

CHRISTOPHER CHEN

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EDUCATION

B.Sc., B.A., University of California, Davis. June 2016
Majors: Environmental Horticulture and Urban Forestry, Economics

M.Sc., University of California, Davis; June 2018
Major: Horticulture and Agronomy
Specialization: Viticulture and Enology

Ph.D., University of California, Davis; Expected June 2021
Major: Horticulture and Agronomy
Specialization: Viticulture and Enology

RESEARCH INTERESTS

Abiotic stress responses and water use efficiency of agricultural and ornamental crops through the study of stress tolerance, genotypic expression, breeding programs and management practices.

RESEARCH EXPERIENCE

Ph.D. Candidate, Department of Viticulture & Enology, June 2018-Present

University of California, Davis. Supervisor: Dr. M. Andrew Walker

Research focused on elucidating mechanisms of sodium chloride tolerance in *Vitis spp.* and development of rootstock breeding methods for rapid and quantitative screening of many collections of novel genetic material for salt-tolerant phenotypes in large populations.

Responsibility for own progress with regular reporting to supervisors.

- Collected data from self-designed experiments for purpose of developing breeding methodology for salt-tolerance screening procedures:
 - Experimental Design and Setup
 - Applicable Instrumentation and Applied Understanding of Theoretical Concepts
 - Treatment Application and Sample collection
 - Sample Processing
- Generation of data through laboratory analysis, and/or the process of:
 - Silver-Ion Titration
 - Determination of chloride concentrations in different plant tissues
 - Scanning Electron Microscopy for Subcellular Differentiation
- Exposure and/or further experience with:
 - Plant propagation from hardwood and herbaceous cuttings
 - Statistical data analysis using R
 - Proper experimental design and maintenance

- Sample preparation for complex analyses
- Viticultural management practices
- Vineyard design and maintenance

Graduate Student Researcher, Department of Viticulture & Enology, June 2016-Present
University of California, Davis. Supervisor: Dr. Sahaap Kaan Kurtural
Independent and cooperative research focused on abiotic stress responses in *Vitis vinifera* and mechanization of commercial wine grape vineyards of several premier viticulture regions in California. Organized and participated in field and laboratory work to analyze and determine effects of differing, scientific treatments on wine grape yield and quality.

- Collected industry-standard data from field trials for, but not limited to:
 - Crop coefficients, Vine water status, Irrigation scheduling
 - NDVI, Crop Sensing and Imaging, Site logistics
 - Berry sampling for quality, Yield predictions and Final yield
- Generation of data through laboratory analysis, and/or the process of:
 - Berry phenolic: biosynthesis, composition, and temporal development
 - Determination of quality and concentration of flavonoid classes.
 - Small-batch, experimental wine making
- Exposure and/or further experience with:
 - Basic statistical data analysis using R
 - Proper experimental design and maintenance
 - NDVI and Crop Sensing
 - Harvest of wine-grapes
 - Basic management practices of viticulture

Student Research Assistant, Department of Plant Sciences, January, 2014 - June, 2016
University of California, Davis. Supervisor: Dr. Valerie T. Eviner
Research assistant position focused on understanding plant and soil community responses to climate change, grazing management and nutrient availability in California's annual grasslands.

- Performed plant-soil processing methods including root extraction, biomass sampling and seed sorting.
- Experience operating specialized ecological processing equipment and seed imaging software WinSeedle.
- Knowledgeable in ecological field sampling methodology including California grassland species identification and vegetation surveys.
- Performed data analysis using JMP statistical software.
- Trained supervisors on seed imaging software procedures.

Student Research Assistant, School of Natural Sciences, April-July 2015
University of California, Merced. Supervisor: Erin Dickman
Assisted with Master's thesis research investigating physiological adaptations over four decades to climate change in cut-leaf monkey flower in the Sierra Nevada mountain range.

- Independently monitored monkey flower growth experiment recording regular phenotypic measurements.
- Communicated results to supervisor via bi-monthly meetings.

- Performed regular maintenance and monitoring of greenhouse experiment, including watering, segregation, and pruning.
- Experience troubleshooting and problem solving in experimental greenhouse settings.

Research Internship, Department of Plant Sciences, Jan-March 2015

University of California, Merced. Supervisor: Dr. Valerie T. Eviner, Joanne Heraty

Collaborated and developed independent internship project analyzing litter removal and accumulation post-drought in California's grasslands.

- Collected regular above and belowground biomass measurements in-field.
- Surveyed and identified vegetation using Daubenmire classifications.
- Researched and maintained records of precipitation and temperature events for analysis.
- Used statistical software package JMP to analyze results.
- Communicated findings to supervisors.

EMPLOYMENT & RELEVANT APPOINTMENTS

Graduate Studies Admissions Committee Member, *Horticulture and Agronomy*

Graduate Group, January 2020 – April 2020

University of California, Davis

Student committee member representing graduate student opinions on new applicants to the horticulture and agronomy graduate group; served in conjunction with faculty committee members.

- Socratic discussion with committee members on merit of new applicants
- Review and commentary on applications of potential students
- Overall referral to admit, deny, or reapply for each applicant

Resident Advisor, *Student Housing Services, September 2013- June 2014*

University of California, Davis.

In-house advisor position responsible for facility management, resident welfare and safety, community building and resource referrals.

- Trained in emergency response, safety.
- Experience in conflict resolution, incident reporting, new resident resource referrals.

Orientation Leader, *Student Housing Services, May 2013- August 2013*

University of California, Davis.

Organized and led orientation geared towards new student graduation requirements, UC system resources and class registration navigation.

- Experience performing academic advising, conflict resolution, communicating information to a large audience.

PUBLICATIONS

Martínez-Lüscher, J., **Chen, C. C. L.**, Brillante, L., & Kurtural, S. K. (2017). Partial Solar Radiation Exclusion with Color Shade Nets Reduces the Degradation of Organic Acids and Flavonoids of Grape Berry (*Vitis vinifera* L.). *Journal of Agricultural and Food Chemistry*, 65(49), 10693–10702.
<https://doi.org/10.1021/acs.jafc.7b04163>

Martínez-Lüscher, J., Kurtural, S. K., **Chen, C. C. L.**, & Brillante, L. (2019). Fruit zone over exposure and heat events lead to severe losses of anthocyanins and marketable crop in ‘Cabernet Sauvignon’ wine grape under two irrigation amounts. *Annals of Applied Biology* (submitted).

RELEVANT COURSEWORK

• Statistics	Spring 2013
• Physiology of Cultivated Plants	Winter 2014
• Statistical Economic Analysis	Spring 2014
• Plant Propagation	Spring 2014
• Plant Pathology	Fall 2014
• Irrigation for Urban Environments	Winter 2015
• Woody Plant Management	Winter 2015
• Natural Resource Economics	Spring 2015
• Population Genetics	Fall 2016
• Plant Ecology	Fall 2016
• Plant Genetics	Fall 2016
• Principles of Soil Science	Fall 2016
• Arthropod Pest Management	Winter 2016
• Rangeland Ecology	Winter 2016
• Grapevine Ampelography	Fall 2016
• Experimental Design and Analysis in R	Winter 2017
• Sustainable Vineyard Development	Fall 2017
• Applied Multivariate Modeling	Fall 2017
• Soil Physics	Fall 2018
• Soil Chemistry	Winter 2019
• Plant Mineral Nutrition	Spring 2019