

## Patricia A. Waikel, MS, PhD

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### CURRENT POSITION

Florida International University

Miami, FL

#### **Assistant Teaching Professor**

August 12, 2021 – present

- Instruct and mentor undergraduate students in courses related to the biological sciences including General Microbiology, Cellular Chemistry, Introduction to Microbiology Laboratory, Phage Discovery Laboratory, Phage Genomics Laboratory, SEA-GENES Laboratory, and Senior Seminar via online, face to face, and hybrid modalities utilizing evidence-based teaching.
- Co-direct vertically integrated bacteriophage research program within the department of Biology including three course-based undergraduate research experiences (CUREs).

### EDUCATION

#### **Doctor of Philosophy in Biology**, December 2020

Florida International University, Miami, Florida

Dissertation: Exploration of the Role of Microbiome Structure, Metabolism, and Modification in Black Band Disease Etiology

#### **Master of Science in Marine Biology**, November 2010

Nova Southeastern University, Davie, Florida.

Thesis: Microbial transcriptome characterization of a biochemical morphotype of the marine sponge *Discodermia dissoluta*

#### **Bachelor of Arts in Biology**, minor in Spanish, August 2001

Indiana University, Bloomington, Indiana

### PREVIOUS POSITIONS

Broward College

Davie, FL

#### **Adjunct Teaching Faculty**

January 2011 – August 2021

- Designed courses in the biological sciences
- Instructed and mentored undergraduate students in lecture and laboratory courses related to the biological sciences including Biology, Microbiology, Zoology, and Environmental Science

Florida International University

Miami, FL

#### **Graduate Research and Teaching Assistant**

August 2013 – August 2020

- Instructed and mentored undergraduate students in a discovery-based research course as part of the Howard Hughes Medical Institute (HHMI) Science Education Alliance-Phage Hunters Advancing Genomics and Evolutionary Science (SEA-PHAGES) program
- Instructed undergraduate General Microbiology, Biology I, and Biology II laboratory courses
- Designed experiments and collected, analyzed, and interpreted data in support of investigating microbial pathogenesis in Black Band Disease of corals
- Trained students in microbiological techniques in support of growth, isolation, and identification of microorganisms
- Presented data at local, national, and international scientific conferences

Nova Southeastern University

Davie, FL

#### **Adjunct Teaching Faculty**

January 2012-May 2013

- Instructed and mentored undergraduate students in Genetics lecture and laboratory courses

Nature's Products Inc.

Sunrise, FL.

**Quality Laboratory Supervisor**

May 2009 – August 2010

- Led a team of 3 microbiologists and 4 chemists in conducting chromatographic, wet chemistry, and microbiological testing of raw materials, in process, and finished product in a fast-paced FDA regulated quality control laboratory
- Ensured compliance with Good Manufacturing Practices (GMPs) as well as Good Laboratory Practices (GLPs)

Nova Southeastern University

Davie, FL.

**Teaching Assistant**

August 2007 – May 2009

- Assisted instructors with set up and facilitation of undergraduate Organic Chemistry and Biochemistry laboratory courses
- Assisted instructor with set up and facilitation of graduate level Molecular Genetics laboratory

**Research Assistant**

January 2008 – April 2009

- Characterized the transcriptome of a biochemical morphotype of the marine sponge *Discodermia dissoluta* utilizing techniques including DNA/RNA extraction, quantification, and purification, cDNA synthesis, PCR, qPCR, gel electrophoresis, cloning, preparation of microbiological medias, and bioinformatics. Trained undergraduates in laboratory techniques

Baxter Pharmaceutical Solutions

Bloomington, IN

**Quality Associate III**

July 2002 – July 2006

- Promoted to Quality Associate III with supervisory responsibilities after excelling as a Quality Control Chemist in an FDA-regulated laboratory for fast-paced contract manufacturing company.
- Collected, analyzed, and interpreted data from a variety of chemical and biological analyses of parenteral drugs, including chromatographic analysis, endotoxin testing, and ELISA
- Created and revised testing protocols

Indiana University

Bloomington, IN

**Research Associate**

May 2001 – July 2002

- Assessed the fitness consequences of transgenic white mold resistance in wild sunflowers utilizing DNA extractions, AFLP, PCR, plant propagation, gel electrophoresis

Baylor College of Medicine

Houston, TX.

**Research Intern**

May 1999 – August 1999

- Assisted in characterizing the role of c-myc in mouse skin homeostasis and carcinogenesis in transgenic mouse models utilizing tissue culture, immunohistochemistry (immunofluorescences), mouse handling and dissections, DNA extractions, and PCR culminating in a Nature Genetics publication

**COURSES TAUGHT**

**Certified Hybrid General Microbiology Lecture** (*undergraduate course*), Instructor, Florida International University, Miami, FL (Summer 2022, Fall 2022, Spring 2023, Fall 2023, Fall 2024, Spring 2025, Spring 2026)

**Online Cellular Chemistry Lecture** (*undergraduate course*), Instructor, Florida International University, Miami, FL (Spring 2022, Summer 2022, Fall 2022, Spring 2023, Summer 2023, Fall 2023, Summer 2024, Fall 2024, Spring 2025, Summer 2025, Fall 2025, Spring 2026)

**Phage Genomics Laboratory** (*undergraduate course*), Instructor, Florida International University, Miami, FL (Spring 2025, Spring 2026)

**SEA-GENES Laboratory** (*undergraduate course*), Instructor, Florida International University, Miami, FL (Fall 2024, Fall 2025)

**Biology I Laboratory (Phage Discovery)** (*undergraduate course*), Instructor, Florida International University, Miami, FL (Fall 2018, Fall 2019, Fall 2023, Fall 2024, Fall 2025)

**Online General Microbiology Lecture** (*undergraduate course*), Instructor, Florida International University, Miami, FL (Summer 2023, Summer 2024, Summer 2025, Fall 2025)

**Senior Seminar** (*undergraduate course*), Instructor, Florida International University, Miami, FL (Fall 2021, Summer 2022, Summer 2023)

**General Microbiology Lecture** (*undergraduate course*), Instructor, Florida International University, Miami, FL (Fall 2021, Spring 2022)

**Introduction to Microbiology Laboratory** (*undergraduate course*), Faculty Coordinator, Florida International University, Miami, FL (Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023, Fall 2024, Spring 2025)

**Introductory Biology Lecture** (*undergraduate course*), Instructor, Broward College, Davie, FL (Spring 2012, Fall 2014, Summer 2021)

**Biology II Laboratory** (*undergraduate course*), Instructor, Broward College, Davie, FL (Spring 2011, Spring 2013, Spring 2020, Spring 2021)

**Biology I Laboratory** (*undergraduate course*), Teaching Assistant, Florida International University, Miami, FL (Summer 2020)

**Biology I Laboratory** (*undergraduate course*), Instructor, Broward College, Davie, FL (Fall 2011, Spring 2012, Summer 2012, Fall 2012, Fall 2019, Spring 2020)

**Biology II Laboratory (Phage Bioinformatics)** (*undergraduate course*), Teaching Assistant, Florida International University, Miami, FL (Spring 2019, Spring 2020)

**Special Topics in Biological Science – Bacteriophage** (*undergraduate course*), Developer/Instructor, Broward College, Davie, FL (Spring 2020)

**Microbiology Laboratory** (*undergraduate course*), Instructor, Broward College, Davie, FL (Summer 2012, Spring 2013, Summer 2013, Spring 2016, Fall 2016, Fall 2019, Spring 2020)

**Environmental Science Lecture** (*undergraduate course*), Instructor, Broward College, Davie, FL (Spring 2012, Fall 2019)

**Microbiology Laboratory** (*undergraduate course*), Teaching Assistant, Florida International University, Miami, FL (Fall 2013, Spring 2014, Fall 2014, Spring 2015, Summer 2019)

**Introductory Biology Laboratory** (*undergraduate course*), Instructor, Broward College, Davie, FL (Spring 2011, sessions 2 and 4; Summer 2011; Fall 2011, sessions 1,2, and 4; Summer 2012, Summer 2018, Fall 2018, Spring 2019)

**Zoology Laboratory** (*undergraduate course*), Instructor, Broward College, Davie, FL (Fall 2011, Spring 2017, Spring 2018, Fall 2018)

**Biology II Laboratory** (*undergraduate course*), Teaching Assistant, Florida International University, Miami, FL (Summer 2014, Summer 2015)

**Microbiology Lecture** (*undergraduate course*), Instructor, Broward College, Davie, FL (Spring 2013)

**Genetics Lecture** (*undergraduate course*), Instructor, Nova Southeastern University, Davie, FL (Spring 2012, Fall 2012, Spring 2013)

**Genetics Laboratory** (*undergraduate course*), Instructor, Nova Southeastern University, Davie, FL (Spring 2012, Fall 2012, Spring 2013)

**Online Biology and the Human Experience** (*undergraduate course*), Developer/Instructor, City College, Ft. Lauderdale, FL (Spring 2012)

**Biology II Lecture** (*undergraduate course*), Instructor, Broward College, Davie, FL (Spring 2011)

**Molecular Genetics Laboratory** (*graduate course*), Teaching Assistant, Nova Southeastern University, Davie, FL (Spring 2009)

**Organic Chemistry II Laboratory** (*undergraduate course*), Teaching Assistant, Nova Southeastern University, Davie, FL (Fall 2007 and Fall 2008)

**Biochemistry Laboratory** (*undergraduate course*), Teaching Assistant, Nova Southeastern University, Davie, FL (Spring 2008)

### **PROFESSIONAL DEVELOPMENT**

Teaching in the Age of AI Fundamentals Workshop, Center for the Advancement of Teaching, Florida International University, Miami, FL (Spring 2026)

Creating an AI Agent, Center for the Advancement of Teaching, Florida International University, Miami, FL (Spring 2026)

American Society for Microbiology Conference for Undergraduate Educators (AMSCUE), San Antonio, TX (Fall 2025)

HHMI Phage Genomics Workshop, HHMI Headquarters, Bethesda, MD (Fall 2025)

Best Practices in Hiring Faculty Training, Florida International University, Miami, FL (Fall 2025)

SEA-PHAGES Faculty Meeting HHMI Headquarters, Bethesda, MD (Summer 2023, Summer 2024, Summer 2025)

Annual National Meeting of the Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN (Summer 2025)

LA Program Faculty Workshop, Florida International University, Miami, FL (Spring 2025)

Gateway Inquiry Institute I and II, Florida International University, Miami, FL (2022, 2023, 2024, 2025)

Mentoring At Scale Learning Community Florida International University, Miami, FL (Fall 2024)

SEA-GENES Virtual Lab Training (Spring and Summer 2024)

SEA-PHAGES Discovery Lab Training, UMBC, Baltimore, MD (Summer 2023)

Safe Zone Advocate Training, Florida International University, Miami, FL (2023)

Faculty Reading Group on Inclusive Teaching (Spring 2022)

Bystander Intervention Leadership Workshop, Florida International University, Miami, FL (Fall 2022)

Diversity Advocate Workshop, Florida International University, Miami, FL (Summer 2022)

Hybrid Teaching and Learning Course, Florida International University, Miami, FL (Spring 2022)  
STRIDE Faculty Recruitment Workshop, Florida International University, Miami, FL (Summer 2022)  
Fundamentals of Online Teaching Course, Florida International University, Miami, FL (Spring 2022)  
Pearson Learning Catalytics Training (Fall 2021)  
Association of College and University Educators (ACUE) Course in Effective Teaching Practices (2019 – 2020)  
National SEA-PHAGES Symposium, Janelia Research Campus, Ashburn, VA (2019)  
Florida Phage Phest Regional SEA-PHAGES Symposium, University of South Florida, Tampa, FL (2019)  
American Society for Microbiology Microbe Conference, Atlanta, GA (2018)  
Quantitative Insights Into Microbial Ecology (QIIME) 16S Microbiome Analysis Workshop, Florida International University, Miami, FL (2018)  
Comparative Immunology Symposium, Florida International University, Miami, FL (2014 – 2018)  
Scientific Teaching and Outreach Workshop, Florida International University, Miami, FL (2017)  
American Society for Microbiology Microbe Conference, New Orleans, LA (2017)  
Advanced Mass Spectrometry Workshop, Florida International University, Miami, FL (2016)  
Florida American Society for Microbiology R Workshop, University of Miami, FL (2016)  
Howard Hughes Medical Institute Biointeractive Workshop, Broward College, Davie, FL (2016)  
National Science Foundation Comparative Genomics Workshop, Florida International University, Miami, FL (2014)  
National Center for Biotechnology Information Human Genome Workshop, Florida International University, Miami, FL (2014)  
Pittsburgh Conference: Annual conference for laboratory professionals, Orlando, FL (2010)  
Project Management, InfoWorks, Nature's Products, Inc. Sunrise, FL (2009)  
Fourth International qPCR Conference, Technical University of Munich, Freising-Weihenstephen, Germany (2009)  
Cell Culture and Cellular Processes, Indiana University Biotechnology Program, Bloomington, IN (2005)  
Quality and Laboratory Controls, Institute of Validation Technology, San Francisco, CA (2005)

### **PROFESSIONAL SERVICE**

FIU Department of Biology Teaching Evaluation Committee Member (2023 – present)  
FIU Department of Biology Curriculum Enhancement Committee Member (2022 – present)  
FIU Department of Biology Strategic Planning Committee Member (2021 – present)  
Steering Committee member for NSF Research Coordination Networks in Undergraduate Biology Education (RCN-UBE) Incubator proposal led by the DOE KBase Educators group (2023-2024)  
Reviewer for npj Biofilms and Microbiomes (2022 - 2023)  
FIU Advanced Research and Creativity in Honors (ARCH) Program Mentor (2019 - 2020)

FIU Biomedical and Comparative Immunology Club President (2015 - 2018)

FIU Biomedical and Comparative Immunology Symposium Planning Committee (2015 - 2018)

FIU Department of Biological Sciences Graduate Student Mentoring Committee (2016)

FIU Biomedical and Comparative Immunology Club CSO Representative (2014)

Guest speaker at Miami Dade College Bioscience Forum, Miami Dade College North Campus, Miami, FL (2010)

Judge for University School of Nova Science Fair, Davie, FL (2009)

## **PUBLICATIONS**

Megan Carroll; Courtney Galle; Alison E Moyer; Michelle Tigges; Nance, H.; **Waikel, P.**; Thomas, M.; Susan Gurney (2026). Cluster EB Annotation Report. HHMI Science Education Alliance (SEA) Faculty Group, (Version 2.0). QUBES Educational Resources. doi:10.25334/K2E4-QG65

Purroy, XS, Sierra BR, Becerra Reymundo, L....**Waikel, P.**, Mayoral, J. (2025). Genome Sequence of Three Siphoviruses in the EE, GA, and EA5 Actinobacteriophage Clusters: Biscayne, Bush and GreenIvy. microPublication Biology. 10.17912/micropub.biology.001397

**Waikel, P.**, Lindberg, H., McCoy, J., Williams, E., Nieto, F., Carvalho, V., Monti, D. L. (2024). Cluster Y Annotation Report. HHMI Science Education Alliance (SEA) Faculty Group, QUBES Educational Resources. doi:10.25334/2MZ8-2B97

**Waikel, P.**, Lindberg, H., McCoy, J., Williams, E., Nieto, F., Monti, D. L. (2024). Cluster GA Annotation Report. HHMI Science Education Alliance (SEA) Faculty Group, QUBES Educational Resources. doi:10.25334/B968-7298

Diaz, A., Lee-Soety, J.,...**Waikel, P.**...Neely, M., Danlee, A. (2024) Writing Microbiology Resource Announcements (MRA). HHMI Science Education Alliance (SEA) Faculty Group, (Version 5.1). QUBES Educational Resources. doi:10.25334/B5BS-F125

**Waikel, Patricia**, "Exploration of the Role of Microbiome Structure, Metabolism, and Modification in Black Band Disease Etiology" (2020). *FIU Electronic Theses and Dissertations*. 4601.

Bhedi, CD, Prevatte CW, Lookadoo MS, **Waikel PA**, Campagna SR, Richardson LL. (2017) Effect of temperature variation on acyl homoserine lactone production by black band disease heterotrophic bacteria. *FEMS Microbiology Ecology*. 93,3: 1-10.

**Waikel, PA**. New Planktonic Symbiosis Found in the Ocean McGraw Hill 2014 Yearbook of Science and Technology.

Waikel, RL and **Waikel, PA**. Metatranscriptomics. McGraw Hill 2011 Yearbook of Science and Technology.

Waikel RL, Kawachi Y, **Waikel PA**, Wang XJ, Roop DR. (2001) Deregulated expression of c-Myc depletes epidermal stem cells. *Nature Genetics*. 28;165-8.

## **PRESENTATIONS**

**Waikel P.**, Benabentos, R., Rodriguez, I., Wood, L. (2025). Perceived Instructor Support Drives Student Belonging in Online, Hybrid, and In-Person Biology Courses, presented at the 2025 American Society for Microbiology Conference for Undergraduate Educators

**Waikel P.,** Rodriguez-Lanetty, M. (2018). Investigating the susceptibility of *Exaiptasia pallida* to Black Band Disease of corals, presented at the American Society for Microbiology Microbe 2018 Conference

**Waikel P.,** Rodriguez-Lanetty, M. (2018). Investigating *Exaiptasia pallida* as a model system for studying Black Band Disease of corals, presented at the 20<sup>th</sup> Annual Florida International University Biomedical and Comparative Immunology Symposium

**Waikel P.,** Brown, T., Lewis, C., Richardson, L., Rodriguez-Lanetty, M. (2017). A putative coral pathogen is attracted to coral-produced dimethylsulfoniopropionate: a potential initiation factor in White Plague Disease development, presented at the FIU NIGMS RISE and MARC U STAR Mini-Symposium

**Waikel PA,** Gillevet PM, Richardson LL, (2016). Potential role of dimethylsulfoniopropionate in black band disease etiology and persistence, presented at the 13<sup>th</sup> International Coral Reef Symposium

**Waikel PA,** Gillevet PM, Richardson LL, (2015). Potential metabolism of dimethylsulfoniopropionate in black band disease of corals, presented at the FIU NIGMS RISE and MARC U STAR Mini-Symposium

**Waikel PA,** Gillevet PM, Richardson LL, (2015). Potential role of dimethylsulfoniopropionate in structuring the black band disease community of corals, presented at 37<sup>th</sup> Scientific Congress of the Association of Marine Laboratories of the Caribbean

**Waikel PA,** Gillevet PM, Richardson LL, (2015). Potential role of dimethylsulfoniopropionate in black band disease of corals, presented at the 17<sup>th</sup> Florida International University Biomedical and Comparative Immunology Symposium

**Waikel PA,** Richardson LL, (2015). Potential role of dimethylsulfoniopropionate in coral disease, presented at the Eastern Fish Health Workshop

**Waikel PA,** Ledger A, Pop M, Feldman R, and Lopez JV. (2009) Differential Expression of Hypothetical Genes in a Biochemical Morphotype of *Discodermia dissoluta*., presented at 4<sup>th</sup> International qPCR Conference

### **HONORS AND AWARDS**

FIU STEM TI Scholarship of Teaching and Learning (SoTL) Fellowship (Fall 2023-present)

FIU College of Arts Sciences and Education (CASE) Faculty Recognition Award in Teaching (Fall 2023, Fall 2025)

FIU Provost's LA Initiative Award (Spring and Fall 2022, Spring and Fall 2023, Fall 2024, Spring 2025, Spring 2026)

FIU Top Scholar Award for Global Engaged and/or Inclusive Teaching (Spring 2024)

FIU Rewarding Excellence in Teaching Initiative (RETI) Award (Spring 2024)

FIU Center for the Advancement of Teaching (CAT) Fellowship (Summer 2023)

FIU Panther High Quality Design Certification for Online Cellular Chemistry course (Fall 2022)

FIU Provost's Hybrid Instructor Certification (Spring 2022)

Association of College and University Educators (ACUE) Certification in Effective Teaching (Spring 2020)

National Institute of General Medical Sciences Research Initiative for Scientific Enhancement (NIGMS RISE) Fellow (2015- 2018)

Inducted into Sigma Xi Scientific Research Honor Society (April 2017)

FIU Honorable Mention Graduate Student Oral Presentation, NIGMS RISE and MARC U STAR Biomedical Research Mini-Symposium (2015)

Employee of Excellence Award from South Florida Manufacturer's Association (2009)

**PROFESSIONAL MEMBERSHIPS**

American Society for Microbiology (ASM) (2014 – present)

American Association for the Advancement of Science (AAAS) (2022 – present)