in order to create products such as biodiesel and cosmetics.

Teaching Experience:

University of South Florida, May 2018 - August 2018

Teaching Assistant - Biodiversity II Laboratory

Introduced students to various concepts of Florida biodiversity as well as general biology lab techniques. Students learn how to gram stain bacterial cultures; perform dissections of earthworms, crayfish, and squid; and identify local flora and fauna.

University of South Florida, January 2018 - May 2018

Teaching Assistant - Principles of Biology for Non-Majors

Facilitated discussion of broad biological topics, with the goal of informing students on current biological issues. Discussions included climate change, nutrition, ecology, biotechnology, and human impacts on the environment.

University of South Florida, January 2018 - May 2018

Teaching Assistant - Digital Dinosaurs [[Media Coverage Link](#)]

Introduced students to the tools required to be successful as a digital scientist. The course subject matter focuses on dinosaurs, but has broad scientific applications. Students learned and practiced techniques of 3D reconstruction, post-processing digital models, 3D printing, scientific writing, and presentation.

Skills:

Software:

3D modeling and animation (Maya, ZBrush); 3D processing (Geomagic, MeshLab); photogrammetry (PhotoScan, Reality Capture); Statistical Analysis (RStudio, Excel)

Laboratory:

Biology - Dissection (Salamander, Shark, Cat, Pigeon); Microscope usage, cleaning, and care (Stereoscopic, Compound Light)

Chemistry - Water quality ,nitrogen/phosphorus, and parametric analyses; HPLC; Phospholipid extraction

3D - Structured light scanning (Artec Eva, Artec Spider, iSense); Photogrammetry (Smartphone, DSLR); Laser Scanning (FARO Arm)

Conferences:

Society for Vertebrate Paleontology; Poster title: Macrophotogrammetric Reconstruction of *Archaeopteryx*