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**Margaret Insley**  
Department of Economics  
University of Waterloo  
Waterloo, Ontario, Canada N2L 3G1  
[margaret.insley@uwaterloo.ca](mailto:margaret.insley@uwaterloo.ca)

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## Education

- 1997      **Ph.D. (Economics)**, University of Guelph, Guelph, Ontario.  
Thesis Title: "The Economics of Efficient Information Acquisition for Environmental Policy Making: Sequential Decisions Under Uncertainty"
- 1990      **CFA (Chartered Financial Analyst)**  
Association for Investment Management and Research  
Charlottesville, Virginia
- 1983      **M.A. (Economics)**, University of Alberta, Edmonton, Alberta, Canada  
Thesis Title: "Resource Rents and the Potential for Diversification of a Small Regional Economy: The Case of Alberta"
- 1979      **B.A. (Economics)**, University of Calgary, Calgary, Alberta, Canada

## Experience

- July 2011 – June 2019      **Chair**, Department of Economics, University of Waterloo
- January 2010-  
July 2011      **Associate Chair**, Graduate Studies, Department of Economics,  
University of Waterloo
- July 2008 –  
present      **Associate Professor**, Department of Economics, University of  
Waterloo,  
Waterloo, Ontario
- July 2002 –  
June 2008      **Assistant Professor**, Department of Economics, University of  
Waterloo,  
Waterloo, Ontario

2001- 2002	<b>Research Associate</b> , Department of Agricultural Economics and Business, University of Guelph, Guelph, Ontario
2000-2001	<b>Principal</b> , Forsyth Consulting, Waterloo, Ontario
1998-2000	<b>Assistant Professor</b> , Department of Economics, Wilfrid Laurier University, Waterloo, Ontario. Definite term appointment
1997-1998	<b>Assistant Professor</b> , Department of Economics, University of Waterloo, Waterloo, Ontario. Definite term appointment.
1996-1997	<b>Lecturer</b> , School of Business and Economics, Wilfrid Laurier, University, Waterloo, Ontario
	<b>Lecturer</b> , Department of Economics, University of Guelph, Guelph, Ontario
1990 - 1992	<b>Lecturer</b> , School of Business and Economics, Wilfrid Laurier University, Waterloo, Ontario.
1988 – 1990	<b>Consulting Economist</b> to Brent Friedenbergs Associates Ltd
1981-1987	<b>Economist</b> , Nova Corporation, Calgary, Alberta

## Courses Taught

### Undergraduate

- Natural resource economics (second and third year courses)
- Macroeconomic Theory (second year)
- International Finance (third year)
- Environmental Economics (third year)
- Cost-benefit analysis: (third year)

### Graduate

- Real options and investment under uncertainty
- Natural resource economics

## Short Courses

Real options and finance: optimal stochastic control formulation and solution techniques. Applications to natural resource economics, Seven hours of lectures, co-taught with Peter Forsyth. University of A Coruña, Coruna, Spain, September 2015.

## Research Interests

Natural resource economics, environmental economics, decision making under uncertainty, real options, stochastic optimal control, computational economics

## Research Grants

2016 – 2019

Global Risk Institute, “A multi-period mean-variance approach to risk and return in climate change policy,” \$120,000, Co-investigator is Peter Forsyth.

2009-2012

Social Sciences and Humanities Research Council of Canada (SSHRC), Canadian Environmental Issues, Special Call Research Grants, “Environmental Regulation of the Alberta Oil Sands.” \$124,200; Co-investigator is Alain-Désiré Nimubona.

2006/2006 – 2008/2009

Ontario Centre of Excellence (E-TECH), “Ramping Rate at Hydroelectric Dams, Knowledge and Tools for Balancing Aquatic Ecology, Power Generation, and Economics”, \$48,000, which includes \$30,000 contributed by industry partners; Principle Investigator: Michael Power, Department of Biology, University of Waterloo.

2004/05 – 2007/08

Social Sciences and Humanities Research Council of Canada (SSHRC), Standard Research Grant, Total value \$103,500. Research program: Natural resource regulation under uncertainty: a real options approach.

2002-2005

Collaborator on a grant from the Sustainable Forest Management Network (A Network Centre of Excellence based at the University of Alberta, Edmonton Alberta, <http://sfm-1.biology.ualberta.ca/english/home/>) to fund a research project entitled “Risk Management for Sustainable Forestry”. Approximately \$45,000 per year.

## Articles published in refereed journals

1. Yichun Huang and Margaret Insley. "[The impact of water conservation regulations on mining firms: A stochastic control approach](https://doi.org/10.1016/j.wre.2021.100185)", *Water Resources and Economics*, August 2021, <https://doi.org/10.1016/j.wre.2021.100185>
2. Sara Aghakazemjourabaf and Margaret Insley, "[Leaving your tailings behind: Environmental bonds, bankruptcy and waste cleanup](#)", *Resource and Energy Economics*, 65, August 2021.
3. Margaret Insley, Tracy Snoddon, and Peter Forsyth, "Strategic interactions and uncertainty in decisions to curb greenhouse gas emissions", forthcoming in *Frontiers of Economics in China, Special issue on the Frontiers of Environmental Economics*.
4. Margaret Insley and Peter Forsyth, "Climate games: Who's on first? What's on second?" *Actualité économique*, vol. 95, no 2-3, 2019, Special issue in memory of Pierre Lasserre. <https://expertise.hec.ca/actualiteeconomique/>
5. Margaret Insley, "Resource extraction with a carbon tax and regime switching prices: Exercising your options," *Energy Economics*, 67, 1-16, 2017.
6. Shilei Niu and Margaret Insley, "An options pricing approach to ramping rate restrictions at hydro power plants," *Journal of Economic Dynamics and Control*, 63, 25-52, 2016.
7. Abdullah Almansour and Margaret Insley, "The impact of stochastic extraction cost on the value of an exhaustible resource: An application to the Alberta oils sands," *Energy Journal*, 37(2), 2016.
8. Shilei Niu and M. Insley, "On the economics of ramping rate restrictions at hydro power plants: Balancing profitability and environmental costs," *Energy Economics*, 39, 39-52, September 2013.
9. S. Chen and M. Insley, "Regime switching in stochastic models of commodity prices: An application to an optimal tree harvesting problem," *Journal of Economic Dynamics and Control*, 36(2), 201-219, February 2012.
10. M. Insley and T. Wirjanto, "Contrasting two approaches in real options valuation: contingent claims versus dynamic programming," *Journal of Forest Economics*, 16(2), 157-176, April 2010.

11. M. Insley and M. Lei, "Hedges and trees: incorporating fire risk into optimal decisions in forestry using a no-arbitrage approach," *Journal of Agricultural and Resource Economics*, 32(3): 492-514, December 2007.
12. M. Insley and K. Rollins, "On solving the multi-rotational timber harvesting problem with stochastic prices: a linear complementarity approach," *American Journal of Agricultural Economics*, **87**(3), 735-755, 2005.
13. M. Insley, "On the option to invest in pollution control under a regime of tradable emissions allowances," *Canadian Journal of Economics*, **36**(4), 860-883, 2003.
14. M. Insley, "A Real Options Approach to the Valuation of a Forestry Investment," *Journal of Environmental Economics and Management*, **44**, 471-492, 2002.
15. M. Forsyth (now Insley), "On the Option Value of Preserving a Wilderness Area," *Canadian Journal of Economics*, **33**(2), 413-434, May 2000.
16. M. Forsyth (now Insley), "The Economics of Site Investigation for Groundwater Protection: Sequential Decision-Making under Uncertainty," *Journal of Environmental Economics and Management*, **34**(1), pages 1-31, Sept. 1997.
17. M. Forsyth (now Insley) and J. Van Leeuwan, "Making Trade-offs for Agroecosystem Health," *Ecosystem Health*, **3**, (2), 82-93, June, 1997.
18. K. Rollins, M. Forsyth (now Insley), S. Bonti-Ankomah, B. Amoah, "A Financial Analysis of a White Pine Improvement Cut in Ontario," *Forestry Chronicle*, **71**, no. 4, pages 466-472 (1995).

## Recent conference presentations

"Conditional value at risk for decision-making under uncertainty" presented at:

- American Environmental and Resource Economics Workshop, Virtual conference held June 3-5, 2020

"Climate Change and Conditional Value at Risk" presented at:

- Montreal Environmental and Resource Economics Workshop, November 2019

"Climate Games: Who's on first? What's on second?" presented at:

- Canadian Economics Association Annual Conference, June 2019, Banff, Alberta.
- European Association of Environmental and Resource Economists 24<sup>th</sup> Annual Conference, June 2019, Manchester, U.K.
- International Conference on Computational Finance 2019, A Coruna, Spain, July 2019.

“Strategic interactions and uncertainty in decisions to curb greenhouse gas emissions” presented at:

- Shanghai University of Finance and Economics, Conference on “Frontiers of environmental and resource economics”, December 9 – 10, 2019.
- Canadian Economics Association Annual Conference, June 2018, Montreal, Canada.
- World Congress of Environmental and Resource Economists, June 2018, Gothenburg, Sweden.
- 14<sup>th</sup> Viennese Conference on Optimal Control and Dynamic Games, Vienna University of Technology, July 2018, Vienna, Austria.

“Timing of climate change policies: a differential game under uncertainty” presented:

- Montreal Workshop in Environmental and Resource Economics in Memory of Pierre Lasserre, October 2017, Montreal, Canada.
- European Association of Environmental and Resource Economists, Annual Conference, June 2017, Athens, Greece.

## Graduate Student Supervision

- **PhD**
  - Yichun Huang, 2020
  - Sara Aghakazemjourabbaf, 2019
  - Shilei Niu, 2014, co-supervisor with Dr. Tony Wirjanto
  - Abdullah Almansour, 2012, co-supervisor with Dr. Tony Wirjanto
  - Shan Chen, 2010, co-supervisor with Dr. Tony Wirjanto
  - Shirra Freeman, 2010, University of Haifa, Department of Geography and Environmental Studies, co-supervisor with Dr. Deborah Shmueli
- **Ongoing PhD supervision**
  - Xinyuan Yang
- **PhD Examining Committees**
  - Greg Galay, 2017, University of Guelph

- Mauricio Zelaya, 2014, Supervisors: Joel Blit and Anindya Sen
- Chao Qiu, Actuarial Science, External Examiner, January 2013
- Soonyoung Yu, Department of Earth and Environmental Science, University of Waterloo, 2009
- Qian Wang, Systems Design Engineering, University of Waterloo, 2011
- Skander Ben Abdallah, Department of Economics, Université du Québec à Montréal (UQAM), 2009

- **Masters**

- Ghazal Memartoluie, 2010, MA
- Sara Rohany Tabatabaei, 2010, MA
- Sarah McFalls, 2009, MA
- Bryan Icyk, 2006, MSc in Faculty of Environmental Studies, co-advising with Dr Ian Rolands
- Mehdi Beyhaghi, 2006, MA
- Ninga Liao, 2005, MA
- Narisa Jotiban, 2003, MA