CHRISTOPHER CHEN

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EDUCATION

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

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

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

RESEARCH INTERESTS

Practical research related to improving vineyard system climate resilience and adaptability to changing environmental conditions. This is research that is easily understood, cost efficient, and fits within the existing framework of vineyard cropping systems. This work includes elucidation of climate-adaptive mechanisms at the plant and whole-vineyard levels and may include grapevine mechanisms for drought tolerance and recovery, limiting damage from sun exposure, whole-vineyard resource use efficiency, climate-resilient vineyard design, cultivar selection for predicted changes in regional climates, and more.

EMPLOYMENT & RELAVENT APPOINTMENTS

Integrated Vineyard Systems Advisor, *Cooperative Extension, Jan. 2022– Current*
University of California, Agricultural and Natural Resources
This position entails the practical research and dissemination of information related to viticulture and grapevine physiology. Through this position I interact with industry grape growers and wine producers in Sonoma, Mendocino, and Lake Counties of California and at a broader scale both nationwide and internationally. Some responsibilities include:

- Experimental design and implementation
- Data synthesis and analysis
- Publication of findings
- Community outreach and education
- Event planning
- Popular media production
- Branding
- Public speaking

Adjunct Faculty – Part Time, *Department of Agriculture, Jan. 2023– Current*
Mendocino College, Ukiah, CA
This teaching position is responsible for two courses per academic year focused on the introduction of viticulture and viticultural concepts to students at Mendocino College. One of the two courses is now UC-transferrable. Some responsibilities include:

- Assigning and grading classwork
- Educational outreach
- Teaching undergraduate students
- Community outreach and education
- Communication with students and administration
- College-level course design and lesson planning
- Creative and interactive speaking
- Courses
    - AGR 211 – Introduction to Viticulture (UC Transferrable)
    - AGR 112 – Viticultural Practices

Postdoctoral Researcher, *Department of Plant Sciences, Sep. 2021 – Dec. 2022*
University of California, Davis
This position entails the research and exploration of physiological responses to salinity and drought stress in almond orchards, grapevine, and tomato under the direction of Dr. Patrick H. Brown at the University of California Davis. As a Postdoctoral researcher at one of the best higher-education, plant science programs in the world, expectations are high for production of timely and high-quality work. This position is self-governed and requires responsible commitments to progress as research feasibility is reliant upon external funding. Some responsibilities include:

- Experimental design and implementation
- Data synthesis and analysis
- Publication of findings
- Community outreach and education
- Mentoring graduate students

Teaching Assistant, *Department of Viticulture and Enology, Sep. 2017 – Jan. 2020*
University of California, Davis
Served as a teaching assistant for undergraduate level courses for three viticulture courses under instruction of Dr. M. Andrew Walker for three consecutive years. Requirements included course material preparations, student well-being and assistance, and providing independent lectures during discussion sections. Other duties were assigned in this position depending on need.

- UC Davis: VEN 101A – Grapevine Identification
- UC Davis: VEN 101B – Viticultural Practices

- UC Davis: VEN 101C – Vineyard Establishment and Management Practices

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

Teaching Assistant, *Department of Horticulture and Agronomy, Jan 2018 – Apr. 2018*
University of California, Davis
Served as a teaching assistant for undergraduate level courses for ENH 133: Woody Plant Management under instruction of Dr. Astrid Volder. Requirements included course material preparations, student well-being and assistance, and addressing students' needs and questions during discussion sections. Other duties were assigned in this position depending on need.

- UC Davis: ENH 133 – Woody Plant Management

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.

RESEARCH EXPERIENCE

UC ANR CE Advisor, *Cooperative Extension, Jan. 2022– Current*
University of California, Agricultural and Natural Resources
Described above in "Employment", this position does not require publishable research. However, my objective has been to conduct research to address to regional concerns related

to winegrape production; this includes drought-recovery of rootstocks, artificial light modification technology, and more.

Postdoctoral Researcher, *Department of Plant Sciences, Sep. 2021 – Dec. 2021*
University of California, Davis
Described above in "Employment", this position focuses on elucidating knowledge around plant physiological responses to salinity and drought stress. Nutrient management is of concern and most of the projects focus heavily on interactions of salt and other nutrients on the physiological responses of almonds, grapevines, and tomatoes.

Ph.D. Candidate, Department of Viticulture & Enology, June 2018-Aug. 2021
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, Dept. of Viticulture & Enology, June 2016-Aug. 2018
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.

PUBLICATIONS

Valenzuela F, Reineke D, Leventini D, Chen C, Barrett-Lennard E, Colmer T, Dodd I, Shabala S, Brown P, Bazihizina N. (2022). Plant responses to heterogeneous salinity: agronomic relevance and research priorities. Ann Bot.

Martínez-Lüscher, J., Chen, C. C. L., Brillante, L., & Kurtural, S. K. (2020). Mitigating Heat Wave and Exposure Damage to 'Cabernet Sauvignon' Wine Grape with Partial Shading Under Two Irrigation Amounts. *Frontiers in Plant Science*, Frontiers in Plant Science , Vol. 11, p. 1760.

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 Sauvingon' wine grape under two irrigation amounts. *Annals of Applied Biology* (submitted).

ABSTRACTS: ACADEMIC PRESENTATIONS

National Conferences

- Chen, C. C., Romero N., Walker, M. A. *Rapid Screening for Salt-Stress Tolerance Through Chloride-Ion Accumulation in Leaves of Wild Vitis spp. Rootstocks*. 70th ASEV National Conference, Napa, CA, USA, June 17-20, 2019

- Chen, C. C., Martínez-Lüscher, J., Brillante, L., and Kurtural S. K. *Partial Solar Radiation Exclusion, Not Applied Water Amount, Mitigates Grape Berry Flavonoid Concentration.* 69th ASEV National Conference, Monterey, CA, USA, June 18-21, 2018
- Martínez-Lüscher, J., Chen, C. C., Brillante, L., Kurtural S. K. *Partial solar radiation exclusion with color shade cloths may improve red wine grape composition*. 68th ASEV National Conference, Bellevue, WA, USA, June 26-29, 2017

- Yu, R., Brillante, L., Martínez-Lüscher, J., Plank, C., Chen, C., Sanchez, L., Bates, T., Sams, B., Kurtural, S. K. *Proximal sensing and stratified sampling in vineyards provide directions in coalescing vineyard variability*. 68th ASEV National Conference, Bellevue, WA, USA, June 26-29, 2017

- Chen, C. C., Martínez-Lüscher, J., Kurtural S. K. *Shifts in Proanthocyanidin Composition of Cabernet Sauvignon Are Modulated by Selective Shading and Water Deficit.* 67th ASEV National Conference, Monterey, CA, USA, June 26-29, 2016

University Guest Lectures – UC Davis and Santa Rosa Junior College

- Chen, C.C., *Spring Pests and Diseases.* VEN 101C. University of California Davis, Davis, CA, USA, 2025

- Chen, C.C., *Salt Toxicity in Grapevines.* VEN 110. University of California Davis, Davis, CA, USA, 2022-2025 (annual)

- Chen, C.C., *Sustainable Vineyards and Climate Adaptive Viticulture.* VEN 118. University of California Davis, Davis, CA, USA, 2022-2025 (annual)

- Chen, C.C., *UC Cooperative Extension ANR Description.* Santa Rosa Junior College, Santa Rosa, CA, USA, 2022-2024 (annual)

Educational Events Organized and/or Cooperative Extension Presentations

- Chen, C.C., *Common Cultivars*. UC Davis Small Vineyard Management I. UC Davis Dept. of Viticulture and Enology. Oakville, CA, USA, 2025

- Chen, C.C., *Pest and Disease Prevention*. UC Davis Vineyard Health Seminar. UC Davis Dept. of Viticulture and Enology. Davis, CA, USA, 2025

- Chen, C.C., *Soil Carbon in Practice.* UCCE Lodi Grape Day. UC ANR Cooperative Extension. Lodi, CA, USA, 2025

- Chen, C.C., *Abiotic Stress in Grapevines*. Statewide Training Seminar. Grow West. Geyserville, CA, USA, 2025

- Chen, C.C., *Emerging Pests in Vineyards*. Spotted Lanternfly Defense Summit. Sonoma County Department of Agriculture. Santa Rosa, CA, USA, 2024

- Chen, C.C., *Pairing Rootstock with Site*. North Coast IPM Day. UC ANR Cooperative Extension. Santa Rosa, CA, USA, 2024

- Chen, C.C., *Climate Adaptive Vineyards*. Independent Grape Growers of Paso Robles Area (IGGPRA). Paso Robles, CA, USA, 2024

- Chen, C.C., *Smoke Taint and Abiotic Stress in Vineyards*. SCW Field Day. Sonoma Sustainable Winegrowers. Santa Rosa, CA, USA, 2024

- Chen, C.C., *Soil Carbon in Practice*. Soil Carbon Workshop. UC ANR Cooperative Extension. Santa Rosa, CA, USA, 2024

- Chen, C.C., *Water Use Efficiency in Vineyards*. Sonoma County Vineyard Technical Group. Santa Rosa, CA, USA, 2024

- Chen, C.C., *Small Organic Vineyard Management*. UCCE Organic Day. UC ANR Cooperative Extension. Hopland, CA, USA, 2024

- Chen, C.C., *Organic Management for Weeds and Diseases*. UCCE Organic Day. UC ANR Cooperative Extension. Santa Rosa, CA, USA, 2024

- Chen, C.C., *Cultivars and climates: Rootstock and mesoclimate impacts on winegrape production in the north coast*. Emerging and Future Climate Challenges in Vineyards. UC Davis Dept. of Viticulture and Enology. Davis, CA, USA, 2024

- Chen, C.C., *Cultivars for a Changing Climate*. UCCE Sonoma Grape Day. UC ANR Cooperative Extension. Santa Rosa, CA, USA, 2024

- Chen, C.C., *Copper for Frost Control*. Statewide Training Seminar. Grow West. Ukiah, CA, USA, 2024

- Chen, C.C., *Small Vineyard Management*. CAFF Small Farms Conference. California Alliance of Family Farmers. Santa Rosa, CA, USA, 2023

- Chen, C.C., *Vineyard Plasticity in Changing Conditions*. UC Davis Grape Day. Dept. of Viticulture and Enology. Davis, CA, USA, 2023

- Chen, C.C., *Vine Selection*. UCCE Viticulture Masterclass. UC ANR Cooperative Extension. Santa Rosa, CA, USA, 2023

- Chen, C.C., *Climate Adaptive Vineyards*. Pinot Fest. Anderson Valley Winegrowers Association, Boonville, CA, USA, 2023

- Chen, C.C., *Improved Management of Leafhoppers*. UCOI. University of California Cooperative Extension, Hopland, CA, USA, 2023

- Chen, C.C., *Management Response to Vineyard Frost Damage*. Frost Protection and Management Seminar. UC ANR Cooperative Extension. Santa Rosa, CA, USA, 2022

- Chen, C.C., *Table Grapes at Home*. Lake Co. Master Gardeners. University of California Cooperative Extension. Santa Rosa, CA, USA, 2022

- Martínez-Lüscher, J., Chen, C. C., Brillante, L., Kurtural S. K. *Farming for Phenolics: How much exposure do we need to grow high quality fruit?* University of California Extension Conference, Paso Robles, CA, USA, 2017

- Chen, C. C., Martínez-Lüscher, J., S. Kurtural S. K. *Partial Shading: A short-term response to climatic shifts in vineyards*. University of California Field Day, Oakville, CA, USA, August 2017

Popular Science Articles and Government Reports

- Chen, C.C. *Best Practices for Prevention of Pests and Diseases in Winegrape Vineyards*. Wine Business Monthly. D. Neel. 2025

- Chen, C.C. Technical Report: Summary – *Vineyards Soil Test Results – Taylor Fire*. Mendocino County Dept. of Public Health. 1-18. 2024

- Chen, C.C. *Powdery Mildew Field Day: A Cooperative Extension Resource for Changing Conditions*. Wine Business Monthly (Online). D. Neel. 2024

- Chen, C.C. *Don't Be Salty: How Irrigation, Soil Health and Climate Affect Vineyard Salinity*. Wine Business Monthly. D. Neel. 62-65. 11. 2023

- Chen, C.C. Heatwave Damage in Vineyards. Wine Business Monthly. D. Neel. 38-43. 07. 2022

RELEVANT SKILLS

• Basic Programming (HTML, R, Python)	2016 - Present
• Statistical Data Analysis	2017 - Present
• Document Processing	2017 - Present
• Laboratory/Sample Processing	2017 - Present
• Experimental Design	2017 - Present
• Grapevine Identification	2018 - Present
• Vineyard Management Practices	2016 - Present
• GIS/Mapping (QGIS: introductory)	2018 - 2019
• Grapevine Pests & Diseases	2018 - Present
• Presenting and Outreach	2016 - Present

TRAININGS AND CERTIFICATIONS

• LaTeX: basics	2019
• R: basics	2016-Present
• R: statistics intensive	2019
• R: figures and ggplot2	2016-Present
• R: Leaflet package basics	2020
• Introductory Website Design	2020