

CURRICULUM VITAE

Lawrence H. Goulder

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PRESENT POSITIONS

Shuzo Nishihara Professor of Environmental and Resource Economics, Stanford University
Director, Stanford Environmental and Energy Policy Analysis Center
Senior Fellow, Stanford Institute for Economic Policy Research
Senior Fellow, Precourt Institute for Energy

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EDUCATION

Harvard College, A.B. (Philosophy), 1973
Ecole Normale de Musique de Paris (Music Composition), 1974
Stanford University, Ph.D. (Economics), 1982

PAST POSITIONS

Senior Fellow, Freeman-Spogli Institute for International Studies, 1986-2006.
Associate Professor, Department of Economics, Stanford University, 1992-2001; Visiting
Associate Professor, 1989-1992; Instructor, 1980-82.
Visiting Senior Fellow, Resources for the Future, Washington, DC, 1999-2000.
Associate Professor, Department of Economics, Harvard University, 1986-1989; Assistant
Professor, 1982-1986.

RESEARCH AFFILIATIONS

Chair, Scientific Committee, Chaire Économie du Climat (Center for Climate Economics),
2015-2017.
Member, Editorial Board, *Climate Change Economics*, July 2009-present.
Member, Editorial Board, *Review of Environmental Economics and Policy*, January 2006-
present.
Member, California Air Resources Board AB 32 Scoping Plan Advisory Committee, May
2013-16.
Research Associate, National Bureau of Economic Research, 1997-present.
University Fellow, Resources for the Future, 1993-present.
Member, Editorial Board, *Journal of Developing Areas*, October 2001-present.

Lead Author, Chapter 15 of Intergovernmental Panel on Climate Change *Fifth Assessment Report* Working Group III Chapter 15, April 2011-August 2014.

Chair, California Environmental Protection Agency Economic and Allocation Advisory Committee, June 2009-May 2010.

Vice-Chair, California Environmental Protection Agency Market Advisory Committee, December 2006-June 2007.

Member, Board of Directors, *Association of Environmental and Resource Economists*, December 2006-November 2009.

Co-Editor, *Journal of Environmental Economics and Management*, April 2005-July 2009.

Chair, Science Advisory Board Review Panel for Second Generation Climate Change Policy Model, U.S. Environmental Protection Agency, 2004-2006.

Member, Science Advisory Board Executive Committee, U.S. Environmental Protection Agency, 2004-2007.

Member, Science Advisory Board Environmental Economics Advisory Committee, U.S. Environmental Protection Agency, 1999-2002.

Lead Author, Intergovernmental Panel on Climate Change *Third Assessment Report* Working Group III Chapter 1, 1998-2000.

Member, Science Advisory Board Council on Clean Air Compliance Analysis, U.S. Environmental Protection Agency, 1997-2003.

Participant, Environmental Forum, Stanford University, 1990-2003.

Participant, Energy Modeling Forum, Stanford University, 1990-2006.

Affiliated Faculty, Energy and Environmental Policy Center, Harvard University, 1983-1986.

Economic Analyst, J. Richard Recht and Associates, Inc., Palo Alto, California, Summer 1977.

Economic Analyst, Federal Energy Administration Office of Exceptions and Appeals, Washington, D.C., 1974-75.

Member, American Economic Association, Association of Environmental and Resource Economists

AWARDS AND HONORS

“Publication of Enduring Quality” Prize, awarded at June 2014 World Congress of Environmental and Resource Economists. Awarded for “Optimal Environmental Taxation in the Presence of Other Taxes,” co-authored with Lans Bovenberg (page 9).

Named Fellow of the Association of Environmental and Resource Economists, July 2013.

University Fellow, Resources for the Future, October 1993-present.

Named Kennedy-Grossman Fellow in Human Biology, September 2004.

Teacher of the Year Award, Department of Economics, Stanford University, June 2002.

Named Shuzo Nishihara Chair in Environmental and Resource Economics, September 2001.

Erik Kempe Prize, awarded at June 1998 World Congress of Environmental and Resource Economists, for Best Environmental Economics Paper published in 1996 or 1997 involving an author affiliated with a European institution. Awarded for “Optimal Environmental Taxation in the Presence of Other Taxes,” co-authored with Lans Bovenberg (page 8).

Award for Best Paper, 50th Congress of the International Institute of Public Finance, Harvard University, Cambridge, MA, August 1994. Awarded February 1995 for “Environmental Taxation and the ‘Double Dividend’ ” (page 8).

Bing Award for Outstanding Teaching (university-wide award given annually to 10-12 professors), June 1994.

John Olin Research Fellow, Stanford University, March 1988-June 1988.
A.B. *cum laude* in Philosophy, Harvard College, June 1973.
Harvard College Scholarship Award, 1972.

GRANTS

Precourt Institute for Energy Grant, “Numerical Assessments of Environmental and Economic Impacts of China’s New Nationwide CO₂ Emissions Trading System.” Principal Investigator. October 2020 – September 2021.

Asia Society Research Grant, “Multi-Sector Modelling of China’s Nationwide Tradable Performance Standard.” Principal Investigator. August 2020 – July 2021.

Precourt Institute for Energy Grant, “Assessing the Interconnected Impacts of Power Sector Reform and Carbon Emissions Trading in China.” Principal Investigator. January-December 2019.

Energy Foundation–China Grant, “China’s Nationwide CO₂ Emissions Trading System: Options and Impacts.” Principal Investigator. January 2019 – December 2021.

Stanford Institute for Economic Policy Research Grant, “Identifying Effective Policies for Improving Air Quality in China.” Principal Investigator. October 2017-July 2018.

Energy Foundation Grant, “Achieving Effective Cap-and-Trade Programs To Reduce CO₂ Emissions in China,” Principal Investigator. December 2016-December 2018.

Natural Gas Initiative Grant, “Stanford Natural Gas Initiative Grant, “Natural Gas Supply and the Economy-Wide Impacts of U.S. Climate Change Policies.” Principal Investigator. September 2015-October 2017.

Hoover Institution Grant, “Assessing the Impacts of a Revenue-Neutral U.S. Carbon Tax.” Principal Investigator. July 2015-June 2016.

California Air Resources Board Grant, “Analysis of California AB 32 Scoping Plan.” Principal Investigator. July 2013-June 2014.

Resources for the Future Grant, “Tax Reform and Environmental Policy: Options for Recycling Revenue from a Tax on Carbon Dioxide.” Principal Investigator. April-June 2013.

Stanford Precourt Energy Efficiency Center Grant, “Evaluating Alternative Design Options for Federal Cap-and-Trade and Carbon Tax Policies.” Principal Investigator. October 2009-September 2010.

Stanford Precourt Institute for Energy Efficiency Grant, “Evaluating Design Options for Two U.S. Policies to Reduce Greenhouse Gas Emissions.” Principal Investigator. September 2008-August 2009.

Energy Foundation Grant, “General Equilibrium Evaluation of U.S. Cap-and-Policies under Alternative Emission Allowance Allocations.” Principal Investigator. July 2007-June 2009.

Hewlett Foundation Grant, “Evaluating U.S. Policies to Reduce Automobile-Related Gasoline Consumption and Pollution.” Principal Investigator. June 2005-May 2007.

Stanford Institute for the Environment Interdisciplinary Initiatives Grant, “An Interdisciplinary Assessment of an Agricultural-Urban Water Market in Southern India: Physical Impacts, and Welfare Consequences, and Policy Implications.” Co-Principal Investigator with Steven Gorelick, June 2005-May 2007.

National Science Foundation Research Grant, “Identifying Cost-Effective Environmental Policies That Address Distributional Concerns.” Principal Investigator. August 2001-July 2003.

- Hewlett Foundation Grant, “A Research Initiative on the Environment, the Economy, and Long-Run Welfare.” Co-Principal Investigator with Kenneth Arrow. August 2001-July 2004.
- Energy Foundation Grant, “Addressing the Distributional Impacts of Greenhouse Gas Controls,” June 2000-March 2001. Co-Principal Investigator with Richard Morgenstern and William Pizer of Resources for the Future.
- Pew Center on Global Climate Change Grant, “Climate Policy and Induced Technological Change.” Principal Investigator. August 1999-March 2001.
- National Science Foundation Research Grant, “Effective Environmental Policy in the Presence of Distorting Taxes.” Co-investigator with Ian Parry and Dallas Burtraw (co-PI’s). October 1996-September 1998.
- National Science Foundation Research Grant. Co-PI with Nebojsa Nakicenovic (co-PI) and William Nordhaus (co-PI and lead investigator). July 1995-June 1998.
- U.S. Department of Energy Research Grant, “Framework for Assessing Population-Environment-Technology Interactions in an Uncertain World.” PI with Paul Ehrlich, Donald Kennedy, and Stephen Schneider (co-investigators). October 1995-November 1998.
- National Science Foundation Research Grant, “Effects of Environmental Taxes in the Presence of Other Taxes.” PI. July 1993-June 1996.
- IBM Environmental Research Award, “Atmospheric Emissions and the Economy.” Co-PI with Alan Manne (co-PI), Roger Noll (co-PI and lead investigator), and Geoffrey Rothwell (co-PI). February 1993-September 1995.
- National Science Foundation Research Grant, “Dynamic Open-Economy Analysis of U.S. Capital Tax Policies.” PI. July 1990-June 1992.
- U.S. Department of Labor Bureau of International Labor Affairs Research Grant, “Dynamic General Equilibrium Analysis of U.S. Tax and Trade Policies.” Co-PI with Barry Eichengreen (co-PI). October 1986-September 1991.
- Pew Charitable Trusts Research Grant (sole PI), July 1989-June 1991.
- National Science Foundation Research Grant, “Dynamic General Equilibrium Analysis of U.S. Tax Reforms.” PI. July 1984-June 1986.

PUBLICATIONS

Journal Articles, Book Chapters, and Books:

[“The Audacious Dr. Nordhaus.”](#) *Climate Change Economics* 11(4), November 2020.

[“Timing Is Everything: How Economists Can Better Address the Urgency of Stronger Climate Policy.”](#) *Review of Environmental Economics and Policy* 14(1), Winter 2020.

[“Impacts of a U.S. Carbon Tax across Household Income Groups: What Are the Equity-Efficiency Trade-Offs?”](#) (with Marc A. C. Hafstead, GyuRim Kim, and Xianling Long), *Journal of Public Economics* 175, July 2019.

[“China’s Rate-Based Approach to Reducing Carbon Dioxide Emissions: Strengths, Limitations, and Alternatives”](#) (with Richard D. Morgenstern), *American Economic Review Papers and Proceedings*, May 2018.

- [“The Sensitivity of CO₂ Emissions under a Carbon Tax to Alternative Baseline Forecasts”](#) (with Yunguang Chen and Marc A. C. Hafstead), *Climate Change Economics* 9(1), February 2018.
- Confronting the Climate Challenge: U.S. Climate Policy Options* (with Marc A. C. Hafstead), Columbia University Press, December 2017.
- [“China’s National Carbon Dioxide Emissions Trading System: An Introduction”](#) (with Richard Morgenstern, Clayton Munnings, and Jeremy Schreifels), *Economics of Energy & Environmental Policy*, November 2017.
- China’s Nationwide Cap-and-Trade System to Address Climate Change*, a special issue of *Economics of Energy and Environmental Policy*, November 2017. Co-edited with Richard D. Morgenstern, Valerie Karplus, and Christian von Hirschhausen.
- [“General Equilibrium Impacts of a Federal Clean Energy Standard”](#) (with Marc A. C. Hafstead and Roberton C. Williams III), *American Economic Journal – Economic Policy*, May 2016.
- [“An Economic Perspective on the EPA’s Clean Power Plan”](#) (with Meredith Fowlie, Matthew Kotchen, Severin Borenstein, James Bushnell, Lucas Davis, Michael Greenstone, Charles Kolstad, Christopher Knittel, Robert Stavins, Michael Wara, Frank Wolak, and Catherine Wolfram), *Science*, November 14, 2014.
- [“Global Warming: Improve Economic Models of Climate Change”](#) (with Richard Revesz., Kenneth Arrow, Peter Howard, Robert Kopp, Michael Livermore, Michael Oppenheimer, and Thomas Sterner), *Nature*, April 4, 2014.
- [“Climate Change Policy’s Interactions with the Tax System.”](#) *Energy Economics* 40, December 2013.
- [“Carbon Taxes vs. Cap and Trade: A Critical Review”](#) (with Andrew Schein), *Climate Change Economics* 4(03), August 2013.
- [“Sustainability and the Measurement of Wealth: Further Reflections”](#) (with Kenneth Arrow, Partha Dasgupta, Kevin Mumford, and Kirsten Oleson), *Environment and Development Economics* 18(4), August 2013.
- [“Markets for Pollution Allowances: What Are the \(New\) Lessons?”](#) *Journal of Economic Perspectives* 27(1), Winter 2013.
- [“The Choice of Discount Rate for Climate Change Policy Evaluation”](#) (with Roberton C. Williams III), *Climate Change Economics* 3(4), November 2012.
- [“Interactions between State and Federal Climate Change Policies”](#) (with Robert N. Stavins), in Don Fullerton and Catherine Wolfram, eds., *The Design and Implementation of U.S. Climate Policy*, Cambridge: National Bureau of Economic Research, June 2012.

- [“Sustainability and the Measurement of Wealth”](#) (with Kenneth Arrow, Partha Dasgupta, Kevin Mumford, and Kirsten Oleson), *Environment and Development Economics* 17(3), June 2012.
- [“Unintended Consequences from Nested State & Federal Environmental Regulation: The Case of the Pavley Greenhouse-Gas-per-Mile Limits”](#) (with Mark R. Jacobsen and Arthur A. van Benthem), *Journal of Environmental Economics and Management* 63:187-207, March 2012.
- [“Challenges from State-Federal Interactions in U.S. Climate Change Policy”](#) (with Robert N. Stavins), *American Economic Review Papers and Proceedings*, May 2011.
- [“Interpreting and Estimating the Value of Ecosystem Services”](#) (with Donald Kennedy), in Gretchen Daily, Peter Kareiva, Taylor Ricketts, Heather Tallis, and Steven Polasky, eds., *Natural Capital: Theory & Practice of Mapping Ecosystem Services*. Oxford: Oxford University Press, 2011.
- [“Impacts of Alternative Emissions Allowance Allocation Methods under a Federal Cap-and-Trade Program”](#) (with Marc A. C. Hafstead and Michael Dworsky), *Journal of Environmental Economics and Management* 59, 2010.
- [“Sustainable Urban Water Supply in South India: Desalination, Efficiency Improvement, or Rainwater Harvesting?”](#) (with Veena Srinivasan and Steven Gorelick), *Water Resources Research* 46, 2010.
- [“China, the U.S., and Sustainability: Perspectives Based on Comprehensive Wealth”](#) (with Kenneth J. Arrow, Partha Dasgupta, Kevin Mumford, and Kirsten Oleson), in Geoffrey Heal, ed., *Is Economic Growth Sustainable?* Palgrave Macmillan, 2010.
- [“Distributional and Efficiency Impacts of Increased U.S. Gasoline Taxes”](#) (with Antonio M. Bento, Mark R. Jacobsen, and Roger H. von Haefen), *American Economic Review*, June 2009.
- [“Status Effects, Public Goods Provision, and Excess Burden”](#) (with Ronald Wendner), *Journal of Public Economics* 92, October 2008.
- [“The Economics of Climate Change”](#) (with William Pizer), in Lawrence Blume and Steven Durlauf, eds., *The New Palgrave Dictionary of Economics*, Palgrave MacMillan, Ltd., May 2008.
- [“Instrument Choice in Environmental Policy”](#) (with Ian W. H. Parry), *Review of Environmental Economics and Policy* 2(2), 2008.
- [“Costs of Alternative Environmental Policy Instruments in the Presence of Industry Compensation Requirements”](#) (with A. Lans Bovenberg and Mark R. Jacobsen), *Journal of Public Economics* 92, 2008.
- [“California’s Bold New Climate Policy.”](#) *The Economists’ Voice* 4(3), 2007.

- [“Is Current Consumption Excessive? A General Framework and Some Indications for the United States”](#) (with Paul. R. Ehrlich), *Conservation Biology* 21(5), September 2007.
- [“Benefit-Cost Analysis, Individual Differences, and Third Parties.”](#) *Research in Law and Economics* 23, 2007.
- [“Efficiency Costs of Meeting Industry-Distributional Constraints under Environmental Permits and Taxes”](#) (with A. Lans Bovenberg and Derek J. Gurney), *RAND Journal of Economics*, Winter 2005.
- “China’s Pollution Levy System: Theoretical Capabilities and Practical Challenges.” *Journal of Comparative Studies* 21, November 2005. (Published in Chinese.)
- “Efficiency and Distributional Impacts of Gasoline Taxes: An Econometrically Based Multi-Market Study” (with Antonio Bento, Emeric Henry, Mark Jacobsen, and Roger von Haefen), *American Economic Review Papers and Proceedings*, May 2005.
- “Are We Consuming Too Much?” (with Kenneth Arrow, Partha Dasgupta, Gretchen Daily, Paul Ehrlich, Geoffrey Heal, Simon Levin, Karl-Göran Maler, Stephen Schneider, David Starrett, and Brian Walker), *Journal of Economic Perspectives*, Summer 2004.
- “The Substantial Bias from Ignoring General Equilibrium Effects in Estimating Excess Burden, and a Practical Solution” (with Robertson C. Williams III), *Journal of Political Economy*, August 2003. Reprinted in Richard Zerbe and Daniel Evans, eds., *Benefit-Cost Analysis*. Chicago: University of Chicago Press, 2008.
- “Benefit-Cost Analysis and Climate-Change Policy,” in James M. Griffin, ed., *Global Climate Change: The Science, Economics and Politics*, Edward Elgar, 2003.
- “An Eye on the Future -- The Economists’ Practice of Discounting” (with Robert N. Stavins), *Nature* 17 October 2002. Reprinted in Robert N. Stavins, ed., *Economics of the Environment, Selected Readings*. New York: W. W. Norton, 2005.
- “International Approaches to Reducing Greenhouse Gas Emissions” (with Brian Nadreau), in Stephen Schneider, Armin Rosencrantz, and John O. Niles, eds., *Climate Change Policy: A Survey*, Island Press, 2002.
- Environmental Policy Making in Economies with Prior Tax Distortions*, Edward Elgar, 2002. (Volume of previously published papers, with newly written introduction.)
- “Environmental Taxation and Regulation” (with A. Lans Bovenberg), in A. Auerbach and M. Feldstein, eds., *Handbook of Public Economics*, volume 3, 2002.
- “Neutralizing the Adverse Industry Impacts of CO₂ Abatement Policies: What Does It Cost?” (with A. Lans Bovenberg), in C. Carraro and G. Metcalf, eds., *Behavioral and Distributional Effects of Environmental Policies*, University of Chicago Press, 2001.
- “Steps from Environmental Science to Effective Policy,” in Gary Ernst, ed., *Earth Systems: Processes and Issues*, Stanford University Press, April 2000.

- “Confronting the Prospect of Global Climate Change: Carbon Taxes and Other Domestic Policy Options,” in Gary Ernst, ed., *Earth Systems: Processes and Issues*, Stanford University Press, April 2000.
- “Valuing Nature” (with Donald Kennedy), in Gary Ernst, ed., *Earth Systems: Processes and Issues*, Stanford University Press, April 2000.
- “Optimal CO₂ Abatement in the Presence of Induced Technological Change” (with Koshy Mathai), *Journal of Environmental Economics and Management* 39(1):1-38, January 2000. Reprinted in Michael Hoel, ed., *Recent Developments in Environmental Economics*, Edward Elgar, 2004.
- “Knowledge and the Environment” (with Paul Ehrlich, Gary Wolff, Gretchen Daily, Jennifer Hughes, Scott Daily, and Michael Dalton), *Ecological Economics* 30(2):267-84.
- “Tax Interactions, Revenue Recycling, and the Efficiency Impacts of Pollution-Abatement Policies,” in A. Panagariya, P. Portney and R. Schwab, eds., *Essays in Honor of Wallace E. Oates*, 1999.
- “Induced Technological Change and the Attractiveness of CO₂ Emissions Abatement Policies” (with Stephen L. Schneider), *Resource and Energy Economics* 21:(211-253), 1999.
- “The Cost-Effectiveness of Alternative Instruments for Environmental Protection in a Second-Best Setting” (with Ian Parry, Robertson Williams III, and Dallas Burtraw), *Journal of Public Economics* 72(3):329-360, 1999. Reprinted in Michael Hoel, ed., *Recent Developments in Environmental Economics*, Edward Elgar, 2004.
- “Green Tax Reform: Theoretical Issues, Empirical Results, and Future Challenges,” in Runar Brännlund and Ing-Marie Gren, eds., *Green Taxes: Economic Theory and Empirical Evidence from Scandinavia*, Edward Elgar, 1999.
- “When Can CO₂ Abatement Policies Increase Welfare? The Fundamental Role of Pre-Existing Factor Market Distortions” (with Ian Parry and Robertson Williams III), *Journal of Environmental Economics and Management* 37:52-84, January 1999. Reprinted in T. Tietenberg, ed., *The Theory and Decisions of Emissions Trading Programs*, Ashgate, forthcoming.
- “Environmental Policy Making in a Second-Best Setting,” *Journal of Applied Economics* 1(2): 279-328, November 1998. Reprinted in Robert N. Stavins, ed., *Economics of the Environment, Selected Readings*. New York: W. W. Norton, 2005.
- “Revenue-Raising vs. Other Approaches to Environmental Protection: The Critical Significance of Pre-Existing Tax Distortions” (with Ian Parry and Dallas Burtraw), *RAND Journal of Economics*, Winter 1997.
- “Achieving Carbon Dioxide Emissions Reductions at Low Cost” (with Stephen H. Schneider), *Nature* 389, 4 September 1997.

- “Environmental Taxation in a Second-Best World,” in H. Folmer and T. Tietenberg, eds., *International Yearbook of Environmental and Resource Economics: A Survey of Current Issues*. Lyme, U.S.: Edward Elgar, 1997.
- “Ecosystem Services: Benefits Supplied to Human Societies by Natural Ecosystems” (with Gretchen C. Daily, Susan Alexander, Paul R. Ehrlich, Jane Lubchenco, Pamela A. Matson, Harold A. Mooney, Sandra Postel, Stephen H. Schneider, David Tilman, and George M. Woodwell), *Issues in Ecology* 2, Spring 1997.
- “Valuing Ecosystem Services: Philosophical Bases and Empirical Approaches” (with Donald Kennedy). In Gretchen Daily, ed., *Nature=s Services: Societal Dependence on Natural Ecosystems*, Island Press, 1997.
- “Costs of Environmentally Motivated Taxes in the Presence of Other Taxes: General Equilibrium Analyses” (with A. Lans Bovenberg), *National Tax Journal* 50(1), March 1997.
- “The Choice between Emission Taxes and Output Taxes in the Presence of Technological Uncertainty and Costly Monitoring of Emissions” (with Armin Schmutzler). *Journal of Environmental Economics and Management* 32, February 1997.
- “Assessing the International Spillover Effects of Capital Income Taxation” (with Philippe Thalmann and Francois Delorme). *International Tax and Public Finance*, October 1996.
- “Optimal Environmental Taxation in the Presence of Other Taxes: General Equilibrium Analyses” (with A. Lans Bovenberg), *American Economic Review* 86(4), September 1996. Reprinted in Michael Hoel, ed., *Recent Developments in Environmental Economics*, Edward Elgar, 2004.
- “The Efficiency Value of Carbon Tax Revenues” (with Robert Shackleton, Michael Shelby, Alex Cristofaro, Roger Brinner, Joyce Yanchar, Dale Jorgenson, Peter Wilcoxon, and Peter Pauly), in Darius Gaskins and John Weyant, eds., *Reducing Global Carbon Dioxide Emissions: Costs and Policy Options*, Stanford, CA: Stanford University Energy Modeling Forum, 1996.
- “Effects of Carbon Taxes in an Economy with Prior Tax Distortions: An Intertemporal General Equilibrium Analysis,” *Journal of Environmental Economics and Management*, October 1995.
- “Environmental Taxation and the ‘Double Dividend’: A Reader's Guide,” *International Tax and Public Finance* 2(2), August 1995.
- “Energy Taxes: Traditional Efficiency Effects and Environmental Implications,” in James M. Poterba, ed., *Tax Policy and the Economy* 8, Cambridge: MIT Press, June 1994.
- “Economic Implications of Preventing Global Climate Change,” in David D. Caron *et al.*, eds., *Ecological and Social Dimensions of Global Change*, Berkeley: Institute of International Studies, 1994.

- “Deficit Reduction through Energy, Income and Consumption Taxes: Effects on Economic Growth and the Environment,” in *Tax Policy for Economic Growth in the 1990s*, American Council for Capital Formation, Washington, D.C., March 1994.
- “Promoting Investment under International Capital Mobility: An Intertemporal General Equilibrium Analysis” (with A. Lans Bovenberg), *Scandinavian Journal of Economics*, June 1993.
- “Approaches to Efficient Capital Taxation: Leveling the Playing Field vs. Living by the Golden Rule” (with Philippe Thalmann), *Journal of Public Economics* 50, February 1993.
- “Population Growth, Economic Growth, and Market Economies” (with Paul R. Ehrlich and Gretchen C. Daily), *Contention*, Fall 1992.
- “Carbon Tax Design and U.S. Industry Performance,” in James M. Poterba, ed., *Tax Policy and the Economy* 6, Cambridge: MIT Press, May 1992.
- “Trade Liberalization in General Equilibrium: Intertemporal and Inter-Industry Effects” (with Barry Eichengreen), *Canadian Journal of Economics*, May 1992.
- “The Impact of Permanent and Temporary Import Surcharges on the U.S. Trade Deficit” (with Barry Eichengreen), in Robert E. Baldwin, ed., *Empirical Studies of Commercial Policy*, Chicago: University of Chicago Press, 1991.
- “Introducing Intertemporal and Open-Economy Features in Applied General Equilibrium Models” (with A. Lans Bovenberg), *De Economist* 139 (2), 1991.
- “Implications of Introducing U.S. Withholding Taxes on Foreigners' Interest Income,” in Lawrence H. Summers, ed., *Tax Policy and the Economy* 4, Cambridge: MIT Press, 1990.
- “Tax Policy, Asset Prices, and Growth: A General Equilibrium Analysis” (with Lawrence H. Summers), *Journal of Public Economics* 38, September 1989.
- “Savings Promotion, Investment Promotion, and International Competitiveness” (with Barry Eichengreen), in Robert M. Feenstra, ed., *Trade Policies for International Competitiveness*. Chicago: University of Chicago Press, 1989.
- “Tax Policy, Housing Prices, and Housing Investment,” *Regional Science and Urban Economics* 19 (2), May 1989.
- “The U.S. Basic Industries in the 1980s: Can Fiscal Policies Explain Their Changing Competitive Position?” (with Barry Eichengreen), in Stanley W. Black, ed., *Productivity Growth and the Competitiveness of the American Economy*. Boston: Kluwer Academic Publishers, 1989.
- “Consumption Taxes, Foresight, and Welfare: A Computable General Equilibrium Analysis” (with Charles L. Ballard), in J. Piggott and J. Whalley, eds., *New Developments in*

Applied General Equilibrium Analysis. Cambridge: Cambridge University Press, 1985.

“Decomposing the Impact of Higher Energy Prices on Long-Term Growth” with Antonio M. Borges), in H. Scarf and J. Shoven, eds., *Applied General Equilibrium Analysis*. Cambridge: Cambridge University Press, 1984.

“Expectations in Numerical General Equilibrium Models” (with Charles L. Ballard), in T. Basar and L.F. Pau, eds., *Dynamic Modelling and Control of National Economies 1983*. Oxford: Pergamon Press, Ltd., 1984.

“Domestic Tax Policy and the Foreign Sector: The Importance of Alternative Foreign Sector Specifications to Results from an Applied General Equilibrium Tax Model” (with John B. Shoven and John Whalley), in Martin Feldstein, ed., *Behavioral Simulation Methods in Tax Policy Analysis*. Chicago: University of Chicago Press, 1983.

Reviews, Comments and Replies:

“Comment on ‘On the Economics of a Carbon Tax for the United States,’ by Gilbert Metcalf,” in Janice Eberly and James H. Stock, eds., *Brookings Papers on Economic Activity*, Spring 2019.

“Consumption, Investment, and Future Well-Being: Reply to Daly *et al.*” (with Kenneth Arrow, Partha Dasgupta, Gretchen Daily, Paul Ehrlich, Geoffrey Heal, Simon Levin, Karl-Göran Maler, Stephen Schneider, David Starrett, and Brian Walker), *Conservation Biology* 21(5), September 2007.

“Comment on ‘On the (Ir)Relevance of Distribution and Labor Supply Distortion to Government Policy,’ by Louis Kaplow” (with Ian W. H. Parry and Roberton C. Williams III), *Journal of Economic Perspectives* 19(4), Fall 2005.

Review of Martin Feldstein, ed., *The Effects of Taxation on Capital Accumulation*, *Journal of Economic Literature* 26 (3), December 1988.

Op-Eds:

“New Emissions Targets Make Cap and Trade the Best Climate Policy Approach” (with Robert N. Stavins), *Sacramento Bee*, October 30, 2016.

“Environmental Justice and California Climate Policy” (with Robert N. Stavins), *Sacramento Bee*, March 16, 2008.

“Time to Get Serious About Traffic,” *San Francisco Chronicle*, January 22, 1999.

Reports and Policy Briefs:

- “Macroeconomic Analysis of Federal Carbon Taxes (with Marc Hafstead, Raymond J. Kopp, and Roberton C. Williams III), Resources for the Future Policy Brief No. 16-06, June 2016.
- “Profit Impacts of Allowance Allocation under the American Clean Energy and Security (ACES) Act (with Marc Hafstead and Michael Dworsky), Stanford University, September 2009.
- “How Would a Federal Cap-and-Trade Climate Policy Affect Profits and GDP?” (with Marc Hafstead and Michael Dworsky), Stanford Institute for Economic Policy Research *Policy Brief*, August 2009.
- “Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California,” report of the Market Advisory Committee to the California Air Resources Board, June 2007.
- “California’s Bold New Climate Policy: The Challenges Ahead.” Stanford Institute for Economic Policy Research *Policy Brief*, November 2006.
- “Lessons for a Cap-and-Trade Program” (with Dallas Burtraw, Alexander Farrell, and Carla Peterman), Chapter 5 in *The Potential Economic Costs and Benefits of Climate Change Policy in California*, report to State of California Climate Action Team, December 2005.
- “Evaluating Public Goods and Regulations” (comment on Louis Kaplow, “On the (Ir)Relevance of Distribution and Labor Supply Distortion to Government Policy” -- with Ian Parry and Roberton Williams III), *Journal of Economic Perspectives*, Fall 2005.
- “Induced Technological Change and Climate Policy,” Report prepared for the Pew Center on Global Climate Change, October 2004.
- “U.S. Global Climate Change Policy: The Bush Administration’s Plan and Beyond.” Stanford Institute for Economic Policy Research *Policy Brief*, February 2002.
- “Confronting the Adverse Industry Impacts of CO₂ Abatement Policies: What Does It Cost?” Resources for the Future *Issues Brief*, September 2000.
- “The Goulder Model: Structure and Simulation Results,” in Darius Gaskins and John Weyant, eds., *Reducing Global Carbon Dioxide Emissions: Costs and Policy Options*, Stanford, CA: Stanford University Energy Modeling Forum, 1996.
- “Using Carbon Charges to Combat Global Climate Change,” in Robert N. Stavins, ed., *Project 88 -- Round II, Incentives for Action: Implementing Market-Based Environmental Policies and Programs*, public policy study sponsored by Senators Timothy Wirth and John Heinz, May 1991.

WORKING PAPERS

“China’s Unconventional Nationwide CO₂ Emissions Trading System: The Wide-Ranging Impacts of an Implicit Output Subsidy” (with Xianling Long, Jieyi Lu, and Richard D. Morgenstern). Working paper, Stanford University, November 2019.

“Promoting Accurate Television Reporting: What Role for the Federal Communications Commission?” (with Delaney Overton). Working paper, Stanford University, August 2019.

TEACHING, SEMINAR-DIRECTION, AND ADVISING

(graduate courses marked with asterisks)

Teaching at Stanford University, 1989-present:

Economics 155: Natural Resource and Environmental Economics. 1992-present

Economics 159: Economic, Legal and Political Analysis of Climate-Change Policy (co-taught with Michael Wara), 2015.

* Economics 250: Environmental Economics, 2006-present

* Economics 251: Natural Resource and Energy Economics, 2005-2010.

Human Biology 4B: Health and Environmental Policy. 1998, 2003-present.

* Economics 243: Natural Resource and Environmental Economics. 1992-2004, 2007

* Management Science and Engineering 243: Energy and Environmental Policy Analysis (co-taught with James Sweeney), 2003-present

Stanford-in-Washington Seminar in Environmental Policy Analysis and Policy Making, 2000

Interschool Honors Seminar in Environmental Science, Technology, and Policy (co-taught with Donald Kennedy, Rosamond Naylor, and Stephen Schneider), 1992-1998.

* Economics 242: Public Finance. 1992-1993.

Economics 141: Public Finance. 1992.

Economics 101: Economic Policy Analysis (with focus on environmental economics and policy), Stanford University, 1989-1991.

Workshop Direction:

Co-Organizer, Workshop in Public and Environmental Economics, 2005-2008, 2010-present.

Co-Organizer, SEEPAC Lunch in Environmental and Energy Economics, 2009-present.

Co-Organizer, National Bureau of Economic Research Summer Institute Session on Environmental and Energy Economics, Cambridge, Mass., 1998-2004, 2006, 2008, 2010, 2012, 2016

Co-Organizer, Applied Microeconomics Workshop, 2009.

Organizer, Workshop in Environmental and Natural Resource Economics (for graduate students and faculty, 1992-2005).

Advising:

- academic advising to undergraduates in Department of Economics (average of 15 students per year).
- academic advising to undergraduates in Earth Systems Program (average of two students per year).
- thesis advising, undergraduates in Goldman Interdisciplinary Honors Program in Environmental Science, Technology, and Policy (average of one student per year).
- thesis advising, undergraduate majors in economics (average of one student per year).
- thesis advising, Ph.D. students in economics (average of two students per year).
- thesis advising, Ph.D. students in Engineering-Economic-Systems and Operations Research (average of one student per year).

Other:

- Chair, Department of Economics, September 2008 – August 2011.
- Teaching Coordinator, Department of Economics, September 2007- August 2008.
- Director of Undergraduate Studies, Department of Economics, September 1998 - August 1999, September 2000-August 2002.

OTHER UNIVERSITY SERVICE

- Executive Committee, Precourt Institute for Energy, Fall 2009-present
- Executive Committee, Human Biology Program, October 2001-2012 (chair of Committee, October 2005-August 2012)
- University Appointments and Promotions Committee, September 2008-August 2011
- Executive Committee, Freeman-Spogli Institute for International Studies, Stanford University, 1992-2007
- Advisory Committee, Earth Systems Program, Stanford University, 1992-2006
- Humanities and Sciences Curriculum Committee, 2001-2003, 2006
- Stanford Institute for the Environment Faculty Leadership Committee, 2004-2006
- Steering Committee, Goldman Interschool Honors Seminar in Environmental Science, Technology, and Policy, 1992-2004
- University Provost's Committee on Environmental Science, Technology and Policy, 1995-1999; 2002-2003
- University Advisory Committee on Investment Responsibility, October -December 2001
- Freshman Adviser to seven undergraduates, academic year 1994-95