


William C. Beckerson, Ph.D. – Curriculum Vitae

 @WilliaMycete

 @WBeckerson

 @theZombieFungusForay

 William.Beckerson@ucf.edu

 <https://orcid.org/0000-0001-7132-7578>

EDUCATION

University of Louisville - Louisville, KY	2015-2020
Doctor of Philosophy in Biology	
University of Louisville - Louisville, KY	2015-2017
Master of Science in Biology	
Georgetown College - Georgetown, KY	2009-2013
Bachelor of Science in Biology / Minor: Business Management	

RESEARCH EXPERIENCE

Postdoctoral Research:

NSF Fellow at University of Central Florida, US (PI: Charissa de Bekker, PhD)	2020-2023
Linking parasite genomes, environmental ques, and host phenomes in <i>Ophiocordyceps</i>	

Dissertation Research:

University of Louisville, US (PI: Michael Perlin, PhD)	2015-2020
Molecular analysis of secreted proteins in the <i>Microbotryum</i> genus	
Ruhr-Universität Bochum, DE (Dominik Begerow, PhD)	2018-2019
Implementation of CRISPR Cas9 transformation systems in <i>Microbotryum</i>	
Université Paris-Sud, FR (Tatiana Giraud, PhD)	2016-2018
Comparative genomics of species-specific effectors in <i>Microbotryum</i>	

Pedagogical Research:

University of Louisville, US (Deborah Yoder-Himes, PhD)	2017-2021
Analyzing the importance of dose-response in active learning environments	
Analyzing the impact of active learning on different student social personalities	

FUNDING

Extramural Funding and Fellowships (\$147,605):

NSF Postdoctoral Research Fellowship in Biology, US	(\$138,000)	2021
Award number (FAIN): 2109435		
GSA Fungal Genetics Conference Travel Award, US	(\$250)	2019
DAAD Short Term Research Grant, DE	(\$4,075)	2018
Chateaubriand STEM Fellowship, FR	(\$5,280)	2016

Intramural Funding, University of Central Florida, US (\$55,000):

Preeminent Postdoctoral Program	(\$55,000)	2020
Co-written with: Dr. Charissa de Bekker		

Intramural Funding, University of Louisville, US (\$3,236):

Biology 1970's Cohort Fund Grant	(\$200)	2019
Graduate Student Council Travel Grant	(\$350)	2019
Graduate Network of Arts and Science Travel Grant	(\$250)	2019
Graduate Student Council Travel Grant	(\$350)	2018
Arts & Science Research & Creative Activities Grant	(\$500)	2018
Biology Graduate Student Association Travel Grant	(\$175)	2018

Joint Arts & Science Research & Creative Activities Grant Co-written with: Venkata S. Kuppireddy	(\$1,311)	2016
Graduate Network of Arts and Sciences Research Fund	(\$100)	2016
Significant Contributions to Other Grants (\$296,889):		
NSF Track I International Research Experience for Students (IRES), US Co-written with: (PI) Dr. Michael H. Perlin Award number: 1824851	(\$296,889)	2018

PUBLICATIONS

Peer Reviewed Articles:

- Beckerson WC, Anderson JO, Kulkarni S, Perpich JD, Yoder-Himes D. (2021). It's About Time: Exploring the dose-dependent effects of active learning on student social of different social personalities in an upper-level biology course. *Journal of College Science Teaching*. **In Review**
- De Bekker C, Beckerson WC, Carolyn Elya. (2021). Mechanisms Behind the Madness: How do zombie-making fungal entomopathogens affect host behavior to increase transmission? *mBio* 12(5), e01872-21.
<https://doi.org/10.1128/mBio.01872-21>
- Beckerson WC, Anderson JO, Perpich JD, Yoder-Himes D. (2020). An Introvert's Perspective: Analyzing the impact of active learning on social personalities in an upper-level biology course. *Journal of College Science Teaching* 49(3), 47-57.
https://doi.org/10.2505/4/jcst20_049_03_47
- Beckerson WC, de la Vega RCR, Hartmann FE, Duhamel M, Giraud T, Perlin MH. (2019). Cause and Effectors: Whole genome comparisons reveal shared but rapidly evolving effector sets among host-specific plant-castrating fungi. *mBio* 10:e02391-19.
<https://doi.org/10.1128/mBio.02391-19>
- Kuppireddy VS, Uversky VN, Toh SS, Tsai M-C, Beckerson WC, Cahill CC, Carman B, Perlin MH. (2017). Identification and initial characterization of effectors of an anther smut fungus and the potential host target proteins. *International Journal of Molecular Science* 18, 2489.
<https://doi.org/10.3390/ijms18112489>

Peer Reviewed Lessons:

- Beckerson WC (2020). Little Organisms with Big Consequences: The impact of the microbial world on human health. *Course Source*. **In Review**

Textbooks:

- Perlin MH, Beckerson WC, Gopinath A, Cobbs G. (2019). *Molecular and Cellular Genetics: Laboratory Studies*. San Diego, CA: Cognella Academic Publishing. **2nd Edition**
- Perlin MH, Beckerson WC, Gopinath A, Cobbs G. (2018). *Molecular and Cellular Genetics: Laboratory Studies*. San Diego, CA: Cognella Academic Publishing. **1st Edition**

HONORS AND AWARDS

UCF Today: Stories of Impact + Innovation Spotlight, UCF https://www.ucf.edu/news/ucf-doctoral-scholar-named-national-science-foundation-biology-fellow/	2021
Graduate Dean's Citation, UofL	2020
Graduate Student Publication Award, UofL	2020
Graduate School of Arts and Sciences Student Spotlight, UofL https://louisville.edu/graduate/student-spotlight/student-spotlight-february-2020	2020
Introductory Biology Lab Development Award, UofL	2019
Graduate Student Research Presentation Award, UofL	2019
Biology Department Service Award, UofL	2019
College of Arts and Science Student Profile, UofL https://louisville.edu/artsandsciences/academics/graduate-education/student-profiles/beckerson	2016

CONFERENCE PRESENTATIONS

Oral Presentations:

- Animal Behavior Society Online Conference, ONLINE 2021
28 Minutes Later: The role of secreted effectors in the behavioral manipulation of zombie ants
- Ruhr-Universität Bochum *Microbotryum* Symposium, DE 2019
An Unorthodox CRISPR Approach for an Unorthodox Fungus
- Asilomar Fungal Genetics Conference: Smut Convergence, US 2019
Cause and Effectors: Secretome comparison of members from the anther-smut pathogen species complex, *Microbotryum violaceum*
- Gordon Research Seminar on Cellular and Molecular Fungal Biology, US 2018
The First Cut is the Deepest: Implementing CRISPR Cas9 as a transformation system for site specific gene disruptions in the fungal pathogen species complex *Microbotryum violaceum*
- Kentucky Academy of Science Conference, US 2016
Identifying unique small secreted proteins in divergent species of the fungal pathogen complex *Microbotryum violaceum*
- Ruhr-Universität Bochum *Microbotryum* Symposium, DE 2016
Analyzing the role of protein-protein interactions in host/pathogen co-evolution

Poster Presentations:

- National Association of Biology Teachers: Professional Development Conference, US 2021
It's About Time: Exploring the dose-dependent effects of active learning on student social personality in an upper-level biology course
- National Association of Biology Teachers: Professional Development Conference, US 2021
The Zombie Fungus Foray: Community science outreach using iNaturalist to discover Zombie Ants
- National Association of Biology Teachers: Professional Development Conference, US 2019
An Introvert's Perspective: Analyzing the impact of active learning on multiple levels of class social personalities in an upper-level biology course
- Asilomar Fungal Genetics Conference, US 2019
Cause and Effectors: Secretome comparison of members from the anther-smut pathogen species complex, *Microbotryum violaceum*
- Gordon Research Conference on Cellular and Molecular Fungal Biology, US 2018
The First Cut is the Deepest: Implementing CRISPR Cas9 as a transformation system for site specific gene disruptions in the fungal pathogen species complex *Microbotryum violaceum*

PROFESSIONAL PRESENTATIONS

- University of Louisville Invited Speaker Series, US 2020
Comparative secretomics and functional analysis of effectors utilized by the *Microbotryum* genus of anther-smut fungal pathogens, and their role in host-specificity
- University of Central Florida Invited Speaker Series, US 2020
Comparative secretomics and functional analysis of effectors utilized by the *Microbotryum* genus of anther-smut fungal pathogens, and their role in host-specificity
- Georgetown College Invited Speaker Seminar, US 2019
Cause and Effectors: How rapidly evolving effectors lead to host-specificity between *Microbotryum* and Caryophyllaceae
- Belknap Academic Building Anniversary Event, US 2019
An Introvert's Perspective: Analyzing the impact of active learning on multiple levels of class social personalities in an upper-level biology course
- Ruhr-Universität Bochum Invited Speaker, DE 2019
The History and Future of CRISPR Cas9
- Ruhr-Universität Bochum Invited Speaker, DE 2018
The First Cut is the Deepest: CRISPR Cas9 and how to get started
- Georgetown College Invited Speaker Seminar, US 2016
Here and Back Again: A GCPALS tale

TEACHING EXPERIENCE

Adjunct Faculty of Record, Georgetown College					2019-2020
BIO 100: Introductory Biology for Non-Majors: Remote Learning					
I section	75 min/class	24 students	Four/week	Summer 2020	
BIO 111: Introductory Biology for Majors					
I section	75 min/class	24 students	Twice/week	Fall 2019	
BIOL 111: Introductory Biology Lab					
I section	110 min/class	24 students	Once/week	Fall 2019	
Invited Group Lecturer for Biotechnology Methods, University of Louisville					2018
BIOL 416: Biotechnology Methods (Yeast-Two-Hybrid Systems)					
2 sections	240 min/class	4 students	Twice/week	Fall 2018	
Microbiology Teaching Innovation Learning Lab, University of Louisville					2017-2019
BIO 357: General Microbiology					
I section	75 min/class	64 students	Eight/Semester	Fall 2019	
BIO 357: General Microbiology					
I section	75 min/class	49 students	Four/Semester	Fall 2018	
BIO 357: General Microbiology					
I section	75 min/class	43 students	Four/Semester	Spring 2018	
BIO 357: General Microbiology					
I section	75 min/class	65 students	Four/Semester	Fall 2017	
Graduate Teaching Assistant, University of Louisville					2015-2020
BIOL 331: Genetics and Molecular Biology					
2 sections	110 min/class	20 & 20 students	Twice/week	Spring 2020	
BIOL 331: Genetics and Molecular Biology					
2 sections	110 min/class	20 & 22 students	Twice/week	Fall 2019	
BIOL 331: Genetics and Molecular Biology					
2 sections	110 min/class	20 & 22 students	Twice/week	Spring 2019	
BIOL 331: Genetics and Molecular Biology					
I section	110 min/class	19 students	Twice/week	Fall 2018	
BIOL 104: introduction to Biological Systems					
2 sections	110 min/class	14 students	Three/week	Summer 2018	
BIOL 331: Genetics and Molecular Biology					
2 sections	110 min/class	20 & 21 students	Twice/week	Spring 2018	
BIOL 331: Genetics and Molecular Biology					
I section	110 min/class	8 students	Twice/week	Fall 2017	
BIOL 258: Microbiology					
2 sections	90 min/class	15 & 6 students	Four Days/week	Summer 2017	
BIOL 331: Genetics and Molecular Biology					
2 sections	110 min/class	17 & 21 students	Twice/week	Spring 2017	
BIOL 331: Genetics and Molecular Biology					
I section	110 min/class	16 students	Twice/week	Fall 2016	
BIOL 244: Principles of Biology					
2 sections	110 min/class	27 & 28 students	Twice/week	Spring 2016	
BIOL 104: introduction to Biological Systems					
3 sections	110 min/class	33, 33, & 33 students	Once/week	Fall 2015	

PROFESSIONAL DEVELOPMENT / SERVICES

Training/Workshops/Conferences:

Preparing Tomorrow's Faculty Program, US	2021
University of Central Florida NIH Virtual Conference, US	2020
Training with Remote Options for COVID-19, US	2020
Research Academy RUHR: Open Access Science Workshop, DE	2019
University of Louisville Faculty Search Committee: Diversity Training, US	2019

Professional Societies/Organizations:

Animal Behavior Society	2021-current
National Association of Biology Teachers	2019-current
2019-2020 Community Science Committee	
Genetics Society of America	2018-current
Kentucky Academy of Science	2014-2020

University Services:

UofL Biology Alumni Advice Panel, UofL	2021
Invited Speaker Series Committee, UCF	2021-2022
Diversity, Equity, and Inclusion: Classroom Isolation Subcommittee, UCF	2021
Biology Undergraduate Student Association: Graduate Student Panel, UofL	2019
Biology Faculty Search Committee – Graduate Student Representative, UofL	2019
German Club, UofL	2018-2019
2018-2019 Member	
Student Grievance & Discipline Committee, UofL	2016-2017
2016-2017 Natural Science Division Representative	
Graduate Network of Arts & Sciences, UofL	2016-2018
2017-2018 Vice President	
2017 Natural Science Rep. for Grant Review Committee	
2016-2018 Department of Biology Representative	
Biology Graduate Student Association, UofL	2015-2020
2019-2020 President	
2018-2019 Graduate Student Rep.	
2016-2017 Social Chair	
2016 & 2020 Webmaster	
2016-2020 Member	

Peer Review Services:

CourseSource	2 papers	2020-2021
Society for Molecular Plant-Microbe Interactions	1 paper	2020

COMMUNITY INVOLVEMENT / OUTREACH

Community Science Initiative: the Zombie Fungus Foray, Orlando US

Website: <https://thezombiefungusforay.com>

Twitter <https://twitter.com/ZombieANTics>

iNaturalist: <https://www.inaturalist.org/projects/the-zombie-fungus-foray>

K-12 Classroom Outreach

2021	Wharton High School: National Honor Society – Tampa, FL
	Freedom High School: Environmental Science Periods I-7 – Tampa, FL
	Wharton High School: SPLASH Club, and Biology Sections I-6 – Tampa, FL
	Mica Mountain High School: Sections III & VI – Tucson, AR
2020	Jackson Heights Middle School: Ecology – Oviedo, FL
	Oviedo High School: Sophomore Biology Sections 2, 3, 6, & 7 – Oviedo, FL
	Oviedo High School: AP Biology Sections I & II – Oviedo, FL



stemCONNECT

2021 Spooky Themed Month – Orlando, FL
2021 EARTH DAY – Orlando, FL



CamponotusLIVE

2021 TikTok <https://www.tiktok.com/@thezombiefungusforay?lang=en>

ZombieAntVR

2020-2021 Co-creator of a virtual reality video game about the *Ophiocordyceps* life cycle.

Other Outreach:

- Seminole County Guided Hike: The Zombie Fungus Foray 2021
A guided tour to learn about the fascinating and gruesome biology of fungi that turn ants into zombies!
- Orlando Science Center: Pumpkins and Protons Party 2021
Annual Halloween event for families at the science center
- Orlando MegaCon Panelist 2021
The Last Damn Zombie Science Panel You'll Ever Need!
- Eco Camp: Grossology Week 2021
Geneva Wilderness Area, FL: Ages 7-12 – Real-Life Zombies in our own Backyards!
- Eco Camp: Biology Bootcamp 2021
Geneva Wilderness Area, FL: Ages 13-15 – Zombie Ant Expedition with iNaturalist
- Showcase of Undergraduate Research Excellence Judge, Orlando US 2021
University of Central Florida, Life Science Sections IV and V
- Interview a Biologist, Vermont US 2021
w/ Stacey Grimaldo Garcia of Middlebury College
- Skype a Scientist Live, Orlando US 2021
Spooky Science: Real Life Zombies and Where to Find Them
<https://www.youtube.com/watch?v=7WgJZG+DjjQ>
- iNaturalist Curator for *Ophiocordyceps* species 2020-2021
- Zombie Ants VR: Learning-Oriented Video Game, Orlando US 2020-2021
Storyboard developer & manager
- Beer with a Scientist – Monnik Beer Company, Louisville US 2020
Our Friends the Fungi: The many types of fungi and the history of how we've used them
- Orlando Science Center: Spooky Science Week, Orlando US 2019
Zombie Hunt: Using iNaturalist to find zombie ants
- Skype a Scientist 2019-2021
 - 2020 Creekside Middle School: Sixth Grade Class – Bentonville, AR
 - 2019 Marie Curie Institute: Fourth and Fifth Grade Class – Amsterdam, NY
 - Corry Area High School: Ninth Grade Class – Corry, PA
 - Newark Central: Second Grade Class – Newark, NY
 - E.K. Powe Elementary School: First Grade Class (AKA the Sea Crew) – Durham, NC
 - Annunciation Catholic School: Seventh Grade Class – Denver, CO
- Guest Speaker at University of Louisville: Meet the Professor 2019
Science Information Literacy & Oral Communication
- DuPont Manual Regional Science Fair Judge, Louisville KY 2018
- Louisville Regional Science & Engineering Fair Judge, KY 2018
- Guest Speaker at Lexington Christian Academy High School 2018
The history of genetic modification of our food
- Guest Speaker at Lexington Christian Academy High School 2016
What is a GMO?
- ExBEERiment – Socialize with Science at the Louisville Science Center 2016
The science behind brewing beer

REFERENCES

Dr. Charissa de Bekker	University of Central Florida, US/ PI	Charissa.debekker@ucf.edu
Dr. Michael Perlin	University of Louisville, US/ PI	Michael.perlin@louisville.edu
Dr. Tatiana Giraud	Université Paris-Sud, FR/ Collaborator	Tatiana.giraud@u-psud.fr
Dr. Dominik Begerow	Ruhr-Universität Bochum, DE/ Collaborator	Dominik.begrow@rub.de
Dr. Scott Gold	USDA Georgia, US/ Committee Member	Scott.gold@ARS.USDA.Gov