

CURRICULUM VITAE

Barbara Demmig-Adams

Professor of Distinction, Department of Ecology & Evolutionary Biology

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Academic Positions

2013-present Professor of Distinction, University of Colorado

1998-2013 Professor, University of Colorado

1994-1998 Associate Professor, University of Colorado

1994 Visiting Fellow, Research School of Biological Sciences, Australian Natl. Univ.

1990-1994 Assistant Professor, University of Colorado

1989-1990 Research Associate, University of Colorado

1986-1989 Habilitation candidate, Department of Botany, University of Würzburg, Germany

Postgraduate Education

1986-1989 Dr. rer. nat. habil. in Plant Biology (habilitation; degree awarded in German academic system after external review of research and teaching); University of Würzburg, Germany

1984-1986 Postdoctoral Fellow, Department of Plant Biology, Carnegie Institution of Washington, Stanford, CA

Undergraduate and Graduate Education (University of Würzburg, Germany)

1980-84 Dr. rer. nat. (equivalent to PhD) in Botany

1974-79 Staatsexamen in Biology (similar to BA/MA in US system) and Chemistry (similar to BA in US system)

Awards and Recognition

-31,985 citations, h-index 74 in Google Scholar on 1/29/2024

-CU Hazel Barnes Prize (for integration of teaching and research), 2021

-College Scholar Award from CU, 2016

-Marinus Smith Award 2014 from the CU Parents Association for services to CU undergraduates

-Appointment to Professor of Distinction at CU, 2013

-CU Chancellor's Award 2013 for Excellence in STEM education

-Election to *Leopoldina*, the National Academy of Sciences of Germany, Austria, & Switzerland, May 2011

- The Boulder Faculty Assembly Excellence in Teaching Award from CU 2010-2011
- Honored (10/2010) for one of the 25 “classic” papers (“most influential papers ever published”) in Plant Physiology (<http://www.plantphysiol.org/misc/classics.dtl>)
- Certificate of Appreciation 2008 for work with students with disabilities from Disabilities Services at CU
- CU-LEAD Scholar 2008 (Award to honor faculty recognized by traditionally underrepresented CU-LEAD students for having a significant influence on their success at CU Boulder; CU-LEAD Alliance=Alliance for Leadership, Excellence, Achievement, and Diversity)
- The Boulder Faculty Assembly Excellence in Research, Scholarly, and Creative Work Award from CU, 2006-2007
- Two papers among the top five honored as the most highly cited during the previous ten years in the Australian Journal of Plant Physiology (January 2003 issue of Functional Plant Biology).
- One paper among the top twenty honored as most highly cited during the 30 years Australian Journal of Plant Physiology / Functional Plant Biology had been published (March 2003 issue of Functional Plant Biology)
- CU Faculty Fellowship (in support of sabbatical) Jan to Dec 1997
- Fellowship in Science and Engineering from the *David and Lucile Packard Foundation*, Oct 1992 to Oct 1997
- "The Academy Award for Biology 1987"* from the Academy of Sciences at Göttingen, Germany, Nov 1987
- Postdoctoral Fellowship from the Carnegie Corporation of New York, Nov 1985 to Apr 1986
- Postdoctoral Fellowship from the McKnight Foundation, Mar 1985 to Nov 1985
- Postdoctoral Fellowship from the *Deutsche Forschungsgemeinschaft* (DFG), Mar 1984 to Mar 1985

Grants Funded

- Co-Optimization of Duckweed Biomass, Nutritional Quality, & Input-Use Efficiency (2019-2021) \$799,991 from the Translational Research Institute for Space Health (TRISH) – Biomedical Research Advances for Space Health (BRASH) 1801 (under cooperative agreement with NASA). PI with William Adams and Christine Escobar (Space Lab Technologies)
- Collaborative Research (Arabidopsis 2010): Ecological Genomics of Adaptation to the Environment (2010-2015). \$3,154,225 from the National Science Foundation. PI with William Adams for CU-Boulder portion (\$587,908 to the University of Colorado); PIs for MSU portion Douglas Schemske & Michael Thomashow; PI for CSU portion John McKay
- Increasing Teaching Effectiveness in Ecology and Evolutionary Biology (2011-2015). \$480,000 from the Science Education Initiative at the University of Colorado. Co-PI with Andrew Martin, William Adams, Nichole Barger, John Basey, and Samuel Flaxman
- Assessing the Impact of Early, Individualized Faculty and TA Interventions for At-Risk Students (2013-2014). \$10,000 from the iSTEM Chancellor’s Award. Part of the National Science Foundation award to the University of Colorado entitled “13: Towards a Center for STEM Education”. PI with William Adams and Sarah Wise.
- EAGER: Assessing Functional Diversity of Algal Communities at the Single Cell Level with a Compact Multi-function Microfluidic Cytometer (2011-2013). \$205,000 from the National Science Foundation. PI, with William Adams, Ralph Jimenez & William Lewis
- Developing a Roadmap to the Diatoms with Greatest Oil Production (2011-2013). \$44,000 from

- the Office of the VCR Innovative Seed Program at the University of Colorado. Co-PI with Pat Kocielek, Ralph Jimenez, William Adams & William Lewis
- Novel Genetic Dissection of Temperature Tolerance in the Model Plant *Arabidopsis* (2010-2013). \$43,750 from the Office of the VCR Innovative Seed program at CU-Boulder. PI (collaborators William Adams & Douglas Schemske, MSU)
 - Photosynthesis and Phloem Anatomy (2009-2013). \$486,203 from the National Science Foundation, PI with William Adams
 - Extractive Photobioreactor (2011-2012). \$524,819 from ConocoPhillips Company. Co-PI with John Pellegrino (Mechanical Engineering, CU-Boulder), Robert Davis (Dean, Engineering & Applied Science, CU-Boulder) & William Adams
 - Optimization of Light Use Efficiency for Algal Production of Glycerol as a Precursor for Transport Fuels (2009-2010). \$219,193 from ConocoPhillips Company. PI with William Adams
 - Defining a Mechanistic Link Between Stand Thinning, Drought Stress, and Risk of Mortality from Pine Bark Beetles in Californian Yellow Pine (2007-2010). CU's portion \$157,020 from the United States Department of Agriculture. PI, with William Adams (PIs for CA portion Nancy Grulke & Steve Seybold)
 - Identification of Novel Biomolecules for Improved Biological Production of Alternative Fuels from Solar Energy (2007-2008). \$40,000 from the Energy Initiative University of Colorado / NREL Seed Grant Program. PI, with William Adams, Matthew Posewitz (CSM), and Michael Seibert (NREL)
 - Towards the Establishment of a Novel Role of the Carotenoid Zeaxanthin in Signaling (2007-2008). \$7,000 as Grant-In-Aid from CRCW at CU-Boulder
 - Supplementary Research Opportunity Award to Collaborative Research: Photosynthetic Acclimation, Photoprotection, and Phloem Loading (2005-2007) \$24,952 from the National Science Foundation. Co-PI, with William Adams
 - Collaborative Research: Photosynthetic Acclimation, Photoprotection, and Phloem Loading (2003-2007). \$454,007 from the National Science Foundation. Co-PI, with William Adams (PI for Cornell portion, Robert Turgeon)
 - Seasonal Changes in the Productivity of Evergreen Forests: Toward an Understanding of what it Takes to be "Evergreen" and How Seasonal Changes are Orchestrated (2002-2005). \$260,000 from the Andrew W. Mellon Foundation. Co-PI with William Adams
 - Protein Phosphorylation and Xanthophyll Cycle Dynamics dependent on Lifeform" (2000-2003) \$150,000 from the United States Department of Agriculture. PI with W. Adams
 - Protein Phosphorylation and Photoprotection during Winter Stress (1999-2001) \$100,000 from the National Science Foundation. Co-PI with William Adams
 - Photoprotection during Winter Stress (1996-1998) \$200,486 from the National Science Foundation. Co-PI with William Adams
 - Biosphere/Atmosphere Interactions: Biochemical Causes to Global Implications (1994-1999) \$1,699,837 from the National Science Foundation. Co-PI with 21 other investigators
 - Faculty Fellowship (1997) \$51,229 (plus \$3,787 in Grants-in-Aid) from the University of Colorado Council on Research and Creative Work.
 - Interaction of Photoprotective Processes in Plants (1994-1997) \$185,000 from the United States Department of Agriculture. PI with William Adams
 - Replacement and Modernization of Greenhouse Facilities (1994-1996) \$202,500 from the National Science Foundation. Co-PI with 4 other investigators

- Fellowship in Science and Engineering from the David and Lucile Packard Foundation (1992-1997) \$500,000.
- Carotenoids and Photoprotection in CAM Plants (1992-1995) \$126,000 from the National Science. Co-PI, with William Adams
- Improvement of Laboratories in Plant Physiology and Plant Ecophysiology at the University of Colorado in Boulder (1993-1994) \$90,000 from the National Science Foundation and the University of Colorado. Co-PI with 2 other investigators
- The Relative Roles of Photoprotective Energy Dissipation and Repair Processes in Plants under High Light Stress (1992-1993) \$4,500 from the University of Colorado Council on Research and Creative Work.
- Remote Sensing of Actual Photosynthesis Rates of Vegetation under Changing Environmental Conditions (1991-1992) \$17,971 from the University of Colorado Global Change & Environmental Quality Program.
- Carotenoids and Photoprotection in Various Crop Species (1990-1992) \$100,000 from the United States Department of Agriculture. PI with William Adams
- Purchase of Nine Controlled Environment Growth Chambers (1990-1991) \$113,015 from the National Science Foundation. Co-PI with 5 other investigators

Manuscripts in Progress

**graduate student*

- *Polutchko SK, Demmig-Adams B, Arbor RN, Stewart JJ, Davies KF, Adams WW III, Keys AA, Gleason SM, Gonzalez-Pita H, Frank G, Corwin LA (in prep) Space mission ecology: Making connections among science disciplines through the lens of a unique plant. CourseSource
- *Glime GNE, *Polutchko SK, Adams WW III, Demmig-Adams B (in prep) Dietary antioxidants and anti-inflammatories for immune health. Exploration of Immunology, invited paper
- López-Pozo M, Adams WW III, Demmig-Adams B (in prep) Floating plants as champions of protein and micronutrient production. Discover Food, invited paper
- Stewart JJ, Demmig-Adams B, Adams WW III (in prep) Pot size impacts growth and function of *Arabidopsis thaliana* over a wide range of growth light intensities. Functional Plant Biology
- *Glime GNE, Stewart JJ, *Polutchko SK, Adams WW III, Demmig-Adams B (in planning) Descriptive exploration of foliar xylem traits in three wild sunflowers shows potential for climate resilience.
- Jenkins MW, Stewart JJ, Demmig-Adams B, Adams WW III (in planning) Assessing photosynthesis via oxygen and carbon dioxide exchange.
- Adams WW III, Demmig-Adams B (in planning) Foliar solar panels: feeding life's electrical grid. Scientific American

Contributed Publications (not peer-reviewed)

***undergraduate student; *graduate student*

- López-Pozo M, Adams WW III, Demmig-Adams B (2023) Commercial applications of duckweed. E Scholarly Community Encyclopedia <https://encyclopedia.pub/entry/49861>

- López-Pozo M, **Zenir MC, *Polutchko SK, Stewart JJ, Adams WW, *Escobar A, Demmig-Adams B 2023 Effects of Growth Environment on *Lemna minor*. E Scholarly Community Encyclopedia <https://encyclopedia.pub/entry/40481>
- López-Pozo M, Adams WW III, *Polutchko SK, Demmig-Adams B (2023) *Lemna* is productive and nutritious in low light. E Scholarly Community Encyclopedia <https://encyclopedia.pub/entry/44805>
- *Polutchko SK, Adams WWW III, Demmig-Adams B 2022 Aquatic plants: Life support and nutrition in space. E Scholarly Community Encyclopedia <https://encyclopedia.pub/entry/24136>
- Demmig-Adams B, *Polutchko SK, Adams WW III 2022 Zeaxanthin and lutein across life's taxa. E Scholarly Community Encyclopedia <https://encyclopedia.pub/entry/22396>
- *Polutchko S, Demmig-Adams B, Adams W 2022 Differential climate resilience in *Arabidopsis thaliana* ecotypes. E Scholarly Community Encyclopedia <https://encyclopedia.pub/21305>
- Demmig-Adams B, Adams WW III 2022 Growth and nutritional quality of Lemnaceae. E Scholarly Community Encyclopedia <https://encyclopedia.pub/19911>
- *Polutchko S, Demmig-Adams B, Stewart J, López-Pozo M, Adams WW III 2020 Zeaxanthin and photoprotection in plants. E Scholarly Community Encyclopedia <https://encyclopedia.pub/4400>
- Stewart J, Demmig-Adams B, López-Pozo M, Adams WW III 2020 Zeaxanthin and lutein in humans. E Scholarly Community Encyclopedia <<https://encyclopedia.pub/2270>>
- Demmig-Adams B, Adams WW III 2017 Photoinhibition. In Thomas B, Murray B, Murphy D (eds) Encyclopedia of Applied Plant Sciences 2nd Edition. Academic Press, Waltham, pp. 78-85
- Demmig-Adams B, C *Rixham CS, Adams WW III 2012 Carotenoids. In McGraw-Hill Encyclopedia of Science & Technology, 11th edition, Vol. 3, pp. 549-555. McGraw-Hill, New York <<http://www.accessscience.com/content/carotenoids/110600>>
- Adams WW III, Demmig-Adams B 2012 Photoprotection (plants). In McGraw-Hill Encyclopedia of Science & Technology, 11th edition, Vol. 13, pp. 490-493. McGraw-Hill, New York <<http://www.accessscience.com/content/photoprotection-plants/900153>>
- Demmig-Adams B, *Dumlao MR, *Herzenach MK, Adams WW III 2008 Acclimation. In SE Jørgensen and BD Fath (eds) Behavioral Ecology. Encyclopedia of Ecology, pp 15-23. Elsevier, Oxford
- Adams WW III, Amiard VSE, *Bachmann KEM, Turgeon R, Demmig-Adams B 2005 Phloem loading type and photosynthetic acclimation to light. In A van der Est, D Bruce (eds) Photosynthesis: Fundamental Aspects to Global Perspectives. Allen Press, Lawrence, pp. 814-816
- Demmig-Adams B, Ebbert V, Adams WW III 2005 Photoinhibition in evergreens: Involvement of sustained thermal dissipation and PSII protein phosphorylation. In A van der Est, D Bruce (eds) Photosynthesis: Fundamental Aspects to Global Perspectives. Allen Press, Lawrence, pp. 634-636
- Adams WW III, Demmig-Adams B, *Rosenstiel TN, Ebbert V, **Brightwell AK, *Barker DH, *Zarter CR 2001 Photosynthesis, xanthophylls, and D1 phosphorylation under winter stress. In PS2001 Proceedings: 12th International Congress on Photosynthesis. CSIRO Publishing: Melbourne, Australia, 2001. <doi: 10.1071/SA0403060>

Peer-reviewed Publications

***high school student; **undergraduate student; *graduate student; (###) running count of publications

- *Polutchko SK, Demmig-Adams B, Stewart JJ, Gleason SM, Adams WW III Foliar vascular features of herbaceous species with different life strategies and mechanisms of active phloem loading. *Annals of Botany*, in revision
- López-Pozo M, **McNamara M, *Escobar A, Adams WW III, Demmig-Adams B A Pre-harvest finishing procedure to produce significant levels of stable zeaxanthin in duckweed (*Lemna minor*). *Acta Astronautica*, under review
- López-Pozo M, Adams WW III, Demmig-Adams B 2023 Lemnaceae as novel crop candidates for CO₂ sequestration and additional applications. *Plants* 12, 3090
<https://www.mdpi.com/2223-7747/12/17/3090>
- *Adams MS, **Enichen E, Demmig-Adams B 2023 Reframing diabetes prevention: From body shaming to metabolic reprogramming. *American Journal of Lifestyle Medicine*, early access 15598276231182655 <https://doi.org/10.1177/155982762311826>
- Adams WW III, Stewart JJ, *Polutchko SK, Cohu CM, Muller O, Demmig-Adams B 2023 Foliar phenotypic plasticity reflects adaptation to environmental variability. *Plants* 12, 2041 <doi.org/10.3390/plants12102041>
- (200) López-Pozo M, Adams WW III, *Polutchko SK, Demmig-Adams B 2023 Terrestrial and floating aquatic plants differ in acclimation to light environment. *Plants* 12, 1928 <doi.org/10.3390/plants12101928>
- **Zenir MC, López-Pozo M, *Polutchko SK, Stewart JJ, Adams WW III, *Escobar A, Demmig-Adams B 2023 The plant microbiome mitigates adverse effects of elevated CO₂ on growth rate and nutritional quality in *Lemna minor*. *Stresses* 3, 69-85 <[doi: 10.33390/stresses301007](https://doi.org/10.33390/stresses301007)>
- **Enichen E, Adams RB, Barbara Demmig-Adams B 2023 Physical activity as an adjunct treatment for people living with HIV? *American Journal of Lifestyle Medicine* 17(4), 502-517 <https://doi.org/10.1177/15598276221078222>
- **Enichen E, **Harvey C, Demmig-Adams B 2023 COVID-19 spotlights connections between disease and multiple lifestyle factors. *American Journal of Lifestyle Medicine* 17(2), 231-257 <<https://doi.org/10.1177/15598276221123005>>
- *Polutchko SK, Stewart JJ, ** McNamara M, **Doherty Garcia N, López-Pozo M, Adams WW III, Demmig-Adams B 2022 Floating plants as sustainable, highly nutritious crops: production of nutrients in different light environments. *Nutraceuticals* 2, 350-364 <[doi: 103390/nutraceuticals2040027](https://doi.org/10.3390/nutraceuticals2040027)>
- Demmig-Adams B, *Polutchko SK, Stewart JJ, Adams WW III 2022 History of excess-light exposure modulates extent and kinetics of fast-acting non-photochemical energy dissipation. *Plant Physiology Reports* 25, 560-572 <[doi: 10.1007/s40502-022-00689-2](https://doi.org/10.1007/s40502-022-00689-2)>
- *Polutchko SK, *Escobar CM, Adams WW III, Demmig-Adams B 2022 Conquering space with crops that produce ample oxygen and antioxidants. *Oxygen* 2, 211-226 <[doi: 10:3390/oxygen2020016](https://doi.org/10.3390/oxygen2020016)>
- Demmig-Adams B, *Polutchko SK, Adams WW III 2022 Structure-function-environment relationship of the isomers zeaxanthin and lutein. *Photochem* 2, 308-325
<https://www.mdpi.com/2673-7256/2/2/22>; associated video “Well-protected and Highly Functional through Carotenoids” submitted by Demmig-Adams B;
https://encyclopedia.pub/video/video_detail/411

- Demmig-Adams B, *Polutchko SK, Baker CR, Stewart JJ, Adams WW III 2022 Distinct cold acclimation of productivity traits in *Arabidopsis thaliana* ecotypes. International Journal of Molecular Sciences 23, 2129 <doi: 10.3390/ijms23042129>
- Demmig-Adams B, López-Pozo M, *Polutchko SK, Fourounjian P, Stewart JJ, **Zenir MC, Adams WW III 2022 Growth and nutritional quality of Lemnaceae viewed comparatively in an ecological and evolutionary context. Plants 11, 145 <https://doi.org/10.3390/plants11020145>
- (190) Baker CR, Stewart JJ, Amstutz CL, *Ching LC, *Johnson JD, Niyogi KK, Adams WW III, Demmig-Adams B 2022 Genotype-dependent contribution of CBF transcription factors to long-term acclimation to high light and cool temperature. Plant, Cell & Environment, 45, 392-411 <doi: 10.1111/pce.14231>
- Demmig-Adams B, *Polutchko SK, **Zenir MC, Fourounjian P, Stewart JJ, López-Pozo M, Adams WW III 2022 Intersections: Photosynthesis, abiotic stress, and the plant microbiome. Photosynthetica 60, 59-69 http://ps.ueb.cas.cz/artkey/phs-202201-0006_intersections-photosynthesis-abiotic-stress-and-the-plant-microbiome.php
- Adams WW III, Stewart JJ, *Polutchko SK, Demmig-Adams B 2022 Foliar sieve elements: nexus of the leaf. Journal of Plant Physiology 269, 153601 <doi: 10.1016/j.jplph.2021.153601>
- *Polutchko SK, Stewart JJ, Adams WW III, Demmig-Adams B 2021 Photosynthesis and foliar vascular adjustments to growth light intensity in summer annual species with symplastic and apoplastic phloem loading. Journal of Plant Physiology 267, 153532. <doi: 10.1016/j.jplph.2021.153532>
- Stewart JJ, Adams WW III, López-Pozo M, *Doherty Garcia N, **McNamara M, *Escobar CM, Demmig-Adams B 2021 Features of the duckweed *Lemna* that support rapid growth under extremes of light intensity. Cells 10, 1481 <https://doi.org/10.3390/cells10061481>
- *Polutchko SK, *Glime GNE, Demmig-Adams B 2021 Synergistic action of membrane-bound and water-soluble antioxidants in neuroprotection. Molecules 26, 5385 <https://www.mdpi.com/1420-3049/26/17/5385>
- Demmig-Adams B, Stewart JJ, López-Pozo M, *Polutchko SK, Adams WW III 2020 Zeaxanthin, a molecule for photoprotection in many different environments. Molecules 25, 5825 <doi:10.3390/molecules25245825>
- *Adams MS, Demmig-Adams B, *Li RQ, *Zarate D, Li J 2020 Coral reef productivity and diversity—contributions from enhanced photosynthesis via demand for carbohydrate from the host. Marine Ecology 42, e12618 <doi: 10.1111/maec.12618>
- Demmig-Adams B, López-Pozo M, Stewart JJ, Adams WW III 2020 Zeaxanthin and lutein: photoprotectors, anti-inflammatories, and brain food. Molecules 25, 3607 <doi: 10.3390/molecules25163607>
- Stewart JJ, Adams WW III, *Escobar CM, López-Pozo M, Demmig-Adams B 2020 Growth and essential carotenoid micronutrients in *Lemna gibba* as a function of growth light intensity. Frontiers in Plant Science 11, 480 <doi: 10.3389/fpls.2020.00480>
- (180) Langensiepen M, Jansen MAK, Wingler A, Demmig-Adams B, Adams WW III, Dodd IC, Fotopaulus V, Snowdon R, Fenollosa E, de Tullio MC, Buck-Sorlin G, Munné-Bosch S 2020 Linking integrative plant physiology with agronomy to sustain future plant production. Environmental and Experimental Botany 178, 104125 <doi: 10.1016/j.envexpbot.2020.104125>

- Demmig-Adams B, Stewart JJ, Adams WW III 2019 Less photoprotection is good in some genetic and environmental contexts. *Biochemical Journal* 476, 2017-2029 <doi: 10.1016/j.envexpbot.2020.104125>
- Stewart JJ, Demmig-Adams B, Adams WW III 2019 Quantification of foliar phloem infrastructure with light and electron microscopy. In: Liesche J (ed) *Phloem. Methods in Molecular Biology*, Vol 2014, pp 55-72. Humana Press, New York, NY
- Oh S, Adams WW III, Demmig-Adams B, Koh S-C 2019 A proteomic approach to seasonal adjustment in the enzyme complement of Korean fir (*Abies koreana* Wilson) needles. *Horticulture, Environment, and Biotechnology* 60, 135-146 <doi: 10.1007/s13580-018-0094-z>
- *Stewart JJ, Baker CR, **Sharpes CS, **Wong-Michalak ST, *Polutchko SK, Adams WW III, Demmig-Adams B 2018 Effects of foliar redox status on leaf vascular organization suggest avenues for cooptimization of photosynthesis and heat tolerance. *International Journal of Molecular Science* 19, 2507 <doi:10.3390/ijms19092507>
- Demmig-Adams B, Adams WW III 2018 An integrative approach to photoinhibition and photoprotection of photosynthesis. *Environmental and Experimental Botany* 154, 1-3 <doi.org/10.1016/j.envexpbot.2018.05.006>
- *Stewart JJ, *Polutchko SK, Demmig-Adams B, Adams WW III 2018 *Arabidopsis thaliana* Ei-5: Minor vein architecture adjustment compensates for low vein density in support of photosynthetic capacity. *Frontiers in Plant Science* 9, 693 <doi: 10.3389/fpls.2018.00693>
- Demmig-Adams B, *Stewart JJ, Baker CR, Adams WW III 2018 Optimization of photosynthetic productivity in contrasting environments by regulons controlling plant form and function. *International Journal of Molecular Science* 19, 3 <doi:10.3390/ijms19030872>
- **Martella AM, Demmig-Adams B 2018 Combining effective instructional approaches in a large introductory biology classroom: A research review and illustrative case study. *Journal on Excellence in College Teaching* 29 (2), 121-146
- Adams WW III, *Stewart JJ, *Polutchko SK, Demmig-Adams B 2018 Leaf vasculature and the upper limit of photosynthesis. In Adams WW III, Terashima I (eds) *The Leaf: A Platform for Performing Photosynthesis. Advances in Photosynthesis and Respiration*, Vol. 44. Springer, Dordrecht, pp. 27-54 <doi: 10.1007/978-3-319-93594-2_2>
- (170) Adams WW III, *Stewart JJ, Demmig-Adams B 2018 Photosynthetic modulation in response to plant activity and the environment. In Adams WW III, Terashima I (eds) *The Leaf: A Platform for Performing Photosynthesis. Advances in Photosynthesis and Respiration*, Vol. 44. Springer, Dordrecht, pp. 493-563 <doi: 10.1007/978-3-319-93594-2_18>
- *Polutchko SK, *Stewart JJ, Demmig-Adams B, Adams WW III 2018 Evaluating the link between photosynthetic capacity and leaf vascular organization with principal component analysis. *Photosynthetica* 56, 392-403 <doi: 10.1007/s11099-017-0764-6>
- *Stewart JJ, Adams WW III, Cohu CM, Demmig-Adams B 2018 Tocopherols modulate leaf vein arrangement and composition without impacting photosynthesis. *Photosynthetica* 56, 382-391 <doi: 10.1007/s11099-017-0757-5>
- Demmig-Adams B, *Stewart JJ, Adams WW III 2017 Environmental regulation of intrinsic photosynthetic capacity: an integrated view. *Current Opinion in Plant Biology* 37, 34-41 < doi:10.1016/j.pbi.2017.03.008>

- *Stewart JJ, *Polutchko SK, Adams WW III, Demmig-Adams B 2017 Acclimation of Swedish and Italian ecotypes of *Arabidopsis thaliana* to light intensity. *Photosynthesis Research* 134 (2), 215-229
- Demmig-Adams B, *Burch TA, ***Savage E, *Stewart JJ, Adams WW III 2017 Algal glycerol accumulation and release as a sink for photosynthetic electron transport. *Algal Research* 21, 161-168
- *Stewart JJ, *Polutchko SK, Adams WW III, Cohu CM, **Wenzl CA, Demmig-Adams B 2017 Light, temperature, and tocopherol status influence foliar vascular anatomy and leaf function in *Arabidopsis thaliana*. *Physiologia Plantarum* 160, 98-110 <doi: 10.1111/ppl.1243>
- Adams WW III, *Stewart JJ, Cohu CM, Muller O, Demmig-Adams B 2016 Habitat temperature and precipitation of *Arabidopsis thaliana* ecotypes determine the response of foliar vasculature, photosynthesis, and transpiration to growth temperature. *Frontiers in Plant Science* 7, 1026 <doi.org/10.3389/fpls.2016.01026>
- *Stewart JJ, Demmig-Adams B, Cohu CM, **Wenzl CA, Muller O, Adams WW III 2016 Growth temperature impact on leaf form and function in *Arabidopsis thaliana* ecotypes from northern and southern Europe. *Plant, Cell and Environment* 39, 1549-1558
- **Adams MS, **Adams RB, Wessman CA, Demmig-Adams B 2016 Nutritional cues tie living organisms to their environment and its sustainability. *Frontiers in Nutrition* 3:28 <doi: 10.3389/fnut.2016.00028>
- (160) **Polutchko SK, *Stewart JJ, Demmig-Adams B 2015 Integrative view of the nutrition of the eye. In Bagchi D, Preuss HG, Swaroop A (eds) *Nutraceuticals and Functional Foods in Human Health and Disease Prevention*. CRC Press/Taylor & Francis pp 407-418 <doi: 10.1201/b19308-34>
- *Stewart JJ, Adams WW III, Cohu CM, **Polutchko SK, **Lombardi EM, Demmig-Adams B 2015 Differences in light-harvesting, acclimation to growth light environment, and leaf structural development between Swedish and Italian ecotypes of *Arabidopsis thaliana*. *Planta* 242, 1277-1290 <doi: 10.1007/s00425-015-2368-3>
- Demmig-Adams B, Muller O, *Stewart JJ, Cohu CM, Adams WW III 2015 Chloroplast thylakoid structure in evergreen leaves employing strong thermal energy dissipation. *Journal of Photochemistry and Photobiology B: Biology* 152, 357-366
- *Burch TA, Adams WW III, Degrenne BLS, **Englert CH, **Mines BR, **Nash PC, **Boone EC, Demmig-Adams B 2015 Environmental manipulation of growth and energy carrier release from freshwater and marine *Chlamydomonas* species. *Journal of Applied Phycology* 27, 1127-1136 <doi: 10.1007/s10811-014-0433-0>
- Muller O, *Stewart JJ, Cohu CM, **Polutchko SK, Demmig-Adams B, Adams WW III 2014 Leaf architectural, vascular, and photosynthetic acclimation to temperature in two biennials. *Physiologia Plantarum* 152, 763-772 <doi: 10.1111/ppl.12226>
- Demmig-Adams B, Koh SC, Cohu CM, Muller O, *Stewart JJ, Adams WW III 2014 Non-photochemical quenching in contrasting plant species and environments. In Demmig-Adams B, Garab G, Adams WW III, Govindjee (eds) *Non-Photochemical Quenching and Energy Dissipation in Plants, Algae and Cyanobacteria*. *Advances in Photosynthesis and Respiration*, Volume 40. Springer, Dordrecht, pp. 531-552 <doi: 10.1007/978-94-017-9032-1_24>
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Edited Books

- Cavender-Bares J, Demmig-Adams B, Kobayashi H, Leuchner M (eds) (in prep for 2025)
Following Photon Through Forests: Radiation Ecology. Springer
- Demmig-Adams B, Garab G, Adams WW III, Govindjee (eds) 2014 Non-Photochemical
Quenching and Thermal Energy Dissipation in Plants, Algae and Cyanobacteria.
Advances in Photosynthesis and Respiration, Volume 40. Springer, Dordrecht <doi:
10.1007/978-94-017-9032-1>
- Demmig-Adams B, Adams WW III, Mattoo AK (eds) 2008 Photoprotection, Photoinhibition,
Gene Regulation, and Environment. Advances in Photosynthesis and Respiration,
Volume 21. Springer, Dordrecht. Paperback edition. <doi: 10.1007/1-4020-3579-9>
- Demmig-Adams B, Adams WW III, Mattoo AK (eds) 2006 Photoprotection, Photoinhibition,
Gene Regulation, and Environment. Advances in Photosynthesis and Respiration,
Volume 21. Springer, Dordrecht. Hardback edition. <doi: 10.1007/1-4020-3579-9>

Invited Talks (*Presenter)

- “Nutritional Enhancement of Duckweed as a Food for Astronauts” International TRISH
Workshop – Plant SynBio for Space, Hosted by the Translational Research Institute for
Space Health, Caltech, and UC Davis, 9 August 2023, B Demmig-Adams*
- “Photosynthesis and Photoprotection in Whole Plants and Natural Environments” Physical
Chemistry Seminar, University of Colorado, Boulder, CO, 28 Oct 2022, B Demmig-
Adams*, WW Adams III
- “Lemnaceae: Floating Plants Able to Combine High Levels of Zeaxanthin with High Rates of
Photosynthesis and Growth” 18th International Congress on Photosynthesis Research
2022, 31- July 31 - August 5. New Zealand, B Demmig-Adams*, WW Adams III
- “*Lemna* – Rapidly Growing Zeaxanthin Hyperaccumulator” 2nd Virtual International Conference
on Carotenoids, 12-14 April 2022. B Demmig-Adams*, SK Polutchko, JJ Stewart, M
López-Pozo, WW Adams III
- “Photosynthetic and Foliar Phenotypic Plasticity Reflects Adaptation to Different Levels of
Environmental Variability”, 31st Western Photosynthesis Conference, 24-25 March 2022,
WW Adams III*, JJ Stewart, SK Polutchko, B Demmig-Adams
- Co-Optimization of Duckweed Biomass, Nutritional Quality & Input-Use Efficiency”,
Translational Research Institute for Space Health (TRISH) Webinar, 30 June 2021. B
Demmig-Adams*, CM Escobar
- “Attractive Qualities of Duckweed as a Food Source for Space Missions”, American Institute of
Aeronautics and Astronautics Rocky Mountain Annual Technical Symposium, 29
September 2021. SK Polutchko*, JJ Stewart, M López-Pozo, WW Adams III, B
Demmig-Adams
- “Design of Plant Growth Environment as a Tool for Optimization of Duckweed as a Space
Crop”, NASA Human Research Program Investigators’ Workshop, 1-2 February 2021. B
Demmig Adams*, JJ Stewart, Marina López-Pozo, CM Escobar, WW Adams III
- “The Environmentally Modified Plant” Departmental seminar, Department of Biotechnology,
University of California at Davis, 9 October 2020. B Demmig-Adams
- “Co-Optimization of Duckweed Biomass, Nutritional Quality & Input-Use Efficiency”,
Translational Research Institute for Space Health Orbit Rendezvous, 21 October 2020. B
Demmig-Adams

- “Leveraging Plant Stress Biology to Provide Anti-inflammatory Brain Food”, Symposium on Stress for Space, American Society for Gravitational and Space Research Annual Meeting, 5-6 November 2020. B Demmig-Adams*, JJ Stewart, M López-Pozo, CM Escobar, WW Adams III
- “Space Veggies: Regenerative Life Support System, Food, and Inflammation-Fighting Micronutrients”, 8th Annual Technical Symposium, ATS-2019 AIAA Rocky Mountain Section Annual Symposium, University of Colorado, Boulder, CO, 19 November 2019. B Demmig-Adams*, CM Escobar, JJ Stewart, G Glime, CM Zeller, ND Garcia, WW Adams III
- “Integrative Plant Physiology for Climate-Resilient Crops”, International Conference on Integrative Plant Physiology, Sitges, Spain, 27-29 October 2019. B Demmig-Adams* & WW Adams III
- “Leaf Phenotypic Plasticity Mirrors Environmental Variability among Ecotypes of *Arabidopsis thaliana* Adapted to Sites Differing in Temperature, Daylength, and Precipitation”, International Conference on Integrative Plant Physiology, Sitges, Spain, 27-29 October 2019. WW Adams III*, JJ Stewart & B Demmig-Adams
- “From Photoinhibition to Carbon Export Capacity Supporting High Photosynthetic Rates to Growing Like a Duckweed”, A Symposium Celebrating Barry Osmond – Reflections in a Flash, Research School of Biology, Australian National University, Canberra, Australia, 12-13 September 2019. WW Adams III* & B Demmig-Adams
- “Context-dependent interpretation of fluorescence- and pigment-based indicators of plant status”; symposium "Bridging plant ecophysiology with remotely sensed ecosystem function: solar-induced fluorescence, laser and hyperspectral remote sensing", Ecological Society of America, Louisville, Kentucky, 11-16 August 2019. B Demmig-Adams*, JJ Stewart & WW Adams III
- “Adaptation and Acclimation of Foliar Vasculature, Photosynthesis, and Transpiration among Herbaceous Species”, Annual Meeting of the Ecological Society of America, Louisville, KY, 11-16 August 2019. WW Adams III*, JJ Stewart & B Demmig-Adams
- “Paradigm Shift for Climate-Resilient Crops: May Less Photoprotection be Beneficial in Some Environments?”, Gordon Research Conference on Photosynthesis: From the Biophysics of Natural and Artificial Photosynthesis to Bioenergy Conversion, Sunday River Conference Facilities, Newry, ME, 21-26 July 2019. WW Adams III*, JJ Stewart & B Demmig-Adams
- “Why it is Important to Study Photosynthesis in the Environment”, Gordon Research Conference on Photosynthetic Plasticity: From the Environment to Synthetic Systems, Newry, ME, 16-21 July 2017. B Demmig-Adams
- “Photosynthetic Upregulation Relies on Increased Capacity for Foliar Sugar Export”, Gordon Research Conference on Photosynthetic Plasticity: From the Environment to Synthetic Systems, Sunday River Conference Facilities, Newry, ME, 16-21 July 2017. WW Adams III* & B Demmig-Adams
- “Acclimation of *Arabidopsis thaliana* Foliar Vasculature, Photosynthesis, and Transpiration Dependent on Environment”, 26th Western Photosynthesis Conference, Marconi Conference Center, CA, 5-8 January 2017. WW Adams III*, JJ Stewart, SK Polutchko, & B Demmig-Adams
- “Linking Foliar Vascular Metrics to Photosynthesis and Transpiration”, Keynote Speaker, Gordon Research Conference on Multiscale Plant Vascular Biology – Identifying Interdisciplinary

- Opportunities for a New Era of Plant Vascular Biology, Sunday River Conference Facilities, Newry, ME, 26 June – 1 July 2016. WW Adams III* & B Demmig-Adams
- “Leaf Vasculature as Determined by Environment, Tocopherol Status, and Species”, Plant Super Group Seminar, Colorado State University, Fort Collins, CO, 1 April 2016. B Demmig-Adams* & WW Adams III
- “Foliar Vasculature, Photosynthesis, and Transpiration in *Arabidopsis thaliana* Ecotypes from Uncoupled Temperature and Precipitation Clines”, Plant Super Group Seminar, Colorado State University, Fort Collins, CO, 1 April 2016. WW Adams III* and B Demmig-Adams
- “Adjustments in Photosynthesis, Growth, and Leaf Vasculature in Response to Growth Environment and Tocopherol Status”, 25th Western Photosynthesis Conference, Devil’s Thumb Ranch Conference Center, Tabernash, CO, 3-6 January 2016. B Demmig-Adams*, JJ Stewart, WW Adams III
- “Leaf Vasculature and Photosynthesis”, 25th Western Photosynthesis Conference, Devil’s Thumb Ranch Conference Center, Tabernash, CO, 3-6 January 2016. WW Adams III*, JJ Stewart, B Demmig-Adams
- “Maximizing the Conversion of Photons to Electrons in Algae and Plants”, ICAM Energy Transport Workshop 2015, University of Colorado, December 14-16, 2015, B Demmig-Adams* & WW Adams III* (joint presentation)
- “Pushing the Limits of Photosynthesis: Placing Photosynthetic Light Harvesting into Context”, 24th Western Photosynthesis Conference, Asilomar Conference Center, Pacific Grove, CA, 8-11 January 2015, B Demmig-Adams*, JJ Stewart, TA Burch, WW Adams III
- “Foliar Phloem Features Underlying Photosynthetic Capacity, 24th Western Photosynthesis Conference, Asilomar Conference Center, Pacific Grove, CA, 8-11 January 2015, WW Adams III*, JJ Stewart, B Demmig-Adams
- “What Limits Photosynthesis?” Biology Energy Technology Workshop, Canadian Institute for Advanced Research (CIFAR), Toronto, Canada, 25-26 January 2014, B Demmig-Adams* & WW Adams III* (co-presenters)
- “There and Back Again: From Photosynthesis and Eye Health to Food and Fuel” Professor of Distinction Lecture, 7 November 2013
- “Photosynthesis, Photoprotection, and the Environment”, Ecological Genomics of *Arabidopsis* meeting, Fort Collins, CO, 10-11 December 2011, B Demmig-Adams*, WW Adams III
- “Photosynthetic Capacity and Anatomical Features of *Arabidopsis thaliana* Ecotypes from Italy and Sweden”, Ecological Genomics of *Arabidopsis* meeting, Fort Collins, CO, 10-11 December 2011, C Cohu*, O Muller, B Demmig-Adams, WW Adams III
- “Modulation of Plant Oxidative Signaling Networks by Antioxidants in Photosynthesis”, Umeå Plant Science Centre, Umeå, Sweden, Nov 18, 2011, B Demmig-Adams* & WW Adams III
- “Phloem Loading, Leaf Architecture, and Photosynthetic Capacity”, Department of Plant Physiology, Umeå Plant Science Centre, Umeå Universitet, Sweden, November 17, 2011, WW Adams III* & B Demmig-Adams
- “Updates on Enhancing Energy Carrier Release from Microalgae”, Meeting of the Research Team Members from CU, CSU, and CSM sponsored by ConocoPhillips for the development of algal biofuels, Feb 10 and Sept 10, 2010; June 2, 2011
- “Photosynthesis, Photoprotection, and the Environment”, Keynote speaker, Kriton-Hatzios Symposium on Abiotic Stress (April 11), Southern Section of the American Society of Plant Biologists’ Annual Meeting, Gulf Coast Research Laboratory University of

- Southern Mississippi, Ocean Springs, MS. April 9-11, 2011, B Demmig-Adams* & WW Adams III
- “Contrasting Features of Photoprotective Energy Dissipation in Plants with Different Growth Habits”, International Workshop on “Mechanisms of Non-photochemical Quenching”, EU Marie Curie Network “HARVEST”. April 6-10, 2011, Passau, Germany, B Demmig-Adams* & WW Adams III
- “Adjustment of Leaf Structure and Function to Cold Temperature”, International Conference on Plant Vascular Biology 2010, Columbus, OH, 23-29 July 2010, B Demmig-Adams*, M Dumlao, R Leyva, WW Adams III
- “Phloem Anatomy and Photosynthetic Capacity”, International Conference on Plant Vascular Biology 2010, Columbus, OH, 23-29 July 2010, WW Adams III*, V Amiard, R Turgeon, B Demmig-Adams
- “Milking Microalgae for Biofuel Production”, 2010 EBIO Spring Symposium, April 9, 2010. A Reece*, T Burch, CS Rixham, B Degrenne, WW Adams III, B Demmig-Adams
- “Regulation and Acclimation of Photoprotection: Dependence on Species and Environmental Conditions”, Department of Botany, Oklahoma State University, Stillwater, OK, January 20, 2009, WW Adams III* & B Demmig-Adams
- “Maximizing Solar Energy Conversion Efficiency in Photosynthesis”, Joint AFOSR-NREL Biofuels Research Meeting, January 8-9, 2009, Golden, Colorado. B Demmig-Adams* & WW Adams III
- “Forest Health and Disturbance: Defining a Mechanistic Link between Tree Drought Stress and Risk of Mortality from Pine Bark Beetles in Jeffrey Pine”, USDA Forest Service Region 5, Regional Leadership Team Meeting, April 2, 2008, Sacramento, California. NE Grulke*, SJ Seybold, B Demmig-Adams, WW Adams III, DM Rizzo, AD Graves
- “Implications for Forest Management under a Changing Climate: Linking Ozone and Drought Stress to Tree Mortality”, Air Pollution Workshop, April 8, 2008, Raleigh, North Carolina. NE Grulke*, SJ Seybold, B Demmig-Adams, WW Adams III, DM Rizzo, AD Graves
- “Variations in Acclimation of Photosynthesis & Photoprotection in Overwintering Plants” 17th Western Photosynthesis Conference, Pacific Grove (Asilomar), California, 3-6 January 2008. B Demmig-Adams*, MR Dumlao, WW Adams III
- “Photosynthetic Capacity and Minor Loading Veins” 17th Western Photosynthesis Conference, Pacific Grove (Asilomar), California, 3-6 January 2008. WW Adams III*, R Turgeon, B Demmig-Adams
- “An Integrative View of Photoprotection”, Japan-US Workshop (jointly sponsored by the Japan Ministry of Science & Education and the US National Science Foundation) on Phenotypic Plasticity in Response to Environmental Changes: Scaling from the Molecular to the Ecosystem Levels, Nikko Botanical Gardens, University of Tokyo, Japan, 23-26 October 2007, WW Adams III* & B Demmig-Adams
- “Novel Genes in Photoprotection and Stress Adaptation?” Collaborative Plant Biology in the Rocky Mountain / Midwest: Impacts and Future Prospects for Plant Genomics. University of Wyoming, 1-3 June 2006. B Demmig-Adams*, V Ebbert, K Danna, WW Adams III
- “Novel Genes in Photoprotection and Stress Adaptation of Evergreen Species”. Keystone Conference on “Plant Responses to Abiotic Stress”, Copper Mountain, Colorado, 8-12 April 2006. B Demmig-Adams*, V Ebbert, WW Adams III
- “Photosynthesis / Photoprotection and the Whole Plant: Uncovering New Links”, Department of Biology, Colorado State University, 6 September 2005. B Demmig-Adams

- "Seasonal Adjustments in Photosynthesis and Photoprotection", Keynote Speaker for symposium entitled: Responses to Winter - from Ecosystem to Gene, XVII International Botanical Congress, Vienna, Austria, 18-23 July 2005. WW Adams III*, CR Zarter, V Ebbert, KE Mueh, VSE Amiard, & B Demmig-Adams
- "Photoprotective Energy Dissipation and the Bigger Picture", Keynote Speaker for symposium entitled: Antioxidants, gene regulation, and environment, XVII International Botanical Congress, Vienna, Austria, 18-23 July 2005. B Demmig-Adams* & WW Adams III
- "The Remarkable Role of Plant Antioxidants in Plant Survival and Human Health: Case Study of the Carotenoid Zeaxanthin", Department of Integrative Physiology, University of Colorado at Boulder, 3 March 2005. B Demmig-Adams
- "Multiple Mechanisms of Zeaxanthin Function in Thermal Dissipation, Photoinhibition, and Signal Transduction", 13th International Congress of Photosynthesis, Symposium on "Photosynthetic acclimation: Ecophysiology, diverse environments", Montréal, Canada, August 29-September 3, 2004. B Demmig-Adams*, V Ebbert, CR Zarter, A Sokolenko, AK Mattoo, WW Adams III
- "Role of Phloem Loading Type in the Plasticity of Photosynthetic Acclimation to Light Environment", 13th International Congress of Photosynthesis, Montréal, Canada, 29 August - 3 September 2004. WW Adams III*, VSE Amiard, KEM Bachmann, R Turgeon, & B Demmig-Adams
- "Role of Phloem Loading Type in the Plasticity of Photosynthetic Acclimation to Light Environment", Plasmodesmata 2004, Asilomar, CA, 17-21 August 2004. VSE Amiard*, KEM Bachmann, R Turgeon, B Demmig-Adams, WW Adams III
- "Seasonal Adjustments in Photosynthesis and Photoprotection in a Subalpine Forest", Annual meeting of the Guild of the Rocky Mountain Population Biologists, 17-18 September 2004. CR Zarter*, V Ebbert, WW Adams III, B Demmig-Adams
- "Photosynthesis and Photoprotection during Winter", Annual Meeting of the American Society of Plant Biologists, Denver, CO, August 3-7, 2002. B Demmig-Adams*, WW Adams III
- "Growth Form and Light Environment Determinants of Photosynthetic Acclimation to Winter Stress", Symposium on "Photoprotection and Acclimation", 12th International Congress on Photosynthesis. Brisbane, Australia, August 18-23, 2001. WW Adams III* & B Demmig-Adams
- "Modulation of the Xanthophyll Cycle by the Environment", European Science Foundation Workshop on "Non-Photochemical Quenching and the Xanthophyll Cycle – Mechanisms and Implications", Weizmann Institute of Science, Rehovot, Israel, October 12-15, 1999. B Demmig-Adams* & WW Adams III
- "Zeaxanthin Retention, Sustained Energy Dissipation, and Protein Phosphorylation", European Science Foundation Workshop on "Non-Photochemical Quenching and the Xanthophyll Cycle – Mechanisms and Implications", Weizmann Institute of Science, Rehovot, Israel, October 12-15, 1999. B Demmig-Adams* & WW Adams III
- "How is Continuous Energy Dissipation Maintained under Stress? From the Whole Plant to the Chloroplast" Symposium on "Light and Photosynthesis: From the Molecule to the Globe" sponsored by the Carnegie Institution of Washington, Napa, CA, August 28-30, 1999. B Demmig-Adams* & WW Adams III
- "Role of Zeaxanthin in Photoinhibition during Shade to Sun Transfer", XIth International Congress on Photosynthesis, Budapest, Hungary, August 17-22, 1998. B Demmig-Adams* & WW Adams III

- "Relationships among Zeaxanthin, Photoinhibition, and Carbohydrate Status in Shade Leaves Exposed to High Light", 7th Western Photosynthesis Conference, Asilomar Conference Center, Pacific Grove, CA, January 8-11, 1998. B Demmig-Adams* & WW Adams III
- "Lichtschutzreaktionen und Streßtoleranz: Vom Molekül zur ganzen Pflanze", Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany, December 19th, 1997. B Demmig-Adams
- "Protection by Carotenoids: from Photosynthesis to the Human Eye", Annual Meeting of the Packard Fellows, Monterey, CA, September 3-6, 1997. B Demmig-Adams
- "New Insights into Antioxidation in Plants, and Implications for Human Health and Nutrition", Nutrition Seminar Series sponsored by the Center for Human Nutrition, University of Colorado Health Sciences Center in Denver, CO, April 3, 1997. B Demmig-Adams
- "Protection against Intense Light and Oxidative Stress: Lessons from Four Billion Years of Experience", Departmental Colloquium, Department of Molecular, Cellular, and Developmental Biology, University of Colorado at Boulder, December 5, 1996. B Demmig-Adams
- "The Xanthophyll Cycle and Regulation of the Efficiency of Solar Energy Conversion", International Conference on 'Molecular to Global Photosynthesis'. Imperial College of Science, London, United Kingdom, March 28-29, 1996. B Demmig-Adams* & WW Adams III
- "Involvement of the Xanthophyll Cycle in the Phenomenon of Photoinhibition", Fifth Western Photosynthesis Conference. Asilomar Conference Center, Pacific Grove, January 9-12, 1996. B Demmig-Adams* & WW Adams III
- "Xanthophyll Cycle and Diurnal PSII Regulation", Special Mini-Symposium on "The Xanthophyll Cycle and Photoprotective Energy Dissipation". Annual Meeting of the American Society of Plant Physiology. Charlotte, NC, August 2, 1995. B Demmig-Adams* & WW Adams III
- "Involvement of the Xanthophyll Cycle in the Acclimation of Plants to Light Stress", Integrative Photosynthesis Seminar Series. University of Illinois, Urbana, April 20, 1995. B Demmig-Adams
- "Using Chlorophyll Fluorescence to Assess the Dynamics of Xanthophyll-Associated Energy Dissipation", Robertson Symposium on "Chlorophyll Fluorescence". Research School of Biological Sciences, Australian National University, Canberra, Australia, May 27-29, 1994. B Demmig-Adams* & WW Adams III
- "Dynamics of the Xanthophyll Cycle and its Relationship to Photoinhibition", Carnegie-Stanford Plant Science Seminar Series. Stanford, California, February 28, 1994. B Demmig-Adams
- "Carotenoids and Photoprotection of Photosynthesis", Plant Biology Seminar Series: Current Topics in Plant Ecophysiology. University of California, Davis, February 25, 1994. B Demmig-Adams
- "Photoprotection and the Xanthophyll Cycle: Capacity for Energy Dissipation in Leaves with Different Xanthophyll cycle Pool Sizes", 4th Western Regional Photosynthesis Conference, Asilomar Conference Center, Pacific Grove, CA, January 4-7, 1994. B Demmig-Adams* & WW Adams III
- "High Light Stress and the Xanthophyll Cycle", XVth International Botanical Congress, Tokyo (Yokohama), Japan, August 28-September 3, 1993. B Demmig-Adams* & WW Adams III
- "Photoprotection of the Photosynthetic Apparatus through the Carotenoid Zeaxanthin", Photosynthetic Responses to the Environment, Satellite meeting for the IX International

- Congress on Photosynthesis, Kona, Hawaii, August 25-27, 1992. B Demmig-Adams* & WW Adams III
- "Zeaxanthin Function in Photosynthetic Organisms", Gordon Research Conference on Chemistry and Biology of Carotenoids, Oxnard, CA, March 9-13, 1992. B Demmig-Adams* & WW Adams III
- "The Carotenoid Zeaxanthin and Photoprotection of the Photosynthetic Apparatus", Sixth Annual Penn State Symposium in Plant Physiology, May 23-25, 1991. B Demmig-Adams* & WW Adams III
- "Carotenoids and Photoprotection in Plants", Department of Biochemistry, Colorado State University, Fort Collins, April 15, 1991. B Demmig-Adams
- "Zeaxanthin and Photoprotective Energy Dissipation", Molecular Biophysics Supergroup Program, University of Colorado, Boulder, December 5, 1990. B Demmig-Adams
- "Photoinhibition and Photoprotective Responses: the Xanthophyll Cycle", Plant Physiology Seminar, Department of Botany, Duke University, Durham, March 30, 1990. (Joint seminar) WW Adams III* & B Demmig-Adams*
- "Carotenoids and Photoprotection in Plants", Center for the Study of Early Events in Photosynthesis, Arizona State University, Tempe, February 8, 1990. B Demmig-Adams
- "The Carotenoid Zeaxanthin and Photoprotection", Seminar series on cancer (melanoma) research, University Hospital, Denver, January 24, 1990. B Demmig-Adams
- "Zeaxanthin Formation and Avoidance of PS II Damage from Combined High Light and Water Stress", Rockefeller Foundation meeting on 'The Potentials of Biotechnology for Improving Grain Yield of Rice under Water Limited Conditions', Bellagio Study and Conference Center, Bellagio, Italy, September 18-22, 1989. B Demmig-Adams* & WW Adams III
- "Zeaxanthin-Associated Energy Dissipation in Leaves and Isolated Chloroplasts", International Workshop on 'The Use of Chlorophyll Fluorescence and other Non-Invasive Spectroscopic Techniques in Plant Stress Physiology', Wageningen, The Netherlands, August 14-16, 1989. B Demmig-Adams* & WW Adams III
- "Light Stress, Photoprotective Energy Dissipation, and the Carotenoid Zeaxanthin", VIIIth International Congress on Photosynthesis, Stockholm, Sweden, August 6-11, 1989. B Demmig-Adams* & WW Adams III
- "Light Stress and Photoprotection in Plants – Zeaxanthin as a Lightning Rod", Department of Organic Chemistry, Würzburg University, Würzburg, Germany, December 19, 1988. B Demmig
- "Dissipation of Excess Excitation Energy", CS French Photosynthesis Symposium "Toward a Broad Understanding of Photosynthesis. Multiple Approaches to a Common Goal" Carnegie Institution of Washington, Stanford, CA, USA, July 17-22, 1988. B Demmig
- "Light Stress and Photoprotection in Plants", Annual meeting of the Göttingen Academy of Science, Göttingen, Germany, November 20, 1987. B Demmig
- "Photoinhibition and Shade-Sun Acclimation of Photosynthesis: Damage or Protection?" XIV International Botanical Congress, Berlin, Germany, July 24 - August 1, 1987. B Demmig
- "Light Stress in Plants", Department of Physical Chemistry, Würzburg University, Würzburg, Germany, July 2, 1987. B Demmig
- "Photoinhibition of Photosynthesis: Two Different Syndromes", Robertson Symposium "Ecology of Photosynthesis in Sun and Shade", Canberra, Australia, February 1987. B Demmig

"Photoinhibition of Photosynthesis in Sun and Shade Leaves", Robert-Hill-Symposium, Würzburg, Germany, July 2-6, 1986. B Demmig

"Water Stress and Photoinhibition of Photosystem II", US-Australian conference on the "Structure, function and photoinhibition of photosystem II and plant response to stress", Honolulu, Hawaii, September 1985. B Demmig

Session Organizer / Chair

Chair and Discussion Leader for the session on "Adaptation of Photosynthesis to the Environment" at the Gordon Research Conference "From the Biophysics of Natural and Artificial Photosynthesis to Bioenergy Conversion". July 21-26, 2019, Newry, ME, USA

Chair and Discussion Leader for the session on "Photosynthesis in the Environment", Gordon Research Conference on "Photosynthetic Plasticity: From the Environment to Synthetic Systems", Newry, ME, 16-21 July 2017

Invited Organizer, Symposium on "Combining Toolkits from Different Disciplines to Optimize Crop Productivity", XIX International Botanical Congress, Shenzhen, China, 23-29 July 2017- declined

Chair and Discussion Leader for the session on "Mechanisms of Regulation Part A" at the 25th Western Photosynthesis Conference, Devil's Thumb Ranch Conference Center, Tabernash, CO, 3-6 January 2016.

Organizer and Chair, Symposium on "Antioxidants, Gene Regulation, and Environment", XVII International Botanical Congress, Vienna, Austria, July 2005

Chair for Symposium on "Photoprotection and Acclimation", 12th International Congress on Photosynthesis. Brisbane, Australia, August 18-23, 2001

Poster presentations (from 2002)

"Newly Defined Attractive Features of *Lemna* as a Space Crop" 2022 NASA Human Research Program Investigators' Workshop, 8-9 February 2022. B Demmig-Adams, CM Escobar, JJ Stewart, M López-Pozo, MC Zenir, WW Adams III

"Diagnostic Tools of Nutritional Components in a Plant Suitable for Spaceflight", Biología de Plantas 2021 (XXIV Meeting of the Spanish Society of Plant Biology & XVII Spanish Portuguese Congress on Plant Biology), 7-8 July 2021. R Esteban, C Rodríguez-Alba, Á Castro-Valera, U Artetxe, WW Adams III, B Demmig-Adams, & JM Becerril

"Ameliorated Duckweed Growth under Low Nutrient Supply and Elevated CO₂ after Inoculation with Rhizosphere Microbes", Plant Science for Climate Emergency, 7-9 June 2021. M López-Pozo, WW Adams III, & B Demmig-Adams

"From Xylem Anatomy Toward Xylem Function and Climate Resilience?", Plant Science for Climate Emergency, 7-9 June 2021. G Glime, JJ Stewart, SK Polutchko, WW Adams III, & B Demmig-Adams

"Lighting Protocols to Co-Optimize Duckweed Yield, Nutritional Quality, and Energy-Use Efficiency for Crew Diet Supplementation", Human Research Program Investigators' Workshop, Galveston Island Convention Center, Galveston, TX, 27-30 January 2020. B Demmig-Adams, WW Adams III, JJ Stewart, & CM Escobar

"Co-Optimization of Duckweed Biomass, Nutritional Quality, & Input-Use Efficiency", 35th Annual Meeting of the American Society for Gravitational and Space Research, Sheraton Denver Downtown, Denver, CO, 20-23 November 2019. B Demmig-Adams, WW Adams III, JJ Stewart, CM Escobar, A Escobar

- “Duckweed: A Tiny Aquatic Plant with Enormous Potential for Space Life Support”, 8th Annual Technical Symposium, ATS-2019 AIAA Rocky Mountain Section Annual Symposium, University of Colorado, Boulder, CO, 19 November 2019. CM Escobar, A Escobar, B Shaffer, G Power, B Demmig-Adams, WW Adams III, JA Nability
- “Impact of Salinity on Photosynthesis, Photosynthetic Efficiency, Cell Division, and Glycerol in Freshwater and Marine *Chlamydomonas*”, 25th Western Photosynthesis Conference, Devil’s Thumb Ranch Conference Center, Tabernash, CO, 3-6 January 2016. TA Burch, WW Adams III, and B Demmig-Adams
- “Effects of Limiting Root Volume Vary Across Growth Conditions in *Arabidopsis thaliana*”, 25th Western Photosynthesis Conference, Devil’s Thumb Ranch Conference Center, Tabernash, CO, 3-6 January 2016. JJ Stewart, B Demmig-Adams, and WW Adams III
- “Temperature Acclimation in *Arabidopsis thaliana* Ecotypes from Three Geographic Origins”, 24th Western Photosynthesis Conference, Asilomar Conference Center, Pacific Grove, CA, 8-11 January 2015. Stewart JJ, Adams WW III, Demmig-Adams B
- “Algal Energy-Carrier Excretion Increases Photosynthesis”, Colorado Center for Biorefining and Biofuels Semi-Annual Meeting, Colorado School of Mines, 24-25 April 2014. TA Burch TA, Adams WW III, JJ Stewart JJ & B Demmig-Adams
- "Milking of Microalgae for Biofuel Production" First Annual Energy Showcase symposium, Apr 1, 2010, University of Colorado at Boulder. A Reese, CS Rixham, TA Burch T, B Degrenne B WW Adams III, B Demmig-Adams
- “Biofuels Production by Algae. From Cell to Photobioreactor” Third Annual Energy Research Symposium, Oct 21, 2009, University of Colorado. Authors: B Degrenne, J Pruvost, M Titica, B Demmig-Adams, J Legrand
- "Acclimation to Light Intensity in Summer and Winter Squash" SMART/NIH-HHMI Summer Poster Session, Aug 7, 2008, University of Colorado. Authors: NI Aponte Silva, B. Demmig-Adams, MR Dumlao
- "Acclimation to Light Intensity in Summer and Winter Squash" 2008 SACNAS (Society for Advancement of Chicanos and Native Americans in Science) Conference (Oct 9 - 12) in Salt Lake City, Utah. NI Aponte Silva, B Demmig-Adams
- "Acclimation to Light Intensity in Summer and Winter Squash" 2008 ABRCMS (Annual Biomedical Research Conference for Minority Students) Conference (Nov 5 - 9) in Orlando, Florida. Authors: NI Aponte Silva, B Demmig-Adams
- "Effect of Cold Temperatures on Vein Density and Photosynthetic Capacity in Winter and Summer Squash" SMART/NIH-HHMI Summer Poster Session, Aug 7, 2008, University of Colorado. DS Aponte Rosario, B Demmig-Adams, MR Dumlao
- “Defining a Mechanistic Link in Jeffrey Pine among Stand Thinning, Drought, and Risk of Mortality from Jeffrey Pine Beetle, *Dendroctonus jeffreyi* Hopkins” 59th Annual Western Forest Insect Work Conference, April 7-10, 2008, Boulder, Colorado. AD Graves, NE Grulke, DM Rizzo, B Demmig-Adams, WW Adams, SJ Seybold
- “New Directions in Photoprotection”, CU-NREL Research Symposium associated with Renewable and Sustainable Energy Initiative, Boulder, Oct 3, 2006. B Demmig-Adams, AM Watson, M Dumlao, WW Adams III
- “Antioxidants in Photosynthesis and Human Nutrition – A Review”. Butcher Symposium in Genomics and Biotechnology. The Future of Biomedicine in Colorado – A workshop of the Possible. Broomfield, CO, November 3-4, 2002. B Demmig-Adams

"Photosynthesis and Photoprotection during Winter". Annual Meeting of the American Society of Plant Biologists, Denver, CO, August 3-7, 2002. WW Adams III, B Demmig-Adams, V Ebbert, CR Zarter, AK Brightwell

"Response of D1, PsbS, and the Xanthophyll Cycle to Light Environment in the Tropical Model Plant *Monstera deliciosa*". Annual Meeting of the American Society of Plant Biologists, Denver, CO, August 3-7, 2002. V Ebbert, B Demmig-Adams, DL Mellman, RL Knobel, CR Zarter, WW Adams III

Formal Courses

<u>Term</u>	<u>Course</u>	
		Instructor and Course ratings no longer collected
23 Fall	4360/5360 Lifestyle Medicine	
23 Fall	6300 Graduate Seminar on Symbiosis (team-taught with Jingchun Li, Alisha Quandt, and Pat Kociolek)	
23 Sp	<i>Sabbatical</i>	
22 Fall	EBIO 1210-011/012	
22 Sp	EBIO 4980 Honors seminar	
21 Fall	EBIO 1210-001/002 General Biology	
21 Sp	EBIO 4800 Lifestyle Medicine	
20 Fall	EBIO 1210-001/002 General Biology	
20 Sp	EBIO 4800 Lifestyle Medicine	

<u>Term</u>	<u>Course</u>	<u>Ratings 0 {lowest} - 6.0 {highest} Scale</u>			
		Instructor overall	Instructor respect	Course overall	Response rate
19 F	EBIO 1210-001 General Biology	5.1	5.8	4.4	81%
19 F	EBIO 1210-002 General Biology	5.1	5.9	4.3	75%
19 Sp	EBIO 3980/4980 Honors Seminar	5.9	6.0	6.0	53%
18 F	EBIO 1210-001 General Biology	5.03	5.81	4.81	58%
18 F	EBIO 1210-002 General Biology	4.99	5.83	4.50	65%
18 Sp	EBIO 4980 Honors Thesis Seminar	5.80	5.93	5.40	83%
17 F	EBIO 1210-001 General Biology	4.49	5.7	4.07	68%
17 F	EBIO 1210-002 General Biology	4.63	5.7	4.03	68%
17 Sp	FYSM 1000 First Year Seminar	5.90	6.0	5.90	78%

Formal Courses 1998 to Fall 2015

<u>Term</u>	<u>Course</u>	<u>Instructor rating (Mean/Median); course rating; response rate</u> <u>0 {lowest} - 6.0 {highest} Scale</u>
16 Sp/F	Sabbatical & College Scholar Award	
15 F	EBIO 1210-001 General Biology; 378	5.3/6.0; 4.9/5.0 52%
15 F	EBIO 1210-002 General Biology; 303	5.5/6.0 – 4.8/5.0 45%
15 Sp	EBIO 4990 EBIO Honors Research	6.0/6.0 – 6.0/6.0 100%
15 Sp	EBIO 3980/4980 Honors Thesis Seminar; 17	5.9/6.0 – 5.6/6.0 90%

14 F	EBIO 1210-001 General Biology; 368	5.6/6.0 – 5.2/5.0	45%
14 F	EBIO 1210-002 General Biology; 319	5.5/6.0 – 5.0/5.0	32%
14 Sp	EBIO 3980/4980 Honors Thesis Seminar; 18	5.9/6.0 – 5.5/6.0	89%
13 F	EBIO 1210-001 General Biology; 378	5.5/6.0 – 4.9/5.0	57%
13 F	EBIO 1210-002 General Biology; 372	5.4/6.0 – 4.9/5.0	50%
13 Sp	EBIO 3980/4980 Honors Thesis Seminar; 22	5.9/6.0	77%
12 F	EBIO 1210-001 General Biology; 316	5.1/5.0	76%
12 F	EBIO 1210-002 General Biology; 333	5.3/6.0	59%
12 Sp	EBIO 3980/4980 Honors Thesis Seminar; 17	5.8/6.0	94%
11 F	EBIO 1210-001 General Biology; 374	5.3/6.0	60%
11 F	EBIO 1210-002 General Biology; 351	5.2/5.0	57%
11 Su	Guest lecture on “Scientific Writing” for C2B2-REU summer students; 21		
11 Sp	EBIO 4980 EBIO Honors Thesis Seminar; 20	6.0/6.0	81%
10 F	EBIO 1210-003 General Biology;	5.0/5.0	50%
10 F	EBIO 1210-004 General Biology;	4.6/5.0	50%
10 Sp	EBIO 3980/4980 Honors Thesis Seminar; 21	5.9/6.0	86%
09 F	EBIO 1210-001 General Biology; 373	5.6/6.0	34%
09 F	EBIO 1210-004 General Biology; 325	5.6/6.0	53%
09 Su	Guest lecture on “Scientific Writing” for C2B2-REU summer students; 25		
09 Sp	EBIO 4980-801 EBIO Honors Thesis Seminar; 17	5.9/6.0	
09 Sp	EBIO 6840-811; 2	6.0/6.0	
08 F	EBIO 1210-001 General Biology; 400	5.4/6.0	
08 F	EBIO 1210-004 General Biology; 343	5.6/6.0	
08 F	Guest lecture “Exam review” in Gen Bio co-seminars for traditionally underrepresented students		
08 Sp	EBIO 3980/4980-801 EBIO Honors Thesis Seminar; 20	5.8/6.0	
08 Sp	EBIO 4990-802 EBIO Honors Research; 4	6.0/6.0	
07 F	EBIO 1210-001 General Biology; 387	5.2/6.0	
07 F	EBIO 1210-004 General Biology; 370	5.2/6.0	
07 Sp	Guest lecture on plant antioxidants and human nutrition in General Biology-Honors HONR 1001 on 3/20/07		
07 Sp	EBIO 3980/4980-801 EBIO Honors Thesis Seminar; 15	6.0/6.0	
07 Sp	EBIO 3990 Introduction to Honors Research; 4	6.0/6.0	
07 F	EBIO 4990 EBIO Honors Research; 2		
06 F	EBIO 4800/4900 Diet, Genes, Health, and Mood; 26	5.8/6.0	

Instructor / Course Rating**(A {highest} - F {lowest} Scale)**

06 Sp	EBIO 3980 EBIO Honors Intro Seminar; 4	A+/A
06 Sp	EBIO 4980 EBIO Honors Thesis Seminar; 9	A+/A+
05 F	EBIO 4800/5800 Diet, Genes, Health, and Mood; 24	A/A
05 Sp	EBIO 3980 EBIO Honors Intro Seminar; 3	A+/A+
05 Sp	EBIO 4980 EBIO Honors Thesis Seminar; 9	A/A-
05 Sp	EBIO 4990 EBIO Honors Research; 2	A-/A+

04 F	(Sabbatical)	
04 Sp	EPOB 4800/5800 Diet, Gene, Health, Mood; 27	A+/A
03 F	EPOB 3530 Essentials in Plant Physiology; 34	A-/A
03 Sp	EPOB 4800/5800 Food, Genes, Mood, and Health; 27	A+/A
02 F	EPOB 3530 Essentials of Plant Physiology	A/A
02 Sp	Guest lecture in EPOB 2060	
02 Sp	EPOB 4800/5800 Antioxidants and Health	A/A
01 F	EPOB 3530 Essentials of Plant Physiology	A-/A
01 Sp	EPOB 4800/5800 Antioxidants and Health	A+/A+
01 Sp	Guest lecture in EPOB 2060	
00 F	EPOB 3530 Essentials of Plant Physiology	A/A-
00 Sp	EPOB 6300 Environmental signal transduction	A-/A-
00 Sp	Guest lecture in EPOB 2060	
99 F	EPOB 3530 Essentials of Plant Physiology	A-/A-
99 F	EPOB 5330 Integrative Physiology	B+/B+
99 Sp	EPOB 4800/5800 Plants, Light, and Stress	A+/A
98 F	EPOB 3530 Essentials of Plant Physiology	A-/A
98 Sp	EPOB 4800/5800 Plants, Light, and Stress	A-/A
98 Sp	EPOB 6200 Environmental control of gene expression	A/A-

Extramural and Intramural Funding in Support of Teaching

- Assessing the Impact of Early, Individualized Faculty and TA Interventions for At-Risk Students (2013-2014). \$10,000 from the iSTEM Chancellor's Award. Part of the National Science Foundation award to the University of Colorado entitled "13: Towards a Center for STEM Education". PI with William Adams and Sarah Wise.
- Increasing Teaching Effectiveness in Ecology and Evolutionary Biology (2011-2015). \$480,000 from the Science Education Initiative at the University of Colorado. Co-PI with Andrew Martin, William Adams, Nichole Barger, John Basey, and Samuel Flaxman.
- Improvement of Laboratories in Plant Physiology and Plant Ecophysiology at the University of Colorado in Boulder (1993-1995) \$90,000 from the National Science Foundation and the University of Colorado. Co-PI with William Adams and Russell Monson

Non-Classroom Teaching Activities 1998 to Present

Advising of Undergraduate Honors Research Projects

- Jackson Heather (2023)
- Bryan Martino (2022) *Magna cum Laude*
- Dawn Ritzwoller (2022) *Magna cum Laude*
- Caitlyn Harvey (2022) *Magna cum Laude* – resulted in publication
- Cedric Zeller (2022) *cum Laude*
- Madeleine Zenir (Fall 2021) *Summa cum laude* – resulted in publication
- Richard Park (Spring 2021) *Magna cum laude*
- Elizabeth Enichen (Spring 2021) *Summa cum laude* – resulted in publication
- Shannon Ross (Spring 2020) *Magna cum laude*
- Maureen McNamara (Spring 2020) *Summa cum laude* – resulted in publication
- Kevin Headrick (Spring 2020) *Summa cum laude*

- Eliane Bach (Fall 2019) *Summa cum Laude*
- Heather Carey (Fall 2019) *Summa cum Laude*
- Merzell Enayat (Spring 2019) *cum Laude*
- Amedee Martella (Spring 2016) *Summa cum Laude* – resulted in publication
- Kayla Carey (Spring 2016) *Magna cum Laude*
- Courtney Van der Linden (Spring 2013) *cum Laude*
- Elizabeth Lombardi (Spring 2013) *cum Laude* – resulted in publication
- Dara Perlow (Spring 2008) *Summa cum Laude*
- Barbara-Lynn Concienne (Spring 2008) *Magna cum Laude*
- Ben Carron (Spring 2008) Honors *Summa cum Laude*
- Blake Angelo (Spring 2008) *cum Laude*
- Callie Montez (Spring 2007) *Magna cum Laude*
- Christina Zarza (Fall 2005) *Summa cum Laude*
- Jessica Welch (Fall 2005) *Summa cum Laude*
- Sabrina Schmitz (Fall 2004; UROP) *Summa cum Laude*

Advising of (Additional) Undergraduate Research Projects

- Helen Gardner (2019-2021)
- Naiara Doherty Garcia (2019-2020) – resulted in publication
- Maureen McNamara (2019; BSI Scholar) – resulted in publication
- Olivia Schroeder (2018-2019)
- Cedric Zeller (BSI Scholar 2018-2019; UROP 2019)
- Michelle Hollenkamp (Summer 2018)
- Gabrielle Glime (BSI Scholar 2017-2019) – resulted in publication
- Carlie Sharpes (research volunteer Fall 2016)
- Nick Ranelli (independent research Fall 2016)
- Andrea Lu (independent research spring 2015)
- David Matuszewski (independent research IPHY, spring 2015)
- Stephanie K. Polutchko – supported by URAP (Fall 2013), BURST (Summer 2014), UROP (Fall 2014), and UROP (2015); resulted in publications
- Jaymie Roche – independent study IPHY (Fall 2013)
- Alice Veijns (research volunteer in 2013)
- Emmo Scherbatskoy – paid post-BA research assistant (Spring and Summer 2013)
- Brita Mines – supported by UROP (summer 2013) – resulted in publication
- Emma Boone – independent research in spring 2015; supported by UROP Summer 2013; resulted in publication
- Parker Nash – Chemical & Biological Engineering major; supported by USOP (Summer 2013)
- Coleman Wenzl – supported by BURST grant (Summer 2013) and UROP (Summer 2015) resulted in publication
- Johanna Protheroe (Fall 2012 to Spring 2013) – supported by UROP; resulted in publication
- Courtney Van der Linden (Fall 2012 to Spring 2013)
- Elizabeth Lombardi (Fall 2012 to Spring 2013) – supported by UROP; resulted in publication
- Jared Stewart (2012) – resulted in publication
- Katherine Kronen (2012)
- Kathryn Merritt (2010 and 2011)
- Lynn My Dang (2010-2012)

- Tyler Dowd (Summer, 2011-2012)
- Calvin Englert (2010-2012), supported by UROP – resulted in publication
- Louis Dankovich (Summer, Fall 2010)
- Karen Nkechiyere Egbo (2009 to 2013) – resulted in publication
- Rachel Skorenki (Fall 2009)
- Tyson Burch (Fall 2009, Spring 2010) – resulted in publication
- Charles Cotton (Cambridge University, UK, Summer 2009)
- Alyssa Reese (Fall 2009, Spring 2010, Summer 2010) – supported by UROP
- Deylen S. Aponte Rosario (University of Puerto Rico at Cayey);
SMART (Summer Multicultural Access to Research Training) intern (Summer 2008)
- Noelia Ines Aponte Silva (University of Puerto Rico at Mayagüez);
SMART intern (Summer 2008), Noelia was selected for participation in Harvard Forest
Summer Research in Ecology (Research Experiences for Undergraduates) in the summer
of 2009 via the Leadership Alliance's Summer Research-Early Identification Program.
- Jared Carter (Spring 2007) – resulted in publication
- Gayla Buitron (Internship on Scientific Writing; Spring 2006)
- Elizabeth Tran (Spring 2006) – resulted in publication
- Emily Wilson (Spring 2006) – resulted in publication
- Andrew F. Combs (2005-2006), Supported on an NSF Research Opportunity Award; resulted in
publication
- Jennifer Gerson (Fall 2005)
- Daniel Cuthbertson (2004-2005) PhD at Washington State University. Applications Scientist –
Metabolomics with Agilent Technologies – resulted in publication
- Courtney Moran (Spring 2004) – resulted in publication
- Lindsay McCauley (Spring 2004) – resulted in two publications
- Jennifer Akullian (Fall 2004)
- Steven Cali (Fall 2003)
- Rachel Herder (Spring 2003) – resulted in publication
- Rebecca L. Watson (Spring 2001)
- Rebecca L. Knobel (Fall 2001)
- Angela K. Brightwell – supported by UROP; resulted in publication
- Lisa E. Schaffer (Fall 1999, Spring 2000, Fall 2001) – supported by UROP; resulted in
publication; BA in 2002, HSC Dentistry in 2007, currently practices dentistry in
Colorado
- Mary-Cloud Ammons (Fall 2000)
- Jill Maeda (Spring 1999)
- Brynn E. Orwig (Summer/Fall 1997; Spring 1998)
- Dan Moeller (Spring/Fall 1995) – supported by UROP; resulted in publication; Curator, Hoyt
Arboretum, Portland, Oregon
- Nathan B. Goldstein (1995) – supported by URAP; BA in 2000; MA in EBIO in 2004; 2004-
2009, research associate at the Dana-Farber Cancer Institute since 2009
- Matthias Volk (1989-1990) Obtained PhD at Universität Basel – resulted in publication
- Jean Dodge (1989-1990)

High-school Students Sponsored for Research

- Cedric Zeller (12th Grade in Fairview High School, Boulder), Fall 2017, Spring 2018

-Evan Savage (11th Grade in Fairview High School, Boulder), summer 2015

Advising of Graduate Research (Principal Dissertation/Thesis Advisor)

- Stephanie K. Polutchko, PhD candidate since 2020
- Gabrielle Glime, BA/MA 2020
- Stephanie K. Polutchko, BA/MA 2018
- Dr. Jared J. Stewart, PhD 2018
- Dr. Tyson A. Burch, PhD 2016
- Margaret Habib, PhD candidate in 2015
- Derek Sweeney, MAII 2013
- Carly Rixham, MAII 2011
- Ricardo Leyva, MAI 2010
- Anthony Saviola, MAI 2009; received PhD from Northern Colorado University
- Blake Angelo, BA/MA candidate in 2008
- MaryKay Herzenach, MAII 2009
- Matthew Dumlao, MAI 2009
- Amy Watson, PhD candidate 2005-2006
- Dr. Ryan Zarter (co-advised with Prof. W. Adams) PhD in 2005
- Dr. Kristine Mueh (MAI 1998; PhD 2005 co-advised with Prof. W. Adams)
Current position: Middle school science teacher, Boulder Valley
- Dr. David Mellman MAI 2003
Completed PhD in 2008 in Molecular Biology at the Univ. of Wisconsin, Madison
- Todd Rosenstiel, PhD candidate 1996-1999; co-advised with Prof. W. Adams; Obtained
PhD with R. Monson in 2004; Current position: Professor at Portland State University
since 2006
- Mark Longo (co-advised with Prof. W. Adams) MAII 1998, PhD from Stanford University
- Graham Cummins, PhD candidate 1997-1998
- Dr. Barry Logan (co-advised with Prof. W. Adams) PhD 1997
Current position: Professor at Bowdoin College, Brunswick, Maine
- Dr. Amy Verhoeven (co-advised with Prof. W. Adams) PhD 1998
Current position: Professor at University of St. Thomas, St. Paul, MN

Member of Dissertation and other thesis committees:

- Leonardo Orozco, since Fall 2022
- Jacob Watts, since Fall 2022
- Christine Escobar, PhD candidate in Aerospace Engineering, since 2019
- Daniel Zarate, EBIO PhD, 2017-2023
- Luis Allende, EBIO MA, 2017-2020
- Irfanul Alam, EBIO PhD candidate, 2018-2019
- 15-20 EBIO Honors defense committees biannually since 2016 (prior to that annually)
- Dr. Samuel Goodman, Chemical Engineering at UCB, PhD committee 2014-2016 until PhD
- Frank Fields MAI advisory committee 2011-2014 until MAI
- Dr. Hanna Johansson Jänkänpää, University of Umeå, Sweden (external PhD defense committee
member = “Opponent”) Nov 2011
- Victoria Work, Colorado School of Mines, PhD advisory committee 2010-2012

- Dr. Lauren Andrews, Chemical & Biological Engineering at UCB, PhD committee 2009-2012 until PhD
- Dr. Nicholas Sandoval, Chemical & Biological Engineering at UCB, PhD committee 2010-2011 until PhD
- Dr. Matthew Bealor, PhD defense committee 2010

Advising of Postdoctoral Research Associates

- Dr. Marina López-Pozo, 2020-present
- Dr. Jared J. Stewart, 2018-2019; (USDA in Fort Collins, 2019-2023)
- Dr. Christopher R. Baker (University of California at Berkeley), 2016-2022
- Dr. Michael Jenkins, Fall 2017
- Dr. Sarah Drobnitch, Spring and Summer 2017
- Dr. Christopher M. Cohu, 2011-2014
- Dr. Onno Muller, 2011-2013
- Dr. Jennifer Mathias, 2010
- Dr. Anza Darehshouri, 2009-2011
- Dr. Benoît Degrenne, 2009-2010
- Dr. Krishnaveni Kesanapalli, 2008-2010
- Dr. Véronique Amiard, 2003-2005
- Dr. Volker Ebbert, 1996-2006
- Dr. Stephen C. Grace, 1994-1996

Host of Visiting Professors

- Prof. William Henley (Oklahoma State University), 2009
- Prof. Steve Cessna (Western Mennonite University), 2007-2008
- Prof. Seok-Chan Koh (Jeju University, Korea), 2006-2007
- Prof. Barry Logan (Bowdoin College, Maine), 2004

Service

University of Colorado

Department Level

- Merit Committee, 2023-2024
- Awards Committee Chair, 2023-2024
- EBIO Honors Program Director, 1998 to 2015; co-director since 2016 (includes recruitment and consultation for Honors candidates, editing of theses and membership on defense committees for 12-24 Honors candidates in a given year)
- Search Committee Chair for Teaching Professor positions in EBIO and Continuing Education, 2023-2024
- Faculty Affairs Committee, 2020-2022
- ad-hoc Committee on Conflict Resolution, summer and fall 2021
- Undergraduate Committee, 2020-2021
- General Biology Committee, Chair, 1993-1994 and 2007-2015, and member from 2017-2021. Responsible for coordinating syllabi, selecting textbook, etc., for the large introductory Biology course EBIO 1210/1220 for science majors taught in multiple sections. Included development of online homework and online exams (designed to allow construction of

unique exams for each of 1400 students), in-class *iClicker* use, and involvement of graduate and undergraduate teaching assistants in interactive in-lecture activities.

- Promotion Committee member for Christy McCain, 2021
- Promotion Committee Chair for Rebecca Safran, 2020-2021
- Curriculum Committee, Member, Fall 2000, Spring 2001, 2006-2020
- Post-Tenure Review Committee, Spring 2015 & 2019
- Promotion Committee Member for Nichole Barger, 2019
- Merit Evaluation Committee, Spring 2002, 2005, 2011, 2013, 2015, 2018
- Promotion Committee Chair for Pieter Johnson, 2017
- Tenure and Promotion Committee for Samuel Flaxman, 2015
- Class Visit and Teaching Evaluation Letter for Erin Tripp, Fall 2013
- Class Visit and Teaching Evaluation Letter for Nichole Barger, Fall 2012
- Executive Committee, Member, 1993, 1995-1996, 2003-2006, 2008-2009, 2011-2012
- Reappointment Committee for Prof. Brett Melbourne, 2012
- Reappointment Committee for Prof. Kendi Davies, 2011
- Reappointment Committee for Prof. Christy McCain, 2010
- Reappointment Committee for Dr. Stephanie Mayer, 2007-2008
- Class Visit and Teaching Evaluation Letter for John Mischler, instructor for General Biology co-seminars for non-traditional students, Fall 2010
- Class Visit and Teaching Evaluation Letter for Prof. Brett Melbourne, Spring 2009
- Class Visit and Teaching Evaluation Letter for Prof. Rebecca Safran, Spring 2008
- Class Visit and Teaching Evaluation Letter for Prof. Kendi Davies, Spring 2008
- Prepared multi-unit proposal for new faculty positions on the topic of “Master Control Genes Tie Physiology and Development to the Environment”; joint proposal with IPHY and MCDB, March 2005
- A running tab of hundreds of letters of recommendation (about 20-25 per year) for EBIO Honors students, EBIO graduate students, and other CU students for professional programs (e.g., Medical School, Nursing Programs, and Graduate School) or faculty positions
- Space Committee, Member, 2001-2003
- Photocopier Purchase Committee, Faculty Representative, Summer 1999
- Member of the Self Study Committee for EPOB Program Review, 1996
- Associate Chair, Graduate Studies, 1995 and 1996
- Graduate Committee, Member in 1992 & 1994
- Greenhouse Committee, EPOB, 1990-1996
- Greenhouse Construction Committee, EPOB, 1992-1994

School or College Level

- Member of the Arts & Sciences Honors Council, 1998 to present
- Member of the internal review committee for selection of CU's nominee for the award of a David and Lucile Packard Fellowship in Science & Engineering, 1995, 1996, and 2006 to present
- Writing workshop “Mentoring Major Writing Projects” sponsored by Center for Teaching & Learning; contributor and participant, Jan 25, 2022
- Common Curriculum Planning Committee, Fall 2021 – Fall 2022
- Distinguished Research Lectureship (DRL) Review and Selection committee, 2021
- Panel Member, Packard & Keck Research Grant Webinar, Oct 8, 2021

- Member of the Faculty Advisory Board for the Biological Science Initiative (BSI) sponsored by the Howard Hughes Medical Institute and the University of Colorado, 2006 to 2021
- Research & Innovation Office (RIO) Advisory Board for the Vice Chancellor for Research & Innovation; 2018-2021
- Dean's Selection Committee for Professor of Distinction 2019, 2020, 2021
- Faculty speaker at annual Honors Workshop organized by the Biological Science Initiative for BSI scholars, 2017, 2018, 2019, 2020
- Reappointment Committee for Robert Buchwald, Honors Residential Academic Program, 2019
- Provost's Advisory Committee 2019
- Presenter on "Synergy among teaching, research, and service" to workshop for first-year faculty in A&S (organized by Divisional Dean of Social Science David Brown), fall 2019
- Internal Reviewer for the ARPAC of the Department of Molecular, Cellular and Developmental Biology (MCDB) for the Vice Provost and Associate Vice Chancellor for Faculty Affairs; 2018/2019
- Vice Chancellor's Advisory Committee (VCAC; personnel committee conducting final review of re-appointments, tenure and promotions, and promotions to full professor for the colleges of A&S, Engineering, Law, Business, Music, and Libraries) of the Vice Chancellor for Academic Affairs, 2015 & 2018
- EBIO 1210 – OIT-TLC-Exploratory Project, 2016-2018
- A&S Strategic Planning Committee, AY 2017/2018
- College Scholar Award committee, Fall 2017
- History department workshop on *Response to Charlottesville*, Fall 2017
- Freshman Year Seminar committee, 2016-2017
- Teaching Quality Framework Committee, 2016-2017
- Panel member of Packard Competition workshop, Nov 2013, Nov 2014, Nov 2017
- Invited presenter to students in the Pre-Collegiate Development Program; July 27, 2016
- Invited presenter of Graduate Teacher Program Workshop "Common Traits of Distinguished Researchers and Dual Career Planning" October 29, 2015
- Panel member of workshop on undergraduate research opportunities organized by student members of SASE (Society of Asian Scientists and Engineers) at UCB, 2014
- 6th Annual UROP Symposium (faculty-student mixer for students to learn about research opportunities on campus) hosted by UROP & the Special Undergraduates Enrichment Program, 1 Oct 2014
- Faculty panel member in multi-departmental graduate seminar on "Pedagogy: Teaching an interdisciplinary, problem-oriented course" EBIO 5460-002, ENVS 5100-005, GEOG 5100-004; 3 Feb 2014
- Guest Speaker at Power Hour on 25 Oct 2013 hosted by the McNeill Academic Program
- Member of the Arts & Sciences College Scholar Award Committee, 2013
- Chair of the Internal Program Review for the Joint Institute for Laboratory Astrophysics (JILA), 2009-2010
- Reviewer and Panel member for the Office of the Vice Chancellor for Research Innovative Grant Program at the University of Colorado, Spring 2007 and Spring 2011
- Member of an Honors council subcommittee to select the Dean's Honors Fellow for 2010-2011
- Guest Speaker at the 7th (Nov 18, 2009) and 8th (Oct 20, 2010) Annual Baker Undergraduate Research Symposium, giving presentations on "The Value of Undergraduate Research" and the "EBIO Honors Program"

- Faculty Panel Member on “How do we know?” for Workshop on time management and strategies for success by the McNeill Academic Program, Saturday 10/13/08
- Honors Council Subcommittee Chair for the Sciences, Spring 2006
- Invited Attendee of the Planning Meeting of the four-campus President’s Learning Academy, June 6, 2005 in Denver
- Member of the Pre-health Advising Committee, Spring 2003 and Spring 2004
- Member of the Internal Review Committee for the Program Review of the Molecular, Cellular, and Developmental Biology Department, Fall 1995 & Spring 1996
- Member of the Committee for the Administration of Keck Foundation Fellowships, CIRES; Representative of EPOB Department 1992-1996.
- Graduate School Committee on Outcome Assessment of Graduate Education, 1995.
- Regular Meetings of Graduate Chairs, 1995-1996

National and International Service

- Reviewer of annual nominees for election to Leopoldina, the National Academy of Science of Germany, Switzerland and Austria; since 2012
- External reviewer for Professional Accomplishment Evaluation of a senior scientist at the Smithsonian Tropical Research Institute, Panama, 2023
- Subject editor for the journal Photosynthesis Research (2011-2022)
- External reviewer for Promotion case at the University of California, Berkeley, 2020
- Guest Editor for Special Issue on “An Integrative Approach to Photoinhibition and Photoprotection of Photosynthesis” for the journal Environmental and Experimental Botany, 2016-2018
- External reviewer for Tenure and Promotion in the Department of Biology at Colorado State University, 2016
- Subject editor for the journal Nutrition & Food Science (2008-2013)
- Subject editor for the journal Plant Biology (2002-2011)
- External reviewer for the Promotion to Professor in the Department of Forest and Ecosystem Science (Melbourne School of Land and Environment) at the University of Melbourne, Australia, 2013
- External reviewer for the award of Tenure and Promotion to Associate Professor in the Department of Chemistry at Colorado School of Mines, 2012
- Member of 2009 Scientific Review Board of the US Army Corps of Engineers’ Engineer Research and Development Center (ERDC), April 2009
- External reviewer for the Promotion at the ARC Centre of Excellence in Plant Energy Biology at the Australian National University (ANU), Australia, 2008
- Member of the Advisory Panel for the Doctoral Dissertation Improvement Awards of the National Science Foundation's program in ‘Ecological and Evolutionary Physiology’ of the ‘Division of Integrative Biology and Neuroscience’. February 2003.
- Panel Member of the United States Department of Agriculture's "Plant Response to the Environment" Panel (National Research Initiative Competitive Grants Program, USDA NRICGP) in Washington, DC, from 8-12 April 1996. Invitations received to serve on same Panel in Spring 2001 and Spring 2002, but unable to serve.
- Subject Editor for the journal Photosynthesis Research (1992-1998)
- Subject editor for the journal Plant, Cell and Environment (1993-2002)
- Referee for Granting Agencies:

National Science Foundation, United States Department of Energy, United States Department of Agriculture, and NASA in the US; Deutsche Forschungsgesellschaft (DFG), Germany

-Referee for additional journals:

Science, Nature, Proceedings of the National Academy of Sciences, The Plant Cell, New Phytologist, Planta, Functional Plant Biology, Journal of Experimental Botany, Oecologia, Plant and Cell Physiology, Plant Physiology, Physiologia Plantarum, Tree Physiology, Trends in Plant Science, Trends in Ecology and Evolution

Community Service and Outreach

March 1, 2023 – Interview on the topic of nutrition and health for low-income families for SummitDaily News (Colorado)

October 5, 2022 – Video interview with undergraduate lead author of publication on COVID-19 (Enichen, Harvey, Demmig-Adams 2022 American Journal of Lifestyle Medicine) for AP News (as part of AP Insights program in partnership with CU).

September 21, 2022 – Interview about fall colors for CBS4 News (Denver, Colorado)

September 22-23, 2021. Invited presenter at Webinar on Food, Diet, and Obesity (presentation on Obesity & Diet: More than a Tale of Sugars and Fats authored by GNE Glime, SK Polutchko, B Demmig-Adams)

April 23, 2021. Presentation on “How to grow better food on Earth and in space. Werner Elementary School Earth Day Celebration. JJ Stewart (presenter), B Demmig-Adams, WW Adams III, & SM Gleason

September 17, 2021 – Interview on growing plants in space for *Leapsmag* (online magazine about scientific innovation and debates in the Life Sciences)

May 19, 2021 – Guest presentation to Boulder Rotary Club on Lifestyle Medicine, Evolution, and Sustainability

September 29, 2020 – Interview on growing food in space (Grünzeug für Astronauten) for a German newspaper (Süddeutsche Zeitung)

2020 to present – Pro-bono consultation services on lifestyle medicine and sustainable food/energy systems through local (University of Colorado) and national networks (The Conversation)

Fall 2018 – Guest presentation and consultation on conducting independent research projects in two senior AP classes at Erie High School, Erie, CO

Summer 2017 – Consultation with Boulder high school student Cedric Zeller about planning a career in molecular plant ecology

December 2016 – Consultation with Boulder student Brooke Woodall about her Science Fair project on photosynthesis

March 2014 – Interview on growing vegetables in space after a publication in *Acta Astronautica*

April 2011 – Interview (taped on 25 April 2011) on the evolution of fructose production by plants for a radio program on high fructose corn syrup and its impacts on human health

March 2008 – Presentation on “Food and Health” to “ProStart” course (for aspiring Chefs) at Boulder High School

March 2007 – 8-Hour workshop for 25 Middle and High School teachers from Boulder Valley School District (BVSD) on “Nutrition and Health: The Power of Diet in Disease

- Prevention”, Saturday Mar 17, 2007; sponsored by the Biological Science Initiative (BSI) at CU and supported by the Howard Hughes Medical Institute
- February 13, 2007 – Public Lecture on “Role of Diet in Learning and Mood” sponsored by Parent Advisory Board; Bixby Elementary School, Boulder
- October 2006 – 8-Hour workshop for 25 Middle and High School teachers from BVSD on “Nutrition and Health: The Power of Diet in Disease Prevention”, Saturday Oct 21, 2006; sponsored by the Biological Science Initiative (BSI) at CU and supported by the Howard Hughes Medical Institute
- Spring 2005 – Presentation on Nutrition in CU Boulder student housing complexes
- March 2005 – Two classes taught to Seventh Graders at Summit Middle School, Boulder, on “Nutrition and Disease Prevention” as part of the required unit on “Health”
- March 2004 – Three classes taught to Seventh Graders at Summit Middle School, Boulder, on “Diet-Gene Interaction” as part of the required unit on “Health”
- September 2003 – Presentation to the School Board at Summit Middle School on “Healthy Eating Habits”
- September 2002 – Public Lecture on “The Role of Nutrition in Health, Mood, and Learning at Bixby Elementary School, Boulder
- April 2001 – Class taught to Third Graders at Bixby Elementary School on “Food and Health”.
- May 2001 – Five separate classes taught to Fifth Graders at Bixby Elementary School, Boulder, on “Nutrients in the Food Chain”.
- May 1997 – Class taught to First Graders at Bixby Elementary School, Boulder, on Photosynthesis. Presentation on "The things that plants do for us", and experimental exercise on “Observation of oxygen bubbles formed by the aquatic plant *Elodea* when exposed to light”.