

# LAURA E. TIBBS-CORTES

Ames, IA 50011

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## PROFESSIONAL SUMMARY

- Quantitative genetics research scientist with 5 years of experience in genetics and statistics
- Diversely trained to perform bioinformatics analyses, field research, and wet-lab techniques
- Published 6 of 12 manuscripts in peer-reviewed journals
- Collaborated with 50+ scientists from 17 institutions
- Developed curriculum and instructed 250+ undergraduate students in genetics, general biology, etc.
- Wrote R and Bash scripts to conduct bioinformatic analyses on high-performance computing (HPC) clusters

## TECHNICAL and LABORATORY SKILLS

**Scripting, Programming, and Data Analysis Languages:** R, Bash, Python, SAS, C++, Linux command line

**Field Techniques:** experimental design, planting, tissue sampling, pollination, phenotyping, harvesting

**Laboratory Techniques:** tissue processing, DNA extraction, PCR, gel electrophoresis

**Miscellaneous:** GitHub, RStudio, R Markdown, SLURM, ASReml

## EDUCATION

**Iowa State University (ISU), Ames, IA**

**August 2017-September 2022**

Doctor of Philosophy, Ph.D., Genetics and Genomics, minor in Statistics

**Benedictine College, Atchison, KS**

**August 2013-May 2017**

Bachelor of Arts, B.A., Biology, minor in Chemistry

## PROFESSIONAL EXPERIENCE

**Department of Agronomy, ISU, Ames, IA**

**August 2017-Present**

**Genetics & Genomics Graduate Research Assistant**

- Conducted GWAS, TWAS, and genomic prediction with large data sets (20 million markers, 4500 taxa)
- Identified loci and environmental variables underlying phenotypic plasticity in maize; leveraged to predict new genotypes in new environments
- Established data processing pipeline for microbiome data collected by 16S rRNA gene amplicon sequencing
- Created R and Bash scripts to run computational biology analyses on HPC clusters
- Wrote 6 manuscripts for publication in peer-reviewed journals and 2 animal industry reports
- Presented 6 oral presentations and 14 posters at conferences including 5 international conferences, reviewed 1 manuscript for The Plant Genome

**Department of Agronomy, ISU, Ames, IA**

**January 2019-May 2020**

**Genetics, Agriculture, and Biotechnology Graduate Teaching Assistant**

- Transitioned face-to-face course to online delivery by reformatting lectures, assignments, and exams
- Developed course materials and assessments and taught 5+ class sessions each semester for 250+ students
- Clarified course content and provided constructive feedback to students in person and via email
- Taught 300-level genetics course for 2 semesters, guest lectured for 2 introductory-level laboratory courses and 1 graduate-level genomics course for a total of 250+ students instructed

**Hardin County Extension Office, Iowa Falls, IA**

**May 2017-Aug 2017**

**Extension Intern**

- Computerized and optimized annual tasks including auction organization, program printing, etc.
- Prepared and presented an educational session for seniors, a workshop for elementary students, and educational activities for a K-3 grade day camp

**Departments of Biology and Chemistry, Benedictine College, Atchison, KS**

**August 2014-May 2017**

**Biology Tutor, Biology and Chemistry Undergraduate Teaching Assistant**

- Tutored both biology majors and non-science majors in course content and laboratory techniques
- Instructed introductory biology (6 semesters) and chemistry (2 semesters) courses

**Ames Laboratory, Ames, IA**

**May 2016-August 2016**

**Science Undergraduate Laboratory Intern (SULI)**

- Programmed and wired Arduino boards to control growth chamber environment
- Grew, phenotyped, and harvested plants in growth chambers
- Used FreeCAD to design and 3D printing to produce a scalable plant growth environment

**Baker University, Baldwin City, KS**

**June 2015-August 2015**

**Research Experience for Undergraduates (REU) Intern**

- Collected and processed moss and lichen samples
- Wrote 1 manuscript for publication in peer-reviewed journal and presented results to the public

**National Laboratory for Agriculture and the Environment, USDA-ARS, Ames, IA**

**May 2014-August 2014**

**USDA Pathways Intern in Biology**

- Installed and maintained water samplers and experimental treatments at field sites
- Collected and processed samples, designed and built apparatus to automate sample filtering

**SELECT LEADERSHIP AND SERVICE EXPERIENCE**

**Science outreach, various**

**June 2014-Present**

**Volunteer Science Communicator**

- Prepared and presented age-appropriate science education talks and activities for diverse audiences
- Provided constructive feedback as Iowa State Science and Technology Fair middle school judge

**R.F. Baker Plant Breeding Symposium, ISU, Ames, IA**

**December 2018-April 2022**

**Committee Member**

- Organized graduate and undergraduate poster session, facilitated judging as Poster Chair 2022
- Recruited and directed the Speaker Committee as Speaker Committee Chair 2020
- Arranged speaker travel, lodging, etc. logistics as Speaker Committee Member 2019

**Agronomy Graduate Student Organization, ISU, Ames, IA**

**January 2019-December 2019**

**Treasurer**

- Successfully applied for Graduate and Professional Student Senate (GPSS) allocation to fund seminar (\$1,000)
- Budgeted and validated club income and expenses, completed training to become authorized cardholder

**SELECT PUBLICATIONS (1 of 12)**

- **Tibbs-Cortes, L. E., Zhang, Z., & Yu, J.** Status and Prospects of Genome-Wide Association in Plants. *The Plant Genome* **14**(1), e20077 (2021).

**SELECT HONORS AND GRANTS (1 of 29 honors/grants)**

- NSF Graduate Research Fellowship (GRFP) (\$102,000)

**September 2017-August 2022**