

**CRYSTAL M. REYNAGA, PH.D.**

Assistant Professor | Bryn Mawr College  
*Biomechanics · Locomotion · Muscle Physiology*

Department of Biology  
 101 North Merion Ave.  
 Bryn Mawr, PA 19010-2899, USA

Email: [creynaga@brynmawr.edu](mailto:creynaga@brynmawr.edu) Lab Website: [www.crystalreynaga.weebly.com](http://www.crystalreynaga.weebly.com)

**RESEARCH FOCUS**


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<b>Whole animal mechanics</b>	Kinematics of organismal movement and dynamic substrates
<b>Neural control</b>	Motor control and mechanics of jumping
<b>Muscle mechanics</b>	Dynamic <i>in vitro</i> muscle-tendon tests and imaging

**CURRENT APPOINTMENT**


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<b>BRYN MAWR COLLEGE</b>	July 2020 – Present
Assistant Professor   Department of Biology	

**EDUCATION**


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<b>UNIVERSITY OF CALIFORNIA, IRVINE</b>	2013 - 2018
Ph.D. in Biological Sciences	
Dissertation: <i>"Functional implications for novel gaits and substrates in anurans"</i>	
Advisor: Dr. Manny Azizi	
<b>UNIVERSITY OF CALIFORNIA, SANTA CRUZ</b>	2010 - 2012
B.S. in Marine Biology	
Honors Thesis: <i>"A comparative study of body shape and swimming kinematics in pholid and stichaeid fishes"</i>	
Advisor: Dr. Rita S. Mehta	
<b>UNIVERSITY OF CHICAGO</b>	2008 - 2010
Anticipated Major(s): Biological Sciences and Romance Languages & Literatures (Spanish)	
Completed 1 <sup>st</sup> and 2 <sup>nd</sup> year college education	

**RESEARCH POSITIONS**


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<b>DUKE UNIVERSITY</b>	2018 – 2020
Postdoctoral Research Associate   Department of Biology	
Advisor(s): Drs. <i>Sheila N. Patek (Duke University)</i> and <i>Gregory Sutton (University of Lincoln, UK)</i>	
<b>UNIVERSITY OF CALIFORNIA, IRVINE</b>	2013 - 2018
Graduate Research Fellow   Department of Ecology & Evolutionary Biology	
Advisor: Dr. Manny Azizi	
<b>CALIFORNIA STATE UNIVERSITY, LONG BEACH</b>	2012 - 2013
Research Assistant   Department of Biological Sciences	
PIs: <i>Kimberly Dolphin</i> & <i>Dr. Ashley Carter</i>	

## RESEARCH POSITIONS (CONTINUED)

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### UNIVERSITY OF WASHINGTON

Summer 2012

Undergraduate Fellow | Functional Morphology & Ecology of Marine Fishes  
Friday Harbor Laboratories  
Advisors: Drs. *Lara Ferry* & *Andrew Clark*

### UNIVERSITY OF CALIFORNIA, SANTA CRUZ

2010 - 2012

Undergraduate Research Assistant | Department of Ecology & Evolutionary Biology  
Advisor: Dr. *Rita Mehta*  
Collaborators: Drs. *Andrea Ward* & *David Collar*

### UNIVERSITY OF CHICAGO

2008 - 2010

Laboratory Assistant | Department of Organismal Biology & Anatomy  
Advisor: Dr. *Victoria Prince*

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## PUBLICATIONS

\*denotes undergraduate researcher

3. **Reynaga, C.M.**, Eaton, C., \*Strong, G.A. and Azizi, E. 2019. Compliant substrates disrupt elastic energy storage in jumping tree frogs. *Integrative & Comparative Biology* 59:1535-1535. [DOI](#)
2. **Reynaga, C.M.**, Astley, H.C., and Azizi, E. 2018. Morphological and kinematic specializations of walking frogs. *Journal of Experimental Zoology A: Ecological and Integrative Physiology* 329:87-98. [DOI](#)  
*Awarded Journal of Experimental Zoology top 20 most downloaded paper in 2018*  
*Media Coverage*  
These frogs walk instead of hop. *Science Magazine*, [URL](#)  
These walking frogs are a must-see wonder. *Treehugger*, [URL](#)  
Did you know there are four species of frogs that prefer walking over hopping? *India Today*, [URL](#)  
These frogs get around by walking instead of hopping. *Seeker*, [URL](#)
1. Collar, D. C., **Reynaga, C.M.**, Ward, A.B., and Mehta, R.S. 2013. A revised metric for quantifying body shape in vertebrates. *Zoology* 116:246-257. [DOI](#)

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## MANUSCRIPTS IN PREPARATION

Available upon request

1. **Reynaga, C.M.**, Ilton, M., Divi, S., Crosby, A.J., Bergbreiter, S., and Azizi, E. Trade-offs of power amplification on compliant substrates. *In preparation*.

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## GRANTS, AWARDS & FELLOWSHIPS

11 research grants total \$183,315

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|------|---|
| 2019 | <b>Biomechanics Early Career (BEC) Fellowship Program</b> , Three-year NSF funded mentoring and fellowship program, awarded to five early career women scientists who specialize in biomechanics.   |
| 2019 | <b>Department of Defense, Army Education Outreach Program (AEOP) Fellowship</b> , Awarded undergraduate and high school Summer Research Fellowships, total \$7,500.                                 |
| 2018 | <b>Chancellor's Club Fund for Excellence Fellowship</b> , UC Irvine, Fellowship recognizes doctoral students who exhibit outstanding promise as scholars, researchers, and public leaders, \$6,000. |

## GRANTS, AWARDS & FELLOWSHIPS (CONTINUED)

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2018	<b>Grad Slam Campus-wide Finalist</b> , UC Irvine, Campus-wide competition that showcases and awards the top ten three-minute research pitches by graduate scholars.
2017	<b>Best Oral Research Presentation</b> , NSF GRFP Research Symposium, UC Irvine, \$100.
2016	<b>Graduate Assistance in Areas of National Need (GAANN) Research Fellowship</b> , US Dept. of Education, \$1,000.
2016	<b>GAANN Fellowship</b> , US Dept. of Education, \$10,486.
2015	<b>Diverse Educational Community and Doctoral Experience (DECADE) Research Award</b> , UC Irvine, Graduate Division, \$1,800.
2013-2018	<b>National Science Foundation Graduate Research Fellowship Award (NSF-GRFP)</b> , \$136,000.
2013-2017	<b>Graduate Opportunities Fellowship</b> , UC Irvine, Graduate Division, \$17,000.
2011-2012	<b>Initiative for Maximizing Student Diversity Fellowship (IMSD)</b> , UC Santa Cruz, National Institutes of Health, \$3,500.
2011-2012	<b>California Alliance for Minority Participation Fellowship (CAMP)</b> , UC Santa Cruz, National Science Foundation, \$4,800.
2012	<b>Friday Harbor Marine Lab Scholarship</b> , University of Washington, \$1,800.
2011	<b>National Science Foundation Research Experiences for Undergraduates (NSF-REU 0819009)</b> , UC Santa Cruz, \$3,915.
2009-2010	<b>Sam and Roslyn Berkman Scholarship</b> , University of Chicago.

## INVITED TALKS

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5. **University of California, Riverside (UCR)**, Department of Evolution, Ecology, and Organismal Biology, 2021.
4. **Center for Engineering and MechanoBiology (CEMB)**, University of Pennsylvania, 2021.
3. **California State University, Dominguez Hills (CSUDH)**, Department of Biology, 2020.
2. **The Royal Veterinary College (RVC), University of London**, Structure and Motion Laboratory. *Functional implications for novel gaits and substrates in anurans*, Hatfield UK, 2019.
1. **Society for Integrative & Comparative Biology (SICB) Annual Meeting**, "Symposia: Playing with Power: Mechanisms of Energy Flow in Organismal Movement" *Trade-offs of power amplification on compliant substrates*, Tampa FL, 2019. [Published Abstract DOI](#). *Integrative and Comparative Biology* 59, E192-E192

## PRESENTATIONS

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\*Award winning presentation

26. **Crystal M. Reynaga**, Sathvik Divi, Mark Ilton, Sarah Bergbreiter, and Emanuel Azizi (2018). Tuning latch mediated systems to their environment. Southeast Regional Meeting for the *Society for Integrative & Comparative Biology*, Clemson University, Clemson SC. Oral Presentation.
25. \***Crystal M. Reynaga** (2018). Frog Olympics: Jumping off unsteady diving boards. *UC Irvine Campus-wide Finals*, Irvine CA. Oral Presentation.
24. \***Crystal M. Reynaga** (2018). Frog Olympics: Jumping off unsteady diving boards. *UC Irvine Campus-wide Grad Slam Semi-finals*, Irvine CA. Oral Presentation.
23. **Crystal M. Reynaga**, Galatea Strong, Caitrin Eaton & Emanuel Azizi (2018). Hindlimb mechanics and motor pattern response to varying compliant substrates in Cuban tree frogs. *Society for Integrative & Comparative Biology*, San Francisco CA. Oral Presentation. [Published Abstract DOI](#). *Integrative and Comparative Biology* 58, E186-E186.

## PRESENTATIONS (CONTINUED)

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22. **Crystal M. Reynaga** & Emanuel Azizi (2017). Effects of compliance on elastic energy recovery in the bullfrog plantaris muscle. Southwest Regional Meeting for the *Society for Integrative and Comparative Biology*, Harvey Mudd College, Claremont CA. Oral Presentation.
21. **Crystal M. Reynaga**, Caitrin Eaton & Emanuel Azizi (2017). Hindlimb mechanics and response of jumping from compliant substrates in tree frogs. *Society for Experimental Biology Annual Meeting*, Gothenburg, Sweden. Oral Presentation.
20. \***Crystal M. Reynaga**, Caitrin Eaton & Emanuel Azizi (2017). Effects of compliant substrates on jumping. *NSF-GRFP Research Symposium*, UC Irvine, Irvine CA. Oral Presentation.
19. **Crystal M. Reynaga**, Caitrin Eaton & Emanuel Azizi (2017). Frog Olympics: Jumping off unsteady diving boards. *Associated Graduate Students (AGS) Symposium*, UC Irvine, Irvine CA. Oral Presentation.
18. **Crystal M. Reynaga**, Caitrin Eaton & Emanuel Azizi (2017). Effects of substrate compliance during jumping in the Cuban tree frog. *Winter Ecology and Evolutionary Biology Graduate Student Symposium (WEEBGSS)*, UC Irvine, Irvine CA. Oral Presentation.
17. **Crystal M. Reynaga**, Caitrin Eaton & Emanuel Azizi (2017). Effects of substrate compliance on hindlimb kinematics of jumping in Cuban tree frogs, *Osteopilus septentrionalis*. *Society for Integrative and Comparative Biology Annual Meeting*, New Orleans LA. Poster Presentation. [Published Abstract DOI](#). *Integrative and Comparative Biology* 57, E138-E138.
16. **Crystal M. Reynaga**, Caitrin Eaton & Emanuel Azizi (2016). Investigating the effects of substrate compliance on jumping in Cuban tree frogs. Southwest Regional Meeting for the *Society for Integrative and Comparative Biology*, California State University Fullerton, Fullerton CA. Oral Presentation.
15. **Crystal M. Reynaga**, Caitrin Eaton & Emanuel Azizi (2016). Effects of substrate compliance during Jumping in the Cuban tree frog, *Osteopilus septentrionalis*. *Society for Advancing Chicanos/Hispanics and Native Americans (SACNAS) in Science: The National Diversity in STEM Conference*, Long Beach CA. Poster Presentation.
14. **Crystal M. Reynaga**, Henry Astley & Emanuel Azizi (2016). Morphological and kinematic constraints of quadrupedal walking in frogs. *Society for Integrative and Comparative Biology Annual Meeting*, Portland OR. Oral Presentation. [Published Abstract DOI](#). *Integrative and Comparative Biology* 56, E182-E182.
13. **Crystal M. Reynaga**, Henry Astley & Emanuel Azizi (2015). Morphological and kinematic constraints of quadrupedal walking in frogs. Southwest Regional Meeting of the *Society for Integrative and Comparative Biology*, Cal Poly Pomona, Pomona CA. Oral Presentation.
12. **Crystal M. Reynaga** & Emanuel Azizi (2015). Force transmission pathways in axial muscles of the common carp, *Cyprinus carpio*. *Winter Ecology and Evolutionary Biology Graduate Student Symposium*, UC Irvine, Irvine CA. Oral Presentation.
11. **Crystal M. Reynaga** & Emanuel Azizi (2015). Force transmission pathways in axial muscles of the common carp, *Cyprinus carpio*. *Society for Integrative and Comparative Biology Annual Meeting*, West Palm Beach FL. Poster Presentation. [Published Abstract DOI](#). *Integrative and Comparative Biology* 55, E320-E320.
10. **Crystal M. Reynaga**, Nicole Danos, Emanuel Azizi (2014). Conflicts between locomotor modes: running and jumping locomotion in the Senegal running frog, *Kassina senegalensis*. *Society for Integrative and Comparative Biology Annual Meeting*, Austin TX. Poster Presentation. [Published Abstract DOI](#). *Integrative and Comparative Biology* 54, E337-E337.

## PRESENTATIONS (CONTINUED)

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9. **Crystal M. Reynaga**, Nicole Danos, Emanuel Azizi (2013). Conflicts between locomotor modes: terrestrial and aquatic locomotion in the Senegal running frog, *Kassina senegalensis*. Southwest Regional Meeting of the *Society for Integrative and Comparative Biology*, UC Riverside, Riverside CA. Oral Presentation.
8. **Crystal M. Reynaga**, Nicole Danos, Emanuel Azizi (2013). Limb kinematics during terrestrial and aquatic locomotion in the Senegal running frog, *Kassina senegalensis*. *Competitive Edge Summer Symposium*, UC Irvine, Irvine CA. Oral Presentation.
7. **Crystal M. Reynaga**, Lara Ferry, Andrew Clark (2013). A comparative study of body shape and swimming kinematics in pholid and stichaeid fishes. *Society for Integrative and Comparative Biology Annual Meeting*, San Francisco CA. Poster Presentation.  
[Published Abstract DOI](#). *Integrative and Comparative Biology* 53, E3337-E337.
6. **Crystal M. Reynaga**, Lara Ferry, Andrew Clark (2012). A comparative study of body shape and swimming kinematics in pholid and stichaeid fishes. *Southwest Regional Meeting of the Society for Integrative and Comparative Biology*, CSU San Bernardino, San Bernardino CA. Poster Presentation.
5. **Crystal M. Reynaga**, David Collar, Andrea Ward, Rita Mehta (2012). A revised metric to quantify body shape diversity in vertebrates. *CAMP Statewide Research Symposium*, UC Irvine, Irvine CA. Poster Presentation.
4. **Crystal M. Reynaga**, David Collar, Andrea Ward, Rita Mehta (2012). A revised metric to quantify body shape diversity in vertebrates. *Society for Integrative and Comparative Biology Annual Meeting*, Charleston SC. Oral Presentation.  
[Published Abstract DOI](#). *Integrative and Comparative Biology* 52, E145-E145
3. **Crystal M. Reynaga**, David Collar, Andrea Ward, Rita Mehta (2011). A revised metric to quantify body shape diversity in vertebrates. *Wainwright Functional Morphology Meeting*, Carmel Valley CA. Oral Presentation.
2. **Crystal M. Reynaga**, David Collar, Andrea Ward, Rita Mehta (2011). A revised metric to quantify body shape diversity in vertebrates. *SACNAS National Conference*, San Jose CA. Poster Presentation.
1. **Crystal M. Reynaga**, David Collar, Andrea Ward, Rita Mehta (2011). A revised metric to quantify body shape diversity in vertebrates. *Undergraduate Summer Research Symposium*, UC Santa Cruz, Santa Cruz CA. Poster Presentation.

## CONTRIBUTED PRESENTATIONS

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\*Undergraduate researcher †High school researcher

6. \*Misha Mubashar Khan, **Crystal M. Reynaga**, Sheila N. Patek (2019). Grasshopper jump performance off dampening substrates. *Sigma Xi Poster Session*, Swarthmore College, Swarthmore PA. Poster Presentation.
5. †Aiden Lamar, **Crystal M. Reynaga**, Sheila N. Patek (2019). Characterizing rotational control during landing in grasshoppers on angled planes. Southeast Regional Meeting for the *Society for Integrative and Comparative Biology*, Wake Forest NC. Oral Presentation.
4. \*Misha Mubashar Khan, **Crystal M. Reynaga**, Sheila N. Patek (2019). Grasshopper jump performance off dampening substrates. *Duke Summer Undergraduate Research Showcase*, Duke University, Durham NC. Poster Presentation.

## CONTRIBUTED PRESENTATIONS (CONTINUED)

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3. †Vennila Thillaivanan, **Crystal M. Reynaga**, Sheila N. Patek (2019). Elastic energy recovery in grasshoppers on compliant substrates. *Duke Summer Undergraduate Research Showcase*, Duke University, Durham NC. Poster Presentation.
2. †Aiden Lamar, **Crystal M. Reynaga**, Sheila N. Patek (2019). Characterizing rotational control during landing in grasshoppers on vertical planes. *Duke Summer Undergraduate Research Symposium*, Duke University, Durham NC. Poster Presentation.
1. Ilton, M. Cook, A., Heller, N., Patek, S., Crosby, A., Bergbreiter, S., Azizi, E., Sutton, G., Longo, S., Divi, S., **Reynaga, C.**, Olberding, J., St Pierre, R., and Cox, S. (2019). Modeling the physical constraints of latch mediated, spring actuated systems. *Bulletin of the American Physical Society*.

## TEACHING EXPERIENCE

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**Instructor**, *Senior Research Seminar*, Bryn Mawr College, Bryn Mawr PA, 2021.

**Instructor**, *Biomechanics*, Bryn Mawr College, Bryn Mawr PA, 2021.

**Instructor**, *Human Physiology Lecture & Lab*, Bryn Mawr College, Bryn Mawr PA, 2020.

**Guest Instructor**, *Exercise Science Seminar*, UC Irvine, Irvine CA, 2016.

**Teaching Assistant**, *Biology of Birds Laboratory*, UC Irvine, Irvine CA, 2016.

**Teaching Assistant**, *Physiology Laboratory*, UC Irvine, Irvine CA, 2013-2015.

**Teaching Assistant**, *Marine Biology*, UC Irvine, Irvine CA, 2014.

## STUDENT MENTORING

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†Undergraduate co-author \*Independent research project ‡Career in STEM

**Bryn Mawr College**, Bryn Mawr PA

Houda Bouchourari\*, Undergraduate Researcher (2020-Present)

Madison Kearns\*, Undergraduate Researcher (2021-Present)

Isabelle Kuszyk\*, Undergraduate Researcher (2021-Present)

Nuan Zhang\*, Undergraduate Researcher (2021-Present)

Calumina McCondochie, Thesis Advisee, Undergraduate Researcher at UPenn (2020-2021)

**Duke University**, Durham NC

Julia Choi\*, Undergraduate Researcher (2019-2020)

Cassie Shriver\*, Undergraduate Researcher (2019-2020)

Misha Mubashar Khan\*, Swarthmore College Undergraduate Researcher (Summer 2019)

Vennila Thillaivanan\*, Panther Creek High School Student Researcher (Summer 2019)

Aiden Lamar\*, Riverside High School Student Researcher (Summer 2019)

**University of California, Irvine**, Irvine, CA

Galatea Strong\*‡, Undergraduate Researcher (2016-2018)

Ashley Hughes\*, Undergraduate Researcher (2013-2015)

Yasmin Gutierrez\*‡, Undergraduate Researcher (2014-2015)

## STUDENT MENTORING (CONTINUED)

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### **Summer Undergraduate & Masters Research Program Mentees**, UC Irvine, Irvine CA

2016: Elizabeth Mendoza<sup>☞</sup> (U. of Oklahoma), Alica Corrales<sup>☞</sup> (CSU Long Beach), Luc D'Hauthuille (UC Santa Cruz), Kenny Huynh<sup>☞</sup> (UC Irvine), Kirolos Kelada<sup>☞</sup> (UC Irvine), Lupita Lopez (CSU Long Beach), Aylin Mojica (UC Irvine), Nuria Perez Varela (UC Irvine), Jordyn Rodwell (UC Irvine)

2015: Dany Atallah (CSU Long Beach), Alexander Beechko<sup>☞</sup> (CSU San Bernardino), Thomas Carpino<sup>☞</sup> (U. of Central Florida), Noah Ghossein<sup>☞</sup> (CSU San Bernardino), Jourdan Mason (UC Merced), Jasmin Melara<sup>☞</sup> (U. of Georgia), Courtney Powell<sup>☞</sup> (U. of Central Florida), Joli Quiceno (Florida International U.)

2014: Andrew DiMauro<sup>☞</sup> (UC Berkeley), Melvin Lorenzo<sup>☞</sup> (UC Davis), David Novo (Barry University), Ivory Paulk<sup>☞</sup> (U. of Central Florida), Flora Wang (Smith College), Nicholas White<sup>☞</sup> (UC Merced)

### **First-gen Undergraduate Mentees**, UC Irvine, Irvine CA

2014-2015: Bianca Dominguez (UC Irvine), Judith Granados (UC Irvine), Leidy Cruz (UC Irvine)

### **SACNAS Undergraduate Mentee**

Sarah Valles<sup>☞</sup>, UC Irvine (2013-2014)

## UNIVERSITY AND PROFESSIONAL SERVICE

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**STEM Posse Immersion**, *Biology Workshop Facilitator*, Summer 2021. The goal of this program is to orient first year posse students to typical STEM courses at Bryn Mawr. Developed interactive lesson plans on motion across scales: from motor proteins to whole body movement.

**Bryn Mawr College Institutional Animal Care and Use Committee (IACUC) Member**, 2020-Present.

**Nominated Committee Member**, *Broadening Participation Committee*, Society for Integrative & Comparative Biology, 2020-Present. The goal of the committee is to increase the diversity of SICB and the field of integrative biology at all career stages, in terms of gender/gender identity, sexual orientation, race/ethnicity, ability/disability, and socioeconomic background.

**Evaluation Advisory Committee Member**, *Society for Integrative & Comparative Biology (SICB)*, 2020. Consultant on the development of diversity, equity, and inclusion surveys to promote retention of underrepresented sciences at SICB.

**Graduate Representative**, *Graduate Dean's Advisory Council on Diversity*, UC Irvine, 2015-2018.

Composed of faculty, graduate students, and professional staff with a record of commitment to diversity. Provided ideas, insight, and expertise to expand and enhance the Graduate Division's efforts to recruit and retain outstanding students from diverse backgrounds. Notable works include: the development of "Learning Community for Future Faculty at UC Irvine", a proposal to develop learning communities to prepare graduate students from underrepresented backgrounds to successfully pursue faculty careers at research intensive universities. Pilot program based upon proposal went into effect Fall 2019.

**Undergraduate Symposium Judge**, for the Annual University of California Leadership Excellence through Advanced Degrees (UC LEADS) program 2018, *Santa Barbara CA*; and the Annual Biomedical Research Conference for Minority Students (ABRCMS) 2017 in *Phoenix AZ*;

**UC Irvine Graduate Division Student Representative**, for the Annual Biomedical Research Conference for Minority Students (ABRCMS): 2014, *San Antonio TX*; 2016, *Tampa FL*; 2017, *Phoenix AZ*.

**NSF-GRFP Graduate Student Panelist**, *UC Irvine School of Biological Sciences*, 2014-2017. Provided words of wisdom to first- and second-year UCI graduate students based upon my personal experiences preparing a successful NSF-GRFP proposal.

## UNIVERSITY AND PROFESSIONAL SERVICE (CONTINUED)

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**McNair Graduate Student Panelist**, *UC Irvine Graduate Division*, 2016-2017. Provided words of wisdom to third to fourth year undergraduates from UC Davis and University of Central Florida based upon personal experience applying to graduate school and transitioning from undergraduate to graduate life.

**UCI Campus wide Graduate Orientation Panelist**, *UCI Graduate Division*, 2016. Spoke as a panelist about “Embracing Your New Graduate Life”, sharing experiences, resources, and advice for thriving academically and personally while in graduate school.

**Ecology & Evolutionary Biology Brown-Bag Lunch**, *UCI Dept. of Ecology & Evolutionary Biology*, Spring 2016. Established and developed a brown-bag dialogue series for graduate students to access a supportive community, tailored resources, and professional development opportunities through invited speakers. In coordination with Dr. *Ann Sakai*, DECADE Faculty Mentor.

**UC Irvine Graduate Division Student Representative**, for the Northern California Forum for Diversity in Graduate Education, 2016, San Jose State University, *San Jose CA*.

**DECADE Student Council STEM Co-Chair**, for the UCI Diverse Educational Community and Doctoral Experience (DECADE), *UC Irvine*, 2015-2016. Lead council meetings, discussions, Community Meetings, and Townhalls for graduate students on diversity and inclusion. Liaison with Equity Advisors, Graduate Dean, and graduate student body. Notable works include: the development of the “DECADE Student Council Strategic Plan” this document provides university-wide strategies to help effectively address academic enhancement and inclusion for all graduate students at UCI.

**Ecology & Evolutionary Biology organizational committee member**, for the Graduate Student Invited Speaker (GSIS) (UC Irvine, Fall 2015); and Winter Dept. of Ecology & Evolutionary Biology Graduate Student Symposium (WEEBGSS) (UC Irvine, Winter 2015).

**NSF-GRFP Writing Mentor**, *UC Irvine School of Biological Sciences*, 2014. Provided one-on-one writing workshops to provide feedback on NSF-GRFP personal and research statement proposals.

## PROFESSIONAL DEVELOPMENT

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**Teaching and Learning Institute (TLI)**, *Bryn Mawr College*, Fall 2020. Working with undergraduate student, Bilikisu Hanidu, and collaborative group of professors to improve pedagogy in our course instruction.

**Activate to Captivate Public Speaking**, *UC Irvine*, Fall 2018. Communicating research effectively, an eight-week certification program. Instructed by communications specialist, Bri McWhorter, MFA.

**Safe Zone Training**, *UC Irvine*, Spring 2016. Program empowers individuals as Allies to remain informed, supportive, and affirming of the LGBTQIA+ Community at UCI.

**Science Communication**, *UC Irvine*, Spring 2015. This program explores the art and science of effective writing, performance, and audience interaction, under the instruction of NPR’s Sandra Tsing Loh, host of the syndicated radio show “The Loh Down on Science”.

**Certified Undergraduate Research Mentor in the Laboratory**, *UC Irvine*, Fall 2014. Training and development workshop series on undergraduate research mentoring in the laboratory setting. A curriculum developed by the Wisconsin Program for Scientific Teaching with support from the Howard Hughes Medical Institute.



## **PROFESSIONAL DEVELOPMENT (CONTINUED)**

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**Mentor Excellence Program, UC Irvine, Summer 2013.** Training and development workshop series on building a mentoring relationship, communication and interpersonal connections, ethics in academics, research and personal decisions, and resilience in balancing academics and wellness mentorship. Programing offered by the Graduate Division.

**Teaching Assistant Professional Development Workshops, UC Irvine, Summer 2013.** Training and development workshop series on instructional design, responsibilities, pedagogical theory and practice, and university policies and resources. Programing offered by the Teaching, Learning & Technology Center.

**UCI Graduate Division Competitive Edge Summer Research Program, UC Irvine, Summer 2013.** A summer pre-entry program for incoming female and underrepresented PhD students to conduct research under the direct supervision and guidance of a faculty member, Dr. *Manny Azizi*. This program featured workshops and seminars about campus resources, fostering professional development, establishing peer support networks, and developing academic strategies to enhance the graduate education experience.

## **PUBLIC OUTREACH**

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**American Physiological Society (APS) Physiology Understanding (PhUn) Week, Long Beach CA. 2018.** A nationwide outreach program building connections between scientists and local schools. Partnered with Dr. *Nancy Aguilar-Roca* (UCI faculty), Ms. *Aida Gonzalez*, (2<sup>nd</sup> grade teacher), and APS to develop discovery and hands-on learning using small group “laboratory” activities on “Muscles, Movement, and Our Skeleton”.

**Naples Elementary School— Second Grade Outreach, Long Beach CA. 2014-2018.**

Partnered with Ms. *Aida Gonzalez* to develop interactive presentations, curriculum, and laboratory activities that addressed my research. Topics included: natural history of the Senegal running frog, muscle and vertebrate anatomy, anatomical measurements, and simple physical model building.

**Washington Middle School— 7<sup>th</sup> and 8<sup>th</sup> Grade Outreach, Long Beach CA. 2016-2018.**

Developed an interactive presentation on my research, “How our muscles move and activate”. With a post-discussion on STEM diversity in the sciences proposing questions like “What does a scientist look like?”

## **JOURNALS SERVED AS MANUSCRIPT REVIEWER**

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*Anatomia, Histologia, Embryologia*

*Integrative and Comparative Biology*

*Journal of Experimental Biology*

*Journal of Experimental Zoology*

*Royal Society Open Science*

*Zoology*

## **PROFESSIONAL MEMBERSHIPS**

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American Association for the Advancement of Science (AAAS)

American Physiological Society (APS)

Society for Experimental Biology (SEB)

Society for Integrative & Comparative Biology (SICB)

Society for Advancing Chicanos and Native Americans in the Sciences (SACNAS)