Joseph Paul Bednarik

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13055 Saint Patrick's Ct., Highland MD, 20777

EDUCATION

Florida Institute of Technology

Bachelor of Science in Marine Biology *GPA: 3.14* – 2022

Howard Community College

General Studies centered in Life Science *No Degree Obtained* – 2017

River Hill Highschool *GPA: 3.03* – 2017

EXPERIENCE

Undergraduate Research August 2018 – November 2019

Department of Ocean Engineering and Marine Sciences, Florida Institute of Technology, Dr. Ralph Turingan

- The relationship between oceanic temperature and kinematics of *P. volitans* and *P. miles* along the coast of Florida.
    - Research Question: Is there a correlation between the change in kinematics of *Pteroini*, and change in oceanic temperature?
    - This projects aim was to understand the effects of temperature change on the biomechanical properties of lionfish and their behavioral ecology.
    - This invasive species has been found along the coast of Florida and this study was meant to help in maintaining marine protected areas, MPA's, around the coast of Florida.

Undergraduate Research August 2019 – November 2019

Department of Ocean Engineering and Marine Sciences, Florida Institute of Technology, Dr. Ralph Turingan

- Relationship between Sea Surface Temperature and the species distribution of various Chondrichthyes in the Indian River Lagoon, FL.
    - Research Question: Is there a correlation between the species abundance of Chondrichthyes and change in sea surface temperature, in the Indian River Lagoon?
    - The Indian River Lagoon is a considered to be a central hub for biodiversity and with climate change ever so

persistent this study was designed to test the effects of temperature on species abundance.
- The end goal of this project was to see if we could make predictive models for species abundance of Chondrichthyes, and subsequently derive predictive models for other large marine fauna.

Academic Research Project August 2021 – November 2021

Department of Ocean Engineering and Marine Sciences, Florida Institute of Technology

- Correlation between the species abundance of Stony coral and three external pressures, sea current velocity, irradiance, and sea surface temperature. -

  This project tested for correlation between three abiotic pressures and the abundance of stony coral, sampled in the Indo-Pacific.
  - Coral is known to be a keystone species and with climate change leading to rapid variation in such abiotic factors it would be prudent to establish an understanding of how this rapid change can affect the ecology of this marine fauna, so that those in conservation are more prepared.

Paid Internship June 2021 – August 2021

NexImmune, Inc., 9119 Gaither Road Gaithersburg, MD 20877

- Helped to launch and perfect a new technology based upon the AIM system to isolate and expand antigen-specific human B cells.
  - Current work is being done in manipulating T-cells to target mammalian cancers cells; however, B-cells may also prove to be a viable solution to this age-old human disease we know as cancer.
  - The aim of this study was to see if B-cells could be identified and cultured. We effectively enriched four antigen specific B-cells and expanded, cultured, them.
  - There are several developing prospects for this new and improved technology. One of which is to isolate and culture B-cells found in Chondrichthyes and to see the effect they have on mammalian tumor cells, specifically the cytokines they produce via their B-cells.
  - Previous studies have found this effect to be possible.

Volunteer Internship August 15th, 2022 – Present

Florida International University, Institute of Environment, Department of Biological Sciences, Dr. Heather-Bracken Grissom, CRUSTOMICS lab

- Assisting in the carcinization project under Dr. Heather Bracken-Grissom and Dr. Lauren Ballou.
  - Crustacea are one of the most widely known subphylum, yet their evolution is outdated.
  - This study was aimed to reorganize and improve our understanding of their evolutionary biology using various methods in lab.

RELEVANT COURSESWORK

- General Genetics
- Marine Biology Forum
- Undergraduate Research I
- General Chemistry I
- Microbiology I
- General Chemistry II
- Biometry
- Organic Chemistry I
- Organic Chemistry II
- Biochemistry I
- General Ecology
- Undergraduate Research II
- Undergraduate Research III
- Invertebrate Zoology
- Evolution
- Undergraduate Research IIII
- Community Ecology
- Physics I
- Physics II
- Comparative Vertebrate Anatomy
- Marine Biology
- Marine Ecology
- Modeling for Ecology and Biology

TECHNICAL & APPLICABLE SKILLS

- Construction of Ecological and other models using R.
- Microsoft Excel.
- Qiagen Assay
- Enrichment and Expansion of Cytokines, specifically B-cells.

REFERENCES

Dr. Ralph Turingan, Professor
Department of Ocean Engineering and Marine Sciences
Florida Institute of Technology
(321) – 674 – 8037, turingan@fit.edu

Dr. Toby S. Daly-Engel, Assistant Professor
Department of Ocean Engineering and Marine Sciences

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Dr. Mathias Oelke, Chief Scientist
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Dr. Heather Bracken-Grissom, Associate Professor, **Assistant Director**,
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Dr. Lauren Saurez, **Senior Scientist**
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Dr. Lauren Ballou, **Postdoctoral Associate**
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