

Andrea Burton, Ph.D  
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## EDUCATION

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**PhD in Integrative Biology** **2016 - 2022**

Integrative Biology Department at Oregon State University, Corvallis, OR

Dissertation: Adaptive Potential of Coastal Invertebrates to Environmental Stressors and Climate Change

Committee: Drs. Felipe Barreto, Chris Langdon, Francis Chan, Molly Burke, and Stephen Ramsey

**Graduate Certificate in College and University Teaching** **2017 - 2018**

Graduate School Department at Oregon State University, Corvallis, OR

Advance course work and experiential learning for teaching in higher education

**MS in Marine Biology** **2015**

Three Seas Program at Northeastern University, Boston, MA

Thesis: The invasive parasite, *Orthione griffenis*, takes advantage of its host, *Upogebia pugettensis*, reproductive season

**BS in Marine Biology** **2011**

Biology Department at Juniata College, Huntingdon, PA

**Summer session - Marine Mammal & Conservation** **2010**

University Marine Biological Station Millport, Cumbrae, Scotland

**Summer session – Marine Ecology Field Research Methods** **2009**

Research Station Bonaire, Caribbean, Bonaire

## CURRENT POSITION

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**Postdoctoral Scholar** **2022 - Present**

Science Education Partnership and Assessment Laboratory, San Francisco State University

- Conducting biology education research
- Assessing the extent to which students from rural backgrounds demonstrate common biology misconceptions
- How does the presence or absence of Instructor Talk, including positively or negatively phrased, influence students' perceptions of classroom inclusion

## PUBLICATIONS

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2021. **Burton, A.R.**, S.A. Gravem, F.S. Barreto. Little evidence for genetic variation associated with susceptibility to sea star wasting syndrome in the keystone species *Pisaster ochraceus*. *Molecular ecology*, **31**, 197-205.

2021. Chapman, J., B. Dumbauld, I. Waring-Enriquez, **A.R. Burton**. Morphology and surface area of *Upogebia pugettensis* and *Neotrypaea californiensis* burrows. *Hydrobiologia: Online Resource SI*, **848**, 993-1013.

2020. Cosmo, A., A. Topalā, **A.R. Burton**, D. Enache, J. Pérez, D. Cosma, M. Mileva, N. Nikolova, A. Tapia, A. Ochando, A. Carrión, E. del Alisal, B. Moreno, R. Ramírez, M. Ríos, G. Angius, G. Griva, I. Ravani, L. Stathopoulou, E. Koromila, N. Athanasopoulou, D. Poulou, M. Kapsali, A. Manolakis. The non-formal cultural heritage education book. mAPP my Europe. (Workbook: 1 chapter)

## RESEARCH EXPERIENCE

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### Graduate Research

2016 - 2022

Integrative Biology, OSU

- Assessing natural sea star populations to resistance to Sea Star Wasting Syndrome
- Identify the mechanisms of how ocean acidification impacts *Crassostrea gigas* during settlement
- Estimating the adaptive capacity of marine shellfish to ocean acidification and hypoxia
- Measuring the vulnerability and adaptive potential of two important local Oregon crustaceans to ocean acidification

### Research Technician

2015 - 2016

USDA, Newport, OR

- Compared lipid concentrations in infested and non-infested mud shrimp with a parasitic isopod
- Measure burrow casts to assess population structure and behavior of burrowing shrimp
- Isolate lipofuscin from ghost shrimp brains to age shrimp

### Research Assistant

2015 - 2016

Oregon State University, OR

- Monitored and cataloged species sampled tsunami debris washing up on the Pacific Northwest coastline
- Managed inventory of specimens for long term monitoring of tsunami debris

### Undergraduate Research

2009 - 2011

Juniata College, PA

- Examined speciation between northern and southern populations of the Bocaccio Rockfish
- Indexed discard-catch from local fisherman in Pondicherry India

## RESEARCH EXPERIENCE | CONTINUED

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### **Research Assistant**

**2009**

Fish and Wildlife Services, State College, PA

- Profiled stream of fish and macro invertebrates before and after construction
- Constructed mud sill and log veins to prevent erosion and provide shelter for freshwater organisms

## TEACHING EXPERIENCE

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### *INSTRUCTOR OF RECORD*

### **Introduction to Human Anatomy and Physiology Laboratory**

**2017 – 2019, 2020 – 2022**

Integrative Biology Department, OSU

- Instructor of three-term introductory series.
- 2-credit, 200-level course (2017-2021).
  - o Two 2-hour labs (24 students), one 1-hour recitation per week (48 students)
  - o 2019 - 2021, Mentor TA and exam writer for course.
- 2-credit, 300-level course (2021-2022).
  - o Two 3-hour labs per week (24 students each, 48 total).
- Employed a variety of teaching techniques, including conducting experiments, asking open-ended questions, reviewing questions with small groups, and more.
- Identified anatomical structures on cadavers.
- Related concepts to medical examples and introduced relevant research from diverse group of researchers.

### **Introduction to Human Anatomy and Physiology Lecture**

**2021**

Integrative Biology Department, OSU

- Instructor of 4-week long summer lecture
- Online synchronous instruction
- 2-credit, 200-level course from 2017 – 2021
  - o Two 2-hour lectures each week (58 students)
- Roughly 1-hour lecture with intermittent active learning methods and 1-hour group activities in breakout rooms of 4-6 students.
- Active learning methods include clicker questions, think-pair-shares, reflection of learning, among others.

## TEACHING EXPERIENCE | CONTINUED

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### **English Practicum II and III**

**2019-2020**

Ovidius University, Constanta, Romania

- Instructor of year-long English practicum course for second and third year students
- 3-credits
  - o Second years, two 1.5-hour classes per week (12 students)
  - o Third years, two 1.5-hour classes per week (9 students)
- Practice English speaking and writing skills through active learning activities including think-pair-shares, writing short stories, and games.
- Developed curriculum topics around student interests (e.g., politics, education, etc.)
- Discussed United States culture including topics related to social injustices, inequities of counter-stereotypical groups, and the role media plays in social perceptions.

### **Invertebrate Zoology Laboratory**

**2019**

Integrative Biology Department, OSU

- Instructor of sing-term course
- 2-credit, 300-level course
  - o Two 3-hour labs per week (19 and 18 students, 37 total)
- Employed a variety of teaching techniques, observing live and preserved specimens, performed quick experiments, worked in small groups, and more.
- Students hypothesized phylogenetic trees from arthropod specimens sequenced by students. Results were reported in a full manuscript.
- Compared and contrasted different phyla through dissections, microscope slides, diagrams, and more.
- Related concepts to medical examples and introduced relevant research from diverse group of researchers.

## *GRADUATE TEACHING ASSISTANT*

### **Principles of Biology Lab**

**2016 - 2017**

Integrative Biology Department, OSU

- Teaching Assistant of three-term introductory series
- 1-credit, 200-level course
  - o Taught one 3-hour lab with 30 students
  - o Assisted instructor for one 3-hour lab with 300 students
- Employed a variety of teaching techniques, including group discussion on open-ended questions, reviewing questions with small groups, and more.
- Developed scientific skills such as developing an experiment, collecting data, entering and analyzing data in excel, and reporting results in group presentations.

## TEACHING EXPERIENCE | CONTINUED

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### GUEST LECTURES/WORKSHOPS

- American Corner** **2020**  
*Ovidius University, Constanta, Romania*
- Workshop. *Space Week*. Invited by Dr. Ludmila Martanovschi
  - Workshop. *Computer Science*. Invited by Dr. Ludmila Martanovschi
- Invertebrate Zoology** **2019**  
Integrative Biology Department, OSU
- Guest lecture. *Arthropoda development and vision diversity*. Invited by Dr. Eli Meyer
    - o 45 students
- Graduate Teaching Assistant Orientation** **2018**  
Graduate Education Department, OSU
- Workshop. *Technology in the classroom*. Invited by Dr. Jessica Beck
    - o Three sessions 45-minutes long
    - o Max 40 students per session

### OTHER TEACHING EXPERIENCE

- Math/Science Teacher** **2011 - 2013**  
Machakos School for the Deaf, Kenya
- Peace Corps Volunteer in the Math/Science education and Deaf education sectors
  - Taught Biology, Physics, Agriculture, and Math at secondary school
  - Classes conducted in Kenyan Sign Language (KSL)
    - o First years: 37 students
    - o Second years: 28 students
    - o Third years: 23 students
- Percussion Instructor – Summer Camp** **2007 - 2010**  
McLean High School, BA
- One-and-a-half-week camp
  - Led rehearsals for the percussion ensemble in the marching band
    - o Max 18 students

### MENTORING/TUTORING

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- Integrative Biology Peer-Graduate Mentee** **2020 - 2022**
- Met with new first year graduate student quarterly
  - Discussed ways to ease adjustment to graduate school
  - Share school and department resources relevant for student success

## TEACHING EXPERIENCE | CONTINUED

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### **Human Anatomy and Physiology Laboratory Mentor** **2018 – 2019, 2020 – 2021**

- Led weekly meetings to introduce and review course concepts
- Shared and discussed evidence-based teaching strategies
- Developed and shared course resources
- Wrote and disseminated quizzes and practical exams

### **Integrative Biology Undergraduate Mentees** **2016 - 2022**

- Mentor three undergraduate students in genomic research methods
- Advise students on DNA extractions and image analyses
  - o **Brooke Galyon** – [Laboratory Technician at Arizona State University](#)
  - o **Justin Lim** – [Ph.D. student](#) at the University of Southern California Department of Chemistry
  - o **Timothy Somers** - Graduate of Oregon State University Integrative Biology Department

### **Biology Tutor** **2009 - 2010**

Biology Department, Juniata College

- Tutored freshman and sophomore students in introductory Biology course

## *TEACHING CERTIFICATE*

### **Graduate Certificate in College and University Teaching Coursework** **2017 - 2018**

Oregon State University, OR

- Theories of Teaching and Learning in Higher Education
- Course Design and Methods in Higher Education
- The Inclusive Classroom
- Professional Development Seminar
- Capstone Seminar
- Internship
- GTA Orientation Mentor

## SCIENCE COMMUNICATION

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### **After Dark** **2019**

Oregon Museum of Science and Industry, OR

- Related ocean acidification to beverage acidity for 3-hour event for adults visiting OMSI

### **Meet a Scientist** **2019**

- Educated visitors at the Oregon Museum of science about upwelling and its relation to ocean acidification through hands on demonstrations

## SCIENCE COMMUNICATION | CONTINUED

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### **Open House** 2017, 2018

Oregon State University, OR

- Planned and participated in introducing the public the Integrative Biology Department and our research

### **Marine Science Day** 2014 - 2016, 2018

Hatfield Marine Science Center, OR

- Educated the public about sea star wasting syndrome
- Introduced visitors to burrowing shrimp and their importance to the ecosystem

### **Periwinkle Elementary Family Science Night** 2016, 2017

Periwinkle Elementary, OR

- Introduced elementary students to tide pools and research techniques

### **Discover the Scientist Withing** 2017

Oregon State University, OR

- Educated young female scientist about coral disease and stress

### **Winter Wonderings** 2017

Oregon State University, OR

Educated students aged 10 -12 about invertebrates

### **Newport Elementary Mentor** 2015

Newport Elementary, OR

- Mentored a 4<sup>th</sup> grade class on estuary biology project

## PROFFESIONAL DEVELOPMENT

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### *ORGANIZED*

### **Integrative Biology Diversity Values Statement** 2020 - 2021

Oregon State University – EJI committee, OR

- Equity Justice and Integration subcommittee
- Summarized Integrative Biology Department individual contributions to one cohesive diversity statement
- Represent core values of all members of the department

### **Inclusive Classroom Development Workshops** 2020 - 2021

Oregon State University – EJI committee, OR

- Three 1-hour workshops were developed to discuss ways to use more inclusive curriculum
- Reviewed course syllabi to update activities with evidence-based teaching practices

PROFFESIONAL DEVELOPMENT | CONTINUED

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**Graduate Climate Discussion** 2019

Oregon State University, OR

- Aided in distributing and summarizing surveys for graduate student feedback in Integrative Biology Department
- Address concerns on equity and inclusivity ranging from graduate life to faculty and student dynamics

**Sexual Misconduct and Awareness Training** 2018

Oregon State University, OR

- Organized three 4-hour workshops
- Provide participants with practical skills in recognizing and addressing sexual misconduct in academic settings
- Awareness, prevention, and response within the OSU research community

*ATTENDED – TEACHING*

**Science Advancement of Biology Education Research (SABER) Conference** 2022

Minneapolis, MN

**DEJI Focus Group** 2020

Oregon State University, OR

**Society of Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) Conference** 2020

Online

*ATTENDED – SCIENCE*

**Department of Biostatistics Summer Institutes Workshops** 2019

University of Washington, WA

**OMSI Science Communication Fellowship** 2019

Oregon Museum of Science and Industry, OR

SCIENTIFIC PRESENTATIONS

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**Society for the Advancement of Biology Education Research** 2019

Irvine, CA

**Burton A, Dzeidzic K, Biga L:** Advantages of laboratory course for learning performance in Anatomy and Physiology courses



SCIENTIFIC PRESENTATIONS | CONTINUED

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- National Shellfisheries Association** 2018  
Seattle, WA  
**Burton A**, Meyer E, Durland E, Langdon C: Impacts of ocean acidification on the settlement of *Crassostrea gigas*
- State of the Coast** 2015  
Florence, OR  
**Burton A**, Chapman J, Caldwell D, Dumbauld B, Copeman L: The introduced Asian parasite, *Orthione griffenis*, waits for its new North American host, *Upogebia pugettensis*, to get fat
- Pacific Estuarine Research Society** 2015  
Seattle, WA  
Chapman J, Asson D, **Burton A**, Young D: Invasive parasite *Orthione griffenis* waits for fat *Upogebia pugettensis* hosts
- Liberal Arts Symposium** 2010  
Huntingdon, PA  
**Burton A**, Buonaccorsi V: Development of polymorphic microsatellite markers in bocaccio rockfish from anonymous genomic regions
- American Fisheries Society** 2010  
Pittsburgh, PA  
**Burton A**, Buonaccorsi V: Development of polymorphic microsatellite markers in bocaccio rockfish

OTHER ORGANIZATIONS

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- Equity, Justice and Inclusion Committee (EJI)** 2019 - 2022  
Committee member
- Women in science** 2017 - 2018  
Committee Organizer
- Open House Planning Committee** 2017 - 2018  
Committee Chair
- Integrative Biology Graduate Student Association** 2017 - 2018  
Social Committee Head
- Marine Science Club** 2016 - 2018  
Member

## FUNDING AND SCHOLARSHIPS

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<b>Fulbright English Teaching Assistant</b> Ovidius University, Romania	<b>\$19,000</b>	<b>2019</b>
<b>SACNAS National Diversity in STEM conference award</b> Oregon State University, OR	<b>\$205</b>	<b>2020</b>
<b>UW Biostatistics Summer Institute Scholarship</b>	<b>\$900</b>	<b>2018</b>
<b>OMSI Science Communication Fellowship</b> <b>College of Science</b>	<b>\$925</b>	<b>2018</b>
<b>Integrative Biology Department</b>	<b>\$925</b>	<b>2018</b>
<b>ZORF</b> Oregon State University, OR	<b>\$300</b>	<b>2018</b>
Oregon State University, OR	<b>\$500</b>	<b>2017</b>

## OTHER WORK EXPERIENCE

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<b>Temping</b> Randstad, VA - Receptionist, filing, organizing and data recording	<b>2013</b>
<b>National Zoo Invertebrate Exhibit Internship</b> National Zoo, Washington D.C - Maintained and regulated tank temperature, salinity, and sedimentation - Educated visitors about the invertebrates during live feedings	<b>2008</b>

## REFERENCES

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### **Dr. Kimberly Tanner**

Professor; Director of SEPAL. Department of Biology, SFSU, 1600 Holloway Avenue  
San Francisco, CA 94132. [KDTanner@sfsu.edu](mailto:KDTanner@sfsu.edu) (415) 405-3438

### **Dr. Felipe Barreto**

Professor. Department of Integrative Biology, OSU, 3029 Cordley Hall, Corvallis, OR  
97331. [Felipe.Barreto@oregonstate.edu](mailto:Felipe.Barreto@oregonstate.edu) (949) 433-5274.

### **Dr. Lindsay Biga**

Senior Instructor I. Department of Integrative Biology, OSU, 3029 Cordley Hall, Corvallis,  
OR 97331. [Lindsay.Biga@oregonstate.edu](mailto:Lindsay.Biga@oregonstate.edu) (541) 220-0103.