

**Curriculum Vitae
ROBERT O. VOS**

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ROBERT O. VOS

CURRICULUM VITAE

PRESENT APPOINTMENT

Assistant Professor (Teaching) and Director of Graduate Studies
Spatial Sciences Institute
University of Southern California

EDUCATION

- 1992 University of Southern California
Bachelor of Arts: Study of the City (Program in the Environment and the City)
Bachelor of Music: Violoncello Performance (82 units toward completion)
Summa Cum Laude
- 1994 University of Southern California
Master of Arts in Political Science (American Politics)
Comprehensive Examination with Distinction
- 1999 Doctor of Philosophy in Political Science
Major-Field: American Politics. Sub-fields: Political Theory; Law and Public Policy.
Qualifying Examination with Distinction
- Dissertation: *Courts and Collective Action: Legal Mobilization in the U.S. Environmental Movement* (Chair, Dr. Sheldon Kamieniecki)

PROFESSIONAL CERTIFICATIONS

Certified Geographic Information Science Professional (GISP) by the GIS Certification Institute (GISCI) from 6/25/2015 until recertification is required in 2020 (#91703)

TEACHING INTERESTS

Sustainability Science	Political Geography
Spatial Science Research & Project Methods	Industrial Ecology
Environmental Law, Politics, and Policy	Sustainable Cities

RESEARCH INTERESTS

Sustainability Indicators	Material Flow Analysis/Urban Metabolism
Life Cycle Assessment	Water Modeling and Policy
Environmental Justice	Social Movements/Legal Mobilization

HONORS AND AWARDS

- 2010 Disney Consumer Products, Sustainability Award for SmartPackaging Initiative
- 1998 Lynton Caldwell Prize for the best book published in environmental politics between 1995 and 1997. (for: *Flashpoints in Environmental Policymaking: Controversies in Achieving Sustainability*. Sheldon Kamieniecki , George A. Gonzalez, and Robert O. Vos (Co-editors). Albany: State University of New York Press, 1997)
Awarded by the Science, Technology, and Environmental Politics Section
American Political Science Association (APSA).
- 1996-97 Haynes Dissertation Fellowship
- 1995 USC Outstanding Teaching Assistant Award
Honorable Mention (second place)
- 1994-95 Outstanding Teaching Assistant Award
Department of Political Science
- 1994-95 Haynes Continuing Fellowship
- 1993 The Rockwell Dennis Hunt Scholarship
- 1993 USC Dean Joan Schaeffer Scholarship
- 1993 Western Governmental Research Association Graduate Student Award
- 1992 Phi Beta Kappa
- 1992 Phi Kappa Phi Undergraduate Student Research Award
- 1991 Phi Kappa Phi
- 1988 Alpha Lamda Delta

PUBLICATIONS

Book

- 1997 *Flashpoints in Environmental Policymaking: Controversies in Achieving Sustainability*. Sheldon Kamieniecki , George A. Gonzalez, and Robert O. Vos (Co-editors). Albany: State University of New York Press.

Peer Reviewed Journal Articles

- 1996 "An Archeology of Environmental Racism in Los Angeles." Laura Pulido, Steve Sidawi, Robert O. Vos. *Urban Geography* 17: 419-439.
- 2002 "Reforming EPA's Organizational Structure: Establishing an Adaptable Agency through Eco-Regions." Paul S. Weiland and Robert O. Vos. *Natural Resources Journal* 42: 91-131.
- 2007 "Defining sustainability: a conceptual orientation." Robert O. Vos. Perspective in *Journal of Chemical Technology and Biotechnology* 82: 334-339.
- 2010 "Papering over space and place: Product carbon footprint modeling in the global paper industry." Joshua Newell and Robert O. Vos. *Annals of the Association of American Geographers* 101 (4): 730-741.

- 2012 “Challenges and Opportunities for Incorporating Forest Carbon Pools in Consumer Product Carbon Footprints.” Joshua Newell and Robert O. Vos. *Environmental Impact Assessment Review* 37: 23-36.
- 2019 “The Spatially-Explicit Water Footprint of Blue Jeans: Spatial Methods in Action for Sustainable Consumer Products and Corporate Management of Water” Robert O. Vos. *Case Studies in the Environment* (In Review)
- 2019 “Licensed and Unlicensed Cannabis Retailers in California: A Threat to Health Equity?” with Jennifer Unger, Jane Steinberg, and Jasmine Wu. *American Journal of Public Health* (In Preparation)

Other Peer Reviewed Publications

- 2016 “Life Cycle Impact Assessment Methodology for Produce Category Rule (PCR) Modules for Roundwood and Pulp/Paper” Working Group Member with Tobias Schultz, Chair. Program Operator: SCSglobal Services, October 18, 2016.
- 2016 “Product Category Rule (PCR) Module for Market Pulp and Paper Products” Working Group Member with Tobias Schultz, Chair. Program Operator: SCSglobal Services, October 18, 2016.
- 2016 “Product Category Rule (PCR) for Roundwood” Working Group Member with Tobias Schultz, Chair. Program Operator: SCSglobal Services, October 18, 2016

Book Chapters

- 1995 "The Political Effectiveness of Radical Environmentalists," Sheldon Kamieniecki, S. Dulaine Coleman, and Robert O. Vos. In Bron Taylor (editor) (pp.315-333), *Grassroots Ecological Resistance: The Global Emergence of Radical Environmental Movements*, State University of New York Press.
- 1996 "Thinking about Sustainable Development: What's Theory Got To Do With It?" Matthew Alan Cahn and Rory O'Brien (editors), *Thinking About the Environment*. M.E. Sharpe.
- 1997 "Competing Approaches to Sustainability: Dimensions of Controversy", Sheldon Kamieniecki, George A. Gonzalez, and Robert O. Vos (editors), *Flashpoints in Environmental Policymaking*. State University of New York Press.
- 2009 “Dematerialization” Robert O. Vos and Joshua Newell. Entry in the *Encyclopedia of Green Business* (Editor P. Robbins). Sage References (Green Series).

Book Reviews

- 2001 *Toward Sustainable Communities: Transition and Transformation in Environmental Policy* (Edited by Daniel A. Mazmanian and Michael E. Kraft) *Environmental Ethics* (4: 270-273).

Non-Peer Reviewed Publications

- 2017 *Spatially-Explicit Water Footprint for Denim Products*, Kairos Performance, LLC Consulting Report, April 17, 2017 for Guess?, Inc.
- 2014 *Strategic Sustainability Plan for Gerber Baby Foods*, with Candace Hodder, Clean Agency Consulting Report, June 1, 2014 for Nestlé Nutrition.
- 2013 *Project Springfield Life Cycle Assessment Report: Comparative Assessment of Gerber's Infant Cereal Packaging* with P. Pereira and C. Hodder, Clean Agency Consulting Report, March 29, 2013 (third-party reviewed for ISO 14040/14044 conformity)
- 2013 *Project Columbia Life Cycle Assessment Report: Comparative Assessment of Gerber's Infant Purée Packaging* with P. Pereira and C. Hodder, Clean Agency Consulting Report, March 29, 2013
- 2012 *Carbon Footprinting for Products: What Companies Should Know*, Environmental Leader, July 11, 2012
- 2011 *Nine Tips for Bringing Sustainability to the Supply Chain*, with C. Hodder, GreenBiz, October 25, 2011
- 2011 *Corporate Water-Energy Footprint: Critical Work for Risk Management*, Environmental Leader, May 19, 2011
- 2011 *Life Cycle Environmental Impact Assessment of Toy Packaging at Mattel, Inc.* with C. Del Maestro and C. Hodder, Clean Agency Consulting Report, January 2011
- 2011 *Assessing Ecosystem Values of Watersheds in Southern California* with M. Antos, Los Angeles and San Gabriel River Watershed Council Report, February 2011
- 2010 *Screening Life Cycle Assessment of Dreyer's/Haagen-Dazs Ice Cream* with C. Del Maestro and C. Hodder, Clean Agency Consulting Report, June 2010 (third-party reviewed for ISO 14040/14044 conformity)
- 2009 *A Comparative Analysis of Carbon Dioxide Emissions in Coated Paper Production: Key Differences between China and the U.S.* Robert O. Vos and Josh Newell, USC Center for Sustainable Cities Report. June 2009.
- 2009 *Orange County Green Initiatives Strategic Tactics Plan.* Robert O. Vos, Report for the Orange County Workforce Investment Board (OCWIB). May 2009.
- 2008 *Environmental Analysis of Coated Paper Supply Chains: the United States and China.* Josh Newell and Robert O. Vos, USC Center for Sustainable Cities, White Paper (May).

- 2008 *Achieving Sustainable Development in Southern California: Collaborative Learning through Systems Dynamic Modeling*. Raymond Madachy, Benjamin Haas, Hilary Bradbury, Josh Newell, Mansour Rahimi, Robert Vos, and Jennifer Wolch. 18th Annual Int'l Symposium of the International Council on Systems Engineering (INCOSE) 5: 2514-2528.
- 2003 Post-Symposium Report. NSF Symposium on Sustainable Industrial Development: Energy and Material Exchange and Optimization through Eco-Industrial Networks (<http://www.usc.edu/schools/sppd/research/NCEID/>).
- 2002 *Resource Manual on Infrastructure for Eco-Industrial Parks*. Ian T. Penn and Robert O. Vos. (<http://www.usc.edu/schools/sppd/research/NCEID/Infrastructure.pdf>).
- 2002 *Resource Manual on Eco-Industrial Approaches to Brownfield Remediation*. Ian T. Penn and Robert O. Vos (<http://www.usc.edu/schools/sppd/research/NCEID/>).
- 1997 *Clean Air Goal Visible in Haze*. Saturday Commentary (Op-Ed). Los Angeles Daily News (July 12).

TEACHING EXPERIENCE

New Courses Created and Taught in the USC Curriculum

- 2001-2003 *Environmental Risk Assessment* (ENST 441). Interdisciplinary undergraduate elective course blending social science and natural science approaches to assessing environmental risk. USC Environmental Studies Program.
- 2009-2019 *Industrial Ecology: Technology-Environment Interaction* (ISE 576). Interdisciplinary graduate course required in the Green Technology Program. USC Epstein Department of Industrial and Systems Engineering.
- 2011-2019 *Master's Thesis* (SSCI 594a). Required course for preparing a thesis proposal in the Geographic Information Science and Technology Program (GIST). USC Spatial Sciences Institute.
- 2015-2019 *Sustainability Science in the City* (SSCI 165Lgw). Large general education course in the spatial analysis/global citizenship categories with weekly GIS labs. USC Spatial Sciences Institute.
- 2016-2019 *Practicum in Teaching the Liberal Arts* (SSCI 693). A course on college teaching in the spatial sciences, designed to prepare teaching assistants. USC Spatial Sciences Institute.

Courses Taught

- 1999 *American Political Thought and Practice* (GOV 318). Elective course on American Political Philosophy. University of Redlands, Government Department.
- 1999/2005 *Environmental Law* (POSC 391). Elective undergraduate course. USC Department of Political Science
- 2001-2003 *Introduction to Environmental Studies* (ENST 500). Entry overview course for M.A. and M.S. students. USC Environmental Studies Program.
- 2006-2014 *Sustainable Cities* (GEOG/PLUS 601 and PPDE 632). Elective graduate course. USC Department of Geography and the USC Sol Price School of Public Policy.
- 2014-2017 *Geospatial Technology Project Management* (SSCI 585). Elective in USC's Geographic Information Science and Technology Program (GIST). USC Spatial Sciences Institute.
- 2017 -2018 *Population, Health, and Place Research Practicum* (SSCI 601a). Required course on research design with collaborative and individual research activity leading to preparation of dissertation proposals in USC's Ph.D. in Population, Health, and Place Program (PHP).

Undergraduate Courses as Teaching Assistant

- 1992-1993 *Theory and Practice of American Democracy* (POSC 100), USC Department of Political Science
- 1993-1994 *American Political Thought* (POSC 365), USC Department of Political Science
- 1994 *Cultural Diversity and the Law* (POSC 441), USC Department of Political Science
- 1994-1995 *Politics and Culture* (POSC 465), USC Department of Political Science

RESEARCH FUNDING

- 2019 Principal Investigator
“Prevalence and concentration of licensed and unlicensed marijuana retailers in California: Estimating environmental exposure of adolescents” USC Undergraduate Research Associates Program (URAP) (\$5,500) with J. Unger and J. Steinberg.
- 2018 Co-Investigator
“Proximity to Cannabis Retailers and Adolescent Use” State of California, Tobacco-Related Disease Research Program (TRDRP) (28IR-0042) (\$1,234,497) J. Unger, P.I.
- 2017 Consultant
Guess?, Inc. Water Footprint for Denim Products. Kairos Performance, Alhambra, CA (\$34,500)
- 2016 Consultant
Life Cycle Assessment for Sustainable Packaging, Analysis and Training Sessions. Kairos Performance, Alhambra, CA (\$20,000)
- 2008 Principal Investigator
“Chinese Coated Paper Supply Chain Analysis”
USC Contract with Clean Agency for NewPage Corporation, Co-PI J. Newell (\$56,665)
- 2007 Co-Principal Investigator
“Ecosystem Values of Watersheds in Southern California.” State of California, Department Water Resources. (\$391,934). N. Steele, P.I., Los Angeles and San Gabriel Rivers Watershed Council.
- 2007 Consultant
Estimation of carbon footprint for an LA-based furniture manufacturing company. Clean Agency, Inc. of Pasadena, CA. (\$5,000). R. Vos, P.I.
- 2006 Faculty Fellow
“Building USC Research Capacity for Environmental Life-Cycle Assessment of Future Fuels and Energy Systems.” USC Future Fuels and Energy Initiative (\$25,000) M. Rahimi, P.I.
- 2003 Consultant
Sustainability Indicators for the Integrated Resource Plan (IRP). City of Los Angeles, Bureau of Sanitation. (\$65,000). J. Deviny, P.I.
- 2002 Project Coordinator
“Modeling Eco-Industrial Symbiosis: Greening of Regional Industrial Materials Networks.” National Science Foundation, Crosscutting Program under the Bio-Complexity Initiative: Materials Use Science Engineering and Society (MUSES). (\$100,000). M. Rahimi, P.I.

- 2002 Urban Initiative Faculty Fellow
 “Modeling the Los Angeles Industrial Ecosystem.” USC Urban Initiative Faculty Grant (\$25,000) M. Rahimi, P.I. and J. Wolch and J. Devinny, Co-P.I.’s
- 2002 Research Associate
 “Toward a More Sustainable Los Angeles: a Workshop for General Managers and Division Mangers at the City of Los Angeles.” (\$6,500). J. Wolch, P.I. Responsible for coordinating the LEED/Green Building portion for a full-day workshop.
- 2002 Research Associate
 “Sustainability Starts at Home.” Contract for the Southern California Gas Company, Diverse Markets Outreach Program (\$99,975). J. Wolch, P.I.
- 1999 Principal Investigator
 “Exploring Local Governance and Sustainability: the Solid Waste Problem in Los Angeles.” Haynes Foundation, Grants to Develop Research Designs for a More Sustainable Los Angeles (\$5,000).

RESEARCH SUPERVISIONS

Student Research Projects

- 2000 “Eco-Industrial Parks in the City: an Implementation Study in Central Los Angeles.” Sustainable Cities Program, Summer Undergraduate Fellows Project Report. Michael Besem and Charles Cange. Supervised with Najmedin Meshkati, Civil and Environmental Engineering.
- 2001 “Worldwide Water Quality Assessment: a Comparative Study of 10 Major Coastal Cities.” Sustainable Cities Program, Summer Undergraduate Fellows Project Report. Katie Bollie, Peter Nelson, and Jennie Walcek. Supervised with Jeffrey Sellers, Political Science and Jed Fuhrman, Biology.
- 2001 “Exploring Alternative Environmental Assessments: a Case Study of the Alameda Corridor of Central Los Angeles.” Sustainable Cities Program, Summer Undergraduate Fellows Project Report. Oliver Baker, Carina Cuellar, and David Sumi. Supervised with Mansour Rahimi, Industrial and Systems Engineering.
- 2001 “Best Practices in Sustainable Urban Redevelopment of Shopping Centers” (University Village Series White Paper No. 1). Summer Undergraduate Fellows Project Report. Dawn Alley, Carmen Cejudo, and David Milam. Supervised with Jennifer Wolch, Geography and Joseph Devinny, Civil and Environmental Engineering.
- 2001 “Toward a Sustainable University Village” (University Village Series: White Paper No. 2). Summer Undergraduate Fellows Project Report. Dawn Alley, Carmen Cejudo, and David Milam. Supervised with Jennifer Wolch, Geography; Joseph Devinny, Civil and Environmental Engineering; and Travis Longcore, Geography.

- 2001 “Application of Life Cycle Assessment to Environmental Impact Assessment: a Case Study of the Alameda Corridor Project of Central Los Angeles.” Sustainable Cities Program Ph.D. Collaborative Project of Merrill Weidner. Supervised with Mansour Rahimi, Industrial and Systems Engineering.
- 2002 “Economic Aspects in Implementing the Concept of Industrial Ecology: the Use of Regional Input-Output Modeling” Sustainable Cities Program Ph.D. Collaborative Project of Kitty Kay Chan. Supervised with Professor Jeffrey Nugent, Economics.
- 2002 “Economic Input-Output Analysis as a Tool for Urban Sustainability.” Summer Undergraduate Fellows Project Report. Adam Brandt, Jacqueline Doremus, and Fan Lau. Supervised with David Rigby, UCLA Geography and Mansour Rahimi, Industrial and Systems Engineering.
- 2002 “Environmental Justice Assessment of the Alameda Corridor of Central Los Angeles”. Sustainable Cities Program Ph.D. Collaborative Project of Sheila Ruth Akineley. Supervised with Laura Pulido, Geography.

Master’s Theses Supervised

- 2002 “Economic Valuation of Impacts to Beneficial Uses to Water Quality in California: a Proposed Methodology” USC Masters Thesis for the Degree M.A. of Environmental Studies of Rafael Maetsu. Committee Chair, supervised with Douglas Capone, Biology and Linwood Pendleton, Economics.
- 2003 “Coastal Wetlands Mitigation Policy: Moving from Loss to No Net Loss of Water Quality Functions” USC Masters Thesis for the Degree M.A. of Environmental Studies of Stephanie Gasca. Committee Chair, supervised with Joseph Deviny, Civil and Environmental Engineering, Roderick Mckenzie, Geography, and Suzanne Edmands, Biology.
- 2004 “Evaluating NGO Success in Conservation Efforts in the Brazilian Amazon” USC Masters Thesis for the Degree M.A. of Environmental Studies of Hallie Gardner. Committee Chair, supervised with Albert Herrera, Biology and Dean Jane Cody.
- 2012 “The Role of GIS in Asset Management: Integration at the Otay Water District” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Alexander J. Schultz. Committee Chair, supervised with John Wilson, Geography and Sociology and Karen Kemp, Spatial Sciences Institute.
- 2012 “Community Gardens for Social Capital: A Site Suitability Analysis in Akron, Ohio” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Allison Oulton. Committee Chair, supervised with Kirk Oda and Darren Ruddell, Spatial Sciences Institute.

- 2012 “Investigating Bus Route Walkability: Comparative Case Study in Orange County, California” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Stephanie Chen. Committee Chair, supervised with Katsuhiko Oda and Darren Ruddell, Spatial Sciences Institute.
- 2012 “Spatial Analysis of Urban Built Environments and Vehicle Transit Behavior” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Daniel Currie Eisman. Committee Chair, supervised with Kirk Oda and Dan Warshawsky, Spatial Sciences Institute.
- 2012 “Improving the Communication of Water Allocation Decisions Using Interactive Maps” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Andrew L. Stickney. Committee Chair, supervised with Jennifer Swift and Darren Ruddell, Spatial Sciences Institute.
- 2013 “Water Rights Permit System (WRPS): a GIS-Based Tool for the Umpqua Drainage Basin” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Kathy Thompson. Committee Chair, supervised with Jennifer Swift and Daniel Warshawsky, Spatial Sciences Institute.
- 2013 “Closed Landfills to Solar Energy Power Plants: Estimating the Solar Potential of Closed Landfills in California” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Devon R. Munsell. Committee Chair, supervised with Jennifer Swift and Darren Ruddell, Spatial Sciences Institute.
- 2013 “Explorations of American Churchscape Diversity” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Amanda Alamo. Committee Chair, supervised with John Wilson and Daniel Warshawsky, Spatial Sciences Institute.
- 2014 “The Geography of Voter Power in the U.S. Electoral College from 1900-2012” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Luke Wenschhof. Committee Chair, supervised with Karen Kemp and Daniel Warshawsky, Spatial Sciences Institute.
- 2014 “A Site Suitability Analysis for an Inland Port to Service the Ports of Los Angeles and Long Beach” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Emily Frazier. Committee Chair, supervised with Katsuhiko Oda (Spatial Sciences Institute) and Mansour Rahimi (Industrial and Systems Engineering).
- 2014 “Development of Web GIS or Urban Sustainability Indicators of Oakland, California” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Gina Kiani. Committee Chair, supervised with Jennifer Swift and Daniel Warshawsky, Spatial Sciences Institute.

- 2015 “Mapping Uniformity of Park Access Using Cadastral Data within Network Analyst in Wake County, NC” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Jonathan Parsons. Committee Chair, supervised with Yao-Yi Chiang and Daniel Warshawsky, Spatial Sciences Institute.
- 2015 “Smart Growth and Walkability Affect on Vehicle Use and Ownership” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Derek Newland. Committee Chair, supervised with Su Jin Lee, Spatial Sciences Institute and Meredith Franklin, Preventive Medicine/ Spatial Sciences Institute.
- 2015 “Hidden Hazards in Harbor Gateway: Exploring a Web GIS Solution for Superfund Education and Environmental Justice” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Mallory Graves. Committee Chair, supervised with Daniel Warshawsky and Jennifer Swift, Spatial Sciences Institute. **USC GIST Thesis Prize Winner.**
- 2015 “Validation of Volunteered Geographic Information Components of Law Enforcement Use of Force” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Lance Farman. Committee Chair, supervised with Karen Kemp, Spatial Sciences Institute and Brian Finch, Sociology.
- 2015 “Drawing Better Lines: Comparing Commissions to Legislatures on Compactness and Coterminosity” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Brian Dean. Committee Chair, supervised with Daniel Warshawsky and Katsuhiko Oda, Spatial Sciences Institute.
- 2015 “Walkability Study for School Accessibility: Case Study of the San Juan, Puerto Rico Elementary Schools” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Joel Rodriguez. Committee Chair, supervised with Su Jin Lee and Jennifer Swift, Spatial Sciences Institute.
- 2016 “A Spatial Analysis of Veteran Healthcare” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Charles Becker. Committee Chair, supervised with Elisabeth Sedano and Steve Fleming, Spatial Sciences Institute. **USC GIST Thesis Prize Winner.**
- 2016 “The Role of Amenities in Measuring Park Accessibility: A Case Study of Downey, California” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Edgar Jimenez. Committee Chair, supervised with Su Jin Lee and Laura Loyola, Spatial Sciences Institute.
- 2016 “Implementing Spatial Thinking with Web GIS in the Non-Profit Sector: A Case Study of ArcGIS Online in the Pacific Symphony” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Michelle Lin. Committee Chair, supervised with Elisabeth Sedano and John Wilson, Spatial Sciences Institute.

- 2016 “Measuring Seasonal Variation in Food Access: A Case Study of Everett, Washington” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Daryl Nevels. Committee Chair, supervised with Elisabeth Sedano and Daniel Warshawsky Spatial Sciences Institute.
- 2016 “Light Rail Expansion in Houston Using Viable Path Corridors and Least Cost Path: Alternatives for the Failed University and Uptown Lines” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Jared Reid. Committee Chair, supervised with Jennifer Swift and John Wilson Spatial Sciences Institute.
- 2016 “Peoples of Washington Historical Geographic Information System: Georeferencing Culture Using Archival Standards” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Jennifer Titus. Committee Chair, supervised with Jennifer Swift and Katsuhiko Oda Spatial Sciences Institute.
- 2016 “A User Study of GIS Infused Genealogy with Dynamic Thematic Representation and Spatiotemporal Control” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of James Ray. Committee Chair, supervised with Jennifer Swift and Yao-Yi Chiang Spatial Sciences Institute.
- 2017 “Public Transportation Accessibility Impacts of the Tucson Modern Streetcar” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Benjamin Suber. Committee Chair, supervised with Jennifer Swift and Katsuhiko Oda Spatial Sciences Institute.
- 2017 “Safe Walk: A Network Analyst Framework for Safe Routes to School” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Jonathan Alfonso. Committee Chair, supervised with Katsuhiko Oda and Laura Loyola Spatial Sciences Institute.
- 2018 “Access to Active Play Parks for Youth Segments in Alexandria, Virginia” USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of Alexander Fox. Committee Chair, supervised with Jennifer Bernstein and Ran Tao Spatial Sciences Institute.
- 2019 “Investigating the Association of Historical Preservation and Neighborhood Status in Detroit, 1970-2015. USC Thesis for the Degree M.S. of Geographic Information Science and Technology (GIST) of David Rosas Flores. Committee Chair, supervised with Su Jin Lee and Katsuhiko Oda Spatial Sciences Institute.
- 2019 “Life Cycle Analysis of Commercial Airplane Electrical Connector Components: Stainless Steel vs. Composite” USC Thesis for the Degree of M.S. Green Technology. Committee Chair, supervised with Mansour Rahimi, Esptein Department of Industrial and Systems Engineering and Edward Maby, Ming Hsieh Department of Electrical Engineering. **Winner of the 2019 USC Fleischer Prize in Green Technology.**

Ph.D. Committees

- 2005 “Green Logistics for Regional Industrial Waste Materials and By-Products” USC Ph.D. Dissertation of Hamid Pourmohammadi, Industrial and Systems Engineering, Outside Member. Supervised with Mansour Rahimi (Chair), Maged Dessouky (Member), Jim Moore (Member), Industrial and Systems Engineering.
- 2014 “Defining the Geospatial Needs of an Ubiquitous Disaster Relief Organization” USC Ph.D. Dissertation of Evan Lue, Geography. Supervised with John Wilson (Chair) and Meredith Franklin (Member), Spatial Sciences Institute

CONFERENCES AND LECTURES

Conference Papers and Invited Lectures

- 2019 “After the Map Was Made and the Drone Was Flown: Implications of Geospatial Data for Environmental Governance” Panel Presentation, American Association of Geographers 2019 Conference, Washington, D.C., March 3, 2019.
- 2017 “Sustainability Science in the City: Using GIST in Undergraduate Education” Lighting Talk at the Esri User’s Conference, San Diego, CA July 13, 2017.
- 2017 “Enabling Thesis Success Through a Thesis Proposal Course” Paper Presentation to the American Association of Geographers 2017 Conference, Boston, MA April 8, 2017.
- 2016 “The Geography of Voter Power in the U.S. Electoral College from 1900-2012” With Luke Wenschhof, USC M.S. GIST Alumnus. Paper presentation to the American Association of Geographers 2016 Conference, San Francisco, CA March 30, 2016.
- 2016 “Interrogating Carbon Neutrality of Forest Products: New Directions in Spatially-Explicit Life Cycle Assessment” Brownbag Presentation for USC Spatial Sciences Institute, Los Angeles, CA Feb. 5, 2016.
- 2015 “Hierarchical Spatial Modeling for Smart Growth” With Meredith Franklin (USC Preventive Medicine), Daniel Eisman (USC M.S. GIST Alumnus), and Derek Newland (USC M.S. GIST Alumnus). Paper presentation to the Association of American Geographers 2015 Conference, Chicago, IL April 25, 2015.
- 2014 “Sustainability Challenges of Flexible Plastic Packaging” Invited Lecture at Global Pouch West: Flexible is the Future. Packaging Strategies Group, Garden Grove, CA. December 3.
- 2014 “Teaching Sustainability with Geospatial Technologies” Invited Lecture for International Forum for UNESCO’s World Teacher’s Day. Association of World Citizens, Los Angeles, CA. October 5.

- 2012 “Strategic Sustainability Plan for the Port of Los Angeles” Invited Lecture for Sustainability Planning Workshop, October 11.
- 2012 “Business Value of Life Cycle Assessment Webinar” with EarthShift (PRÉ Int’l), May 17.
- 2011 “Geographical Delimitation for Carbon Footprint Modeling in the Global Paper Industry” Paper presentation to the International Society for Industrial Ecology 2011 Conference, Berkeley, California June 7-10.
- 2011 “Assessing Impacts of Food Packaging” Invited Lecture for Sustainable Packaging LCA Symposium, American Institute of Chemical Engineers, Chicago, IL, March 25.
- 2010 “Watershed Health Indicators of Urban Sustainability” CleanTech 2010, Anaheim, California, June 23.
- 2009 “Green Initiatives Strategic Tactics Plan” Invited Lecture for the Orange County Workforce Investment Board, July 10.
- 2009 “Environmental Justice Research Agenda for Cap and Trade under AB 32” Cities and Climate Change: a Solutions Oriented Conference, USC, Los Angeles, April 30.
- 2008 “Technologies and the Profitability of Waste-to-Energy: Can we achieve zero waste?” California Clean Innovation: Driving Technology, Business and Policy Innovation, UCLA, Los Angeles, May 9.
- 2008 “Achieving Sustainable Development in Southern California: Collaborative Learning through Systems Dynamics Modeling” INCOSE Annual Conference: Systems Engineering for the Planet, the Netherlands, June 15-19.
- 2007 “Industrial Ecology in the Sustainable City” Sustainable Cities Roundtable, French Consulate, Los Angeles, September 28.
- 2005 Session 9: Water Reuse and Reclamation Technologies, “Sustainability Indicators for the City of Los Angeles Department of Public Works Integrated Resource Plan,” Water Environment Federation, 2nd Joint Conference for the Sustainable Management of Water Quality Systems, San Francisco, August 28-31
- 2005 Sustainable Cities and Regional Metabolism, “Cluster analysis technique for regional materials flows and urban sustainability,” Paper presentation to the International Society for Industrial Ecology 2005 Conference, Stockholm, Sweden, June, 12-15.
- 2003 Closing Session Moderator for the NSF Symposium on Sustainable Industrial Development: Optimization through Eco-Industrial Networks (November 6 & 7).

- 2003 Operations Research Panel, "Greening of industrial materials networks in Los Angeles County: Reverse logistics model development," Annual Industrial Engineering Research Conference, Portland, Oregon, May 17-21.
- 2002 Southern California Air Quality Management District "Growth in the Los Angeles Logistics Industry and the Challenge for Clean Air" October.
- 2001 Paper Presentation to Sustainable Cities Program Research Seminar. "Applying Life Cycle Assessment and Environmental Justice Analysis to Environmental Impact Assessment for the Alameda Corridor Project." With Merrill Weidner. Los Angeles, CA (October).
- 2000 The University of Michigan (Ann Arbor), School of Natural Resources and the Environment. "Multidisciplinary Research in Urban Sustainability." October.
- 1999 Southern California Research Group for Environmental Politics and Policy, "Greening VIII", "Courts and Collective Action: a Quantitative Analysis of Legal Mobilization in the Environmental Movement", University of Southern California, January 30.
- 1999 Paper Presentation to the New Research Designs for a More Sustainable Los Angeles Conference. "Exploring Local Governance and Sustainability: the Solid Waste Problem in Los Angeles." Los Angeles (September).
- 1995 Environment Panel, "Stigma and Place: Bringing Context to Theories of Environmental Discrimination", American Association of Geographers, Chicago, March 14-17.
- 1995 Southern California Research Group for Environmental Policy, "Greening III", "A Case Study of Environmental Discrimination: Toxic Air Pollution in the Los Angeles Metropolitan Region", University of Southern California, January 28.
- 1994 Los Angeles: Past, Present, and Future Panel, "The Paradox of Managed Growth: Environmental Politics in Los Angeles", Western Political Science Association, Albuquerque, March.
- 1994 Environmental Justice Panel, "Stigma and Place: Toward a Theory of Environmental Racism", Western Political Science Association, Albuquerque, March.
- 1994 Southern California Research Group for Environmental Policy, "Greening II", "The Supreme Court and Environmental Standing: A Facade of Statecraft", Claremont Graduate School, January.
- 1992 Environmental Policy Panel, "Designing a Sustainable Bureaucracy: Making the EPA Adaptable", Western Political Science Association, San Francisco, March.

Conference and Workshop Participation

- 2019 Conference Participant. Omics in Environmental Health Research Symposium. USC Keck School of Medicine, Los Angeles, CA (March)
- 2019 Webinar Participant. Key Competencies for Sustainability Degree Programs. National Council for Science Education (NSCE) (March)
- 2019 Conference Participant. Eighth Annual Los Angeles Geospatial Summit. Los Angeles, CA (Feb.)
- 2018 Webinar Participant. Using Professional Credentialing Exams in Academic GIS&T Contexts. University Consortium for GIS (UCGIS) Members Webinar (Dec.)
- 2018 Webinar Participant. NSF Geography and Spatial Sciences Doctoral Dissertation Improvement Awards (GSS-DDRI) Urban Myths (Nov.)
- 2017 Conference Participant. Seventh Annual Los Angeles Geospatial Summit. Los Angeles, CA (Feb.)
- 2016 Conference Participant. Sixth Annual Los Angeles Geospatial Summit. Los Angeles, CA (Feb.)
- 2016 Workshop Participant. "USC GeoDesign Workshop with Carl Steinetz" Los Angeles, CA (Jan)
- 2015 Conference Participant. Fifth Annual Los Angeles Geospatial Summit. Los Angeles, CA (Feb.)
- 2014 Workshop Participant. "Sustainability Learning Communities Network: From Information to Evidence about Sustainability Practices" UCGIS 2014 Symposium, Pasadena, CA (May)
- 2014 Conference Participant. "Revising the Body of Knowledge" UCGIS 2014 Symposium, Pasadena, CA (May)
- 2011 Co-organizer and roundtable participant. "California Sustainability Indicators Symposium," USC Davidson Conference Center, Los Angeles, CA (February).
- 2010 Discussant for Visiting UCLA Professor J. Evans. "Resilience, ecology, and adaptation in the experimental city," Los Angeles and San Gabriel Rivers Watershed Colloquium, MWD Headquarters, Los Angeles (November).
- 1998 Secretary to the APSA Workshop on Sustainable Development (with Margaret Scully Granzeier). American Political Science Association, Boston, MA (September).

- 1993 Discussant. “Local Politics and the Environment Panel,” Western Political Science Association, Pasadena, CA (March).
- 1992 Discussant. “Federalism and Intergovernmental Relations Panel,” Western Political Science Association, San Francisco, CA (March).

PROFESSIONAL SERVICE

University Service at the University of Southern California

- 2016-present Director of Graduate Studies, USC Spatial Sciences Institute
- 2019-20 Dornsife Sustainability Interdisciplinary Working Group “Living Lab SC/LA”
- 2019 Advisor to Jasmine Wu on USC Summer Undergraduate Research Fund (SURF)
- 2019 Gateway Internship Program Mentor
- 2018-19 Faculty Member of USC’s Collaborative for Health Equity (CHES)
- 2019 Mentor in the Diversity Inclusion and Access (DIA) summer undergraduate program
- 2019 Panel Participant for USC Environmental Student Assembly Equity Program
- 2018-19 Member of 5 M.S. GIST Thesis Committees
- 2018-19 Member, Spatial Sciences Merit Review Committee
- 2018-19 Member, Admissions Committee, PhD program in Population, Health, and Place
- 2018-19 Member of the Geodesign Fellows Selection Committee
- 2018 Mentor in the Diversity Inclusion and Access (DIA) summer undergraduate program
- 2018 Host to Wuhan University at the Spatial Sciences Institute
- 2017-18 Undergraduate scholarship interviews and luncheons for USC Dornsife College
- 2017-18 Member, Dornsife College RTPC Promotions Committee
- 2016-18 Member, Fleischer Prize in Green Technology, Awards Committee
- 2016-17 Undergraduate scholarship interviews and luncheons for USC Dornsife College
- 2016-18 Member, Dornsife College RTPC Promotions Committee
- 2016-17 Member, Spatial Sciences Merit Review Committee
- 2016-17 Member of 8 M.S. GIST thesis committees
- 2016-17 Member, Admissions Committee, PhD program in Population, Health, and Place
- 2015-16 Member, Fleischer Prize in Green Technology, Awards Committee
- 2015-16 Member of 16 M.S. GIST thesis committees
- 2015-16 Chair of the Working Committee on Geospatial Data in the M.S. GIST Curriculum
- 2014-15 Member, Fleischer Prize in Green Technology, Awards Committee
- 2014-15 Member of 9 M.S. GIST thesis committees
- 2014-15 Collaborated in development of GIST Writing and Thesis Rubrics
- 2014-15 Moderator and Presenter in two Webinars for Prospective GIST Students
- 2014-15 Chair of the M.S. GIST Thesis Prize Committee
- 2013-14 Member of 8 M.S. GIST thesis committees
- 2013-14 Member of the GIST Thesis Prize Committee
- 2012-13 Member of 4 M.S. GIST thesis committees
- 2012-13 Presenter in Webinar for Prospective GIST Students

Extramural Service

- 2019 Guest Editor for Special Issue, “Local Food Initiatives in the World’s Cities” for the peer reviewed journal *Sustainability* 2019 11(3) (Co-editor with D.N. Warshawsky).
- 2017 Panel Organizer for “Capstone Projects for M.S. Programs in Geographic Information Science and Technology, Annual Meeting of the Association of American Geographers, Boston, MA (April)
- 2016 Member of the ISO Working Group on Life Cycle Assessment Product Category Rules for Wood, Pulp, and Paper. Chaired, by Tobias Schultz, Scientific Certification Systems.
- 2016 Workshop for the East Yards Communities for Environmental Justice Summer Undergraduate Collaborative, Hosted at USC Spatial Sciences Institute (July)

Peer Review

- 2019 Journal of Science, Technology, and Policy Management
- 2018 Sustainability Science
- 2017 Cambridge Press, Review of text book manuscript for *Sustainable Engineering*
- 2012 International Journal of Sustainable Transportation
- 2005 Annals of the American Association of Geographers
- 2004 Urban Studies: An International Journal for Research in Urban and Regional Studies.

PRIOR APPOINTMENTS & PROFESSIONAL EXPERIENCE

- 2010-2015 *Adjunct Assistant Professor (Practice)*
University of Southern California
Spatial Sciences Institute
Responsible for co-development and ongoing management of an introductory course for the thesis component of the M.S. degree in Geographic Information Science and Technology (GIST).
- 2008-2014 *Vice President of Research*
Clean Agency, Inc.
Led the research program for sustainability consulting for the firm. The practice focused on sustainability of consumer products, including life cycle assessment and eco-design of products and packaging. Major corporate clients included Nestlé, Mattel, and Disney.
- 2003-2010 *Research Assistant Professor of Geography*
University of Southern California
Department of Geography and Center for Sustainable Cities
Responsible for coordinating industrial ecology research and managing the summer undergraduate fellowship program. Activities included advising multi-disciplinary student collaborative projects, seeking external funding, and conducting research.

- 2006-2008 *Sustainable Enterprise Executive Roundtable (SEER), Faculty Team Member*
University of Southern California
Center for Sustainable Cities
 Responsible for design, concept and coordination for regional sustainability projects for participating firms, including Disney, Mattel, Port of LA, YTI/NYK (Ocean Carriers), Volvo, CDM, and Waste Management International.
- 2005 *Project Manager for “Meeting the Sustainability Challenge: Executive Education”*
University of Southern California
Center for Sustainable Cities
 Responsible for designing the curriculum and instructional materials, recruiting the faculty for the program, and coordinating for marketing and logistics.
- 2000-02 *Post-Doctoral Research Associate*
University of Southern California
Center for Sustainable Cities/Sustainable Cities Program
- 1998-99 *Haynes Foundation Fellow*
Town Hall Los Angeles (a public policy forum)
 Duties included administering a curriculum enrichment program for high school students, editing the Town Hall Journal, and producing a weekly radio program.
- 1994-95 *Research Associate*
University of Southern California
Department of Geography
 Researcher on National Science Foundation Project, "The Role of Race and Class in Exposure to Environmental Hazards." L. Pulido, PI.
- 1992 *Student Professional Worker*
The City of Los Angeles
 Integrated Solid Waste Management Office; duties included researching and writing policy for the implementation of California's state recycling legislation (A.B. 939).
- 1989-92 *Governing Board Member, USC Norman Topping Student Aid Fund*

PATENTS

U.S. Patent Application Pending. May 2012. “Smart Packaging Initiative Scoring System.” Co-Inventor with Mazzocco, L. and Del Maestro, C. Docket No.: 0260345. Assignee: Disney Enterprises, Inc.

MEDIA

- 1993 Guest Appearance on KPFK radio, 90.7 FM Los Angeles; "Science and the Citizen" call-in program; interviewed about the influence of the incoming Clinton Administration on policymaking at the U.S. EPA, October.
- 2002 Interview on German Public Radio. Comments on the Bush Administration's EPA Global Climate Change Report, June.
- 2003 Interview on Swedish Public Radio. Comments on the appointment of Mike Leavitt as the Administrator of the Environmental Protection Agency.

OUTSIDE INTERESTS

Concert Cellist

Past performing highlights include:

- Second Prize, American String Teachers Association, National Solo Competition (1994)
- Member of the New World Symphony with Michael Tilson Thomas (music director)
- Participation in leading summer music festivals and international tours

Currently performing as section cellist with the Pacific Symphony, the third largest orchestra in California, based at the Segerstrom Center for the Performing Arts in Orange County, CA.

Training and experience in private cello teaching

Hiking and nature photography