

Amanda Charbonneau

Population Health and Reproduction
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Research and Professional Experience

- June 2019 - present **Bioinformatics Consultant**, Reimers Lab, MSU
Create code and scripting necessary to complete a large psychiatric genomics study. GWAS results from multiple found studies and SNP locations for a number of genomic features are combined using a regression framework (LDSR) to determine whether traits are enriched for SNPs in various classes of genomic feature.
- May 2018 - present **Program Manager**, Common Fund Data Ecosystem, (formerly the [DCPPC](#))
Organize and manage a cross-disciplinary, multi-institution consortium to build the community and infrastructure required to meaningfully connect Common Fund data assets. Facilitate inter-group interactions as well as collaborations and outreach with other scientific organizations. Maintain and create policies and procedures and act as reporting intermediary between awardees and the NIH.
- 2011 – 2018 **Ph.D** in Genetics, MSU Completed: 4/27/2018
*Research Topic: Determining the loci that underlie the differences between weedy *R. raphanistrum* and its non-weedy relatives. Used population genomics techniques to try to determine the source population(s) for weedy radish and crop radishes, as well as how they have evolved phenotypically and genetically.*
- Summer 2014 & 2015 **Course Coordinator**, [Next-Gen Sequence Analysis Workshop](#)
Logistics and troubleshooting for two-week intensive learning course, in addition to teaching (see below).
- 2007 – 2011 **Research Technologist**, Biochemistry and Molecular Biology, MSU
Genomic screening of secondary metabolites in tomato trichomes from wild and cultivated species. Genetic and biochemical characterization of genes causing qualitative differences between wild and cultivated varieties of tomato. Screening of morphological and biochemical phenotypes for Arabidopsis 2010 initiative
- 2005 – 2007 **Research Technician**, Dow Chemical Company, New Products R&D
Creation and testing of metal matrix composite materials for use as body armor and vehicle components.
- 2005 – 2005 **Researchers Aide**, Landscape Entomology, MSU
*Independent testing of pesticides
 Pest consultations for privately owned land management agencies.*

2001 – 2005 **BA Biochemistry & Criminal Justice**, Olivet College, Olivet, Michigan, 49076

Teaching & Outreach

- Summer 2012, 2013, 2014, 2015, 2016 & 2018, 2019 **Instructor**, [Next-Gen Sequence Analysis Workshop](#)
Teach a wide variety of computing topics including basic unix, bioinformatics and cloud computing
- 2017 - present **Maintainer**, Data Carpentry Genomics Lessons
Remote and Cloud Computing
- 2015 – present **Instructor**, [Software Carpentry](#) and [Data Carpentry](#)
Workshops taught for: [Notre Dame](#), [U of M](#), [James Madison](#), [MSU](#), [MSU](#)
- 2008 – present **Docent**, [Potter Park Zoo](#), Lansing , Michigan
Teach the scientific method & introduce research methods for the “BIG Zoo Lesson”. Use observation of animal behavior to teach children core science principles. Train animals and animal handlers for outreach
- 2017 - 2018 **Genetics Officer**, Forum and career workshop coordinator
Organize professional events for the Genetics Program
- 2014 - 2018 **Education Staff**, [Potter Park Zoo](#), Lansing , Michigan
Organize and manage individual educational special events such as birthdays and overnights
- Summer 2016, 2017 & 2018 **Instructor**, Evolution, MSU
Develop and teach entirely online course through D2L
- Spring 2016, 2017 & 2018 **Lab Instructor**, Cells and Development, MSU
Teach cell culture and experimental design
- Fall 2016 & 2017 **Teaching Assistant**, Histology, MSU
Teach microscopy and micro-anatomy. Half-time recitation appointment
- 2010, 2015, & 2016 **Presenter**, [Grandparents University, MSU](#)
Science of Smells and Tastes
- Summer 2016 **Instructor**, Fundamental Genetics, MSU
Traditional on-campus course in basic genetics
- Feb 2016 **Instructor**, Introduction to LaTeX, [DIB Intermediate Bioinformatics Training](#)
Develop and teach LaTeX on Overleaf, for beginners
- Jan 2016 **Instructor**, [RNAseq Workshop](#), ICER, MSU
Teach single workflow to novices over two days
- Fall 2015 - Spring 2016 **Organizer/Instructor**, [NGS Continuation course](#)
Monthly evening session to teach practical computing to biologists

- Fall 2015 **Teaching Assistant**, Genetics, MSU
Half-time recitation appointment
- 2013 – May 2015 **GK-12 Fellow**, Kellogg Biological Station
Act as a ‘visiting scientist’ in local schools helping to both teach and improve upon the science curriculum for elementary, middle and high school classrooms
- 2013 - 2015 **Judge**, University Undergraduate Research and Arts Forum, MSU
- Sept. 2013 **Teaching Assistant**, [Software Carpentry](#) short course
Teach a wide variety of computing topics including basic unix, programing and data management

Publications

Clarke, Daniel, et.al. (2019) FAIRshake: toolkit to evaluate the findability, accessibility, interoperability, and reusability of research digital resources. BioRxiv. <https://doi.org/10.1101/657676>

Charbonneau A, Tack D, Lale A, et al. (2018) Weed evolution: Genetic differentiation among wild, weedy, and crop radish. *Evol Appl.* ;11:1964–1974. <https://doi.org/10.1111/eva.12699>

Charbonneau, Amanda (2018) Rapid Adaptation of Floral Phenotypes in Weedy radish, *R.r. Raphanistrum*. Michigan State University, ProQuest Dissertations Publishing.

[LaTeX tutorial](#) presented for [DIB Intermediate Bioinformatics Training](#)

Publicly available lessons for GK-12 Bioenergy Sustainability Project [[2013](#), [2013](#), [2014](#), [2015](#)]

Publicly available lessons for Next-Gen Sequencing Workshop [2012, [2013](#), [2014](#), [2015](#), [2016](#)]

Invited blog post, [BEACON](#) Researchers at Work, June 2014

Schilmiller, A., **Charbonneau, A.**, Last, R. (2012) Identification of a BAHD acetyltransferase that produces protective acyl sugars in tomato trichomes. *PNAS*, 40, 16377-16382.

Schilmiller, A., Shi, F., Kim, J., **Charbonneau, A.**, Holmes, D., Jones, A., and Last, R. (2010) Mass spectrometry screening reveals widespread diversity in trichome specialized metabolites of tomato chromosomal substitution lines. *Plant Journal*, 62, 391-403.

Schilmiller, A., Schauvinhold, I., Larson, M., Xu, R., **Charbonneau, A.**, Schmidt, A., Wilkerson, C., Last, R., and Pichersky, E. (2009) Monoterpenes in the glandular trichomes of tomato are synthesized from a neryl diphosphate precursor rather than geranyl diphosphate. *PNAS*, 26, 10865–10870.

Presentations

- Midwest PopGen Conference, 2017 Talk: *Weed evolution: Genetic differentiation among wild, weedy, and crop radish*
- Evolution Conference, 2014 Talk: *Evolution of Weed phenotypes in Radish*

- BEACON Congress, 2013 Talk: *The Evolution of Weediness*
- Ecological Genomics Symposium,
2012 Poster: *Evolution of weedy and crop phenotypes in radish*
- BEACON Congress, 2012 Poster: *Evolution of crops and weeds: Loss of over-wintering phenotypes in wild radish*

Attended Workshops and Symposiums

- Feb 2016 [DIB Intermediate Bioinformatics Training](#), Bodega Bay, CA
- March 2015 [Data Carpentry](#) Genomics and Assessment Hackathon
Helped to create the lesson content for the Genomics workshop
- Jan. 2015 [Software Carpentry](#) Instructors Workshop
- July 2013 18th [Summer Institute in Statistical Genetics](#)
Modules taken: Quantitative Genetics, Mixed Models in Quantitative Genetics, Coalescent Theory
- May 2012 [Software Carpentry](#)
Scientific computing and software design

Awards

- 2013 – 2015 **Fellow** – Kellogg Biological Station GK-12
Partner with rural school teachers to help improve science lessons and learn teaching skills, two full years of financial support
- 2013 **Honorable Mention** – National Science Foundation Graduate Research Fellowship Program
- 2011 – 2012 **Excellence in BioMolecular Science Fellowship** – College of Natural Sciences, MSU
One year of full financial support
- 2011 ‘**Good Egg Award**’ – [Potter Park Zoo](#), Lansing Michigan
Docent of the year award for more than 400 hours of service in 2011

References

Available upon request