

ROY JENSEN

www.consol.ca
rjensen@consol.ca

CURRICULUM VITAE

119 Glencoe Boulevard
Sherwood Park AB T8A 5J5
780.224.4241

PERSONAL INFORMATION

Citizenship: Canadian

Current position: Assistant Professor of Chemistry at Grant MacEwan University, Edmonton

Interests: camping, hiking, boating, soccer, swimming, squash, martial arts, ...

EDUCATION

- 1998 – 2003 **Doctorate of Philosophy** degree in physical chemistry with Dr. Walter Balfour at the University of Victoria. I investigated the vibrational manifolds of rhodium oxide and the thermal dissociation of halogen azides [an independent project] with ab initio programs. Thesis: “Intramolecular interactions in rhodium monoxide and halogen azides”
- 1995 – 1999 **Master of Science** degree in physical chemistry with Dr. Robert Coombe at the University of Denver. I investigated the photolytically induced thermal decomposition of chlorine azide. Thesis: “Chain decomposition of chlorine azide”
- 1992 – 1995 **Bachelor of Science (with distinction)** degree in chemistry from the University of Victoria. Senior thesis with Dr. Charles Qian: “Electronic spectroscopy of rhodium carbide: the C–X transition near 466 nm”
- 1990 – 1993 **General Science** diploma from Camosun College, Victoria, BC.

ACADEMIC APPOINTMENTS (see Teaching Dossier for details on courses and curriculum development)

- 2010 – present **ASSISTANT PROFESSOR** teaching general and physical chemistry.
Chemistry, Grant MacEwan University, Edmonton, AB
- 2003 – 2010 **INSTRUCTOR** teaching general and physical chemistry.
Chemistry, Grant MacEwan University, Edmonton, AB
- 2001 – 2003 **SESSIONAL INSTRUCTOR** teaching first-year chemistry.
Department of Chemistry and Geoscience, Camosun College, Victoria, BC
- 1998 – 2002 **LABORATORY INSTRUCTOR** teaching physical and analytical chemistry.
Department of Chemistry, University of Victoria
- 1998 **SESSIONAL INSTRUCTOR** teaching first-year chemistry.
Department of Chemistry, Red Rocks Community College, Red Rocks, CO
- 1995 – 1996 **LABORATORY INSTRUCTOR** teaching inorganic and analytical chemistry.
Department of Chemistry and Biochemistry, University of Denver
- 1995 – 2003 **CHEMISTRY TUTOR** for general, analytical, and physical chemistry.

ADMINISTRATIVE APPOINTMENTS

- 2006 – 2009 **FIRST-YEAR CHEMISTRY LABORATORY SUPERVISOR** in the Chemistry Department at Grant MacEwan University, Edmonton, AB.
- 2006 – present **PEER EVALUATOR** in the faculty evaluation program at Grant MacEwan University, Edmonton, AB.
- 2004 – present **LECTURE COORDINATOR** (unofficial) for first-year chemistry. I took the initiative to ensure the lecture instructors, especially the new instructors, were following the common curriculum in both timing and rigor.

INSTRUCTIONAL EXPERIENCE (summary)

The Teaching Dossier provides additional detail on my instructional experience.

My academic philosophy is to support and advocate for practices that serve the long-term best interests of students, faculty, the institution, and society. By providing students with the best possible education and best possible learning environment, graduates enter and continue in the workforce. Their distinguished service to their employer and to society builds the institution's reputation and ensures its' longevity.

Normally during graduate school, students teach laboratory courses in first-year chemistry and in their chosen sub-discipline (physical and analytical chemistry, in my case). Because of my interest in teaching, I requested and received permission to teach at the local college, where I would have the opportunity to teach both lecture and laboratory courses. While a graduate student, I taught at Red Rocks Community College in Colorado and at Camosun College in British Columbia.

At Grant MacEwan College, I predominantly taught first-year chemistry. To keep myself interested and learning, I focused on developing a detailed understanding of the material taught in first-year. This endeavor led to

- an interest in chemical pedagogy
- the development of a first-year chemistry textbook
- the documentation of inconsistencies in instructional material and identifying areas where pedagogical improvements could be made

I have been active on the first two bullets for several years. The textbook, *Exploring Chemistry*, is now over 1100 pages, incorporates many pedagogical strategies that I believe improves learning, and is available *free for personal use*. The latest draft of *Exploring Chemistry* can be downloaded from www.ExploringChemistry.com/ExploringChemistry.pdf

My interest in chemical education is further illustrated by the documents and programs I have prepared and freely distribute from www.consol.ca ([Education](#) link).

MacEwan was awarded university status in 2009. Since 2008, my time at MacEwan has focused on development of baccalaureate programs, degree courses, laboratory design, and equipment installation and commissioning. I led the development of several courses and assisted with the development of other courses so that a cohesive program was prepared.

RESEARCH EXPERIENCE

My undergraduate and graduate experience has provided me with research experience in gas phase kinetics, electronic spectroscopy, and computational chemistry.

While developing *Exploring Chemistry* and exploring chemical pedagogy, I uncovered inconsistencies in how concepts are presented and documented strategies to update and improve chemical pedagogy. Most of these were put aside to focus on textbook development. I have presented and hosted symposia on pedagogy and instructional material development.

RESEARCH INTERESTS (summary)

The Research Proposal provides additional detail on these research topics.

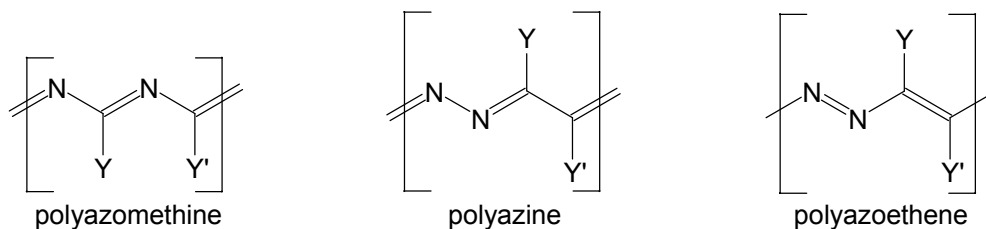
My time at Grant MacEwan University has introduced me to chemical pedagogy. My interest is to delve into pedagogical research. The scope of this pedagogical research encompasses first-year chemistry and physical chemistry. Goals of this research include

- exploring the academic and non-academic barriers faced by students transitioning from high school to post-secondary science courses and, working with government, teachers, and universities, develop and monitor strategies to minimize these barriers.
- developing self-consistent explanations for chemical phenomena that are simplistic enough to be understood by first-year students, that are sufficiently accurate to not introduce misconceptions, and that lead into more complex explanations in future courses.
- develop and modernize experiments so that the student experience mimics current research strategies applied to real-world systems — systems that the student can relate to. This includes introducing modern instrumentation, remote and automated sensing, computational chemistry, kinetic and thermodynamic modeling, and chemometrics into the curriculum.

I have collected a plethora of pedagogical projects suitable for undergraduate students.

Concurrent with this pedagogical work is continued efforts to educate the public of the importance and impact of chemistry in the real-world. This includes giving chemistry demonstrations for students and the public, having first-year students explore and present on chemistry in the real-world, and hosting discussion sessions with grade school and post-secondary instructors.

Another research interest lies in experimentally and computationally modeling of real world atmospheric, environmental, and combustion systems. One specific interest is the kinetics, thermodynamics, and product properties of azomethines, azines, azoethenes, and their polymers. They have not received significant scientific attention, with azomethines receiving the most. My interest is specifically focused on understanding the formation mechanism, stability, and reactivity with varying electron donating and withdrawing substituents, Y.



Of particular interest are highly oxygenated R groups. I hypothesize that electron donating functional groups will destabilize the reaction product and that highly oxygenated functional groups will decompose energetically. These energetic entities could have applications as environmentally friendly propellants, accelerants, and/or explosives, depending on the reaction rate.

Another research interest is remote sensing of atmospheric constituents. Currently, Raman LIDAR is used to detect and quantify atmospheric constituents, with the atmospheric entities determined by their Raman spectrum. Gas phase Raman has a low quantum efficiency. My proposal is to use a variable wavelength pulsed laser to induce laser-induced fluorescence. Features and benefits of this method include

- the increased fluorescence efficiency and total signal collection compensate for the pulsed operation
- the excitation wavelength identifies the chemical entity
- a spatial profile is obtained by timing the returning fluorescence

PERSONS SUPERVISED

- 2010 Co-supervised one undergraduate summer students assisting with the development of chemistry laboratory courses.
- 2010 Supervised and collaborated with five persons involved in *Exploring Chemistry* development.
- Sara van Veen (currently an education student @ Concordia) worked extensively on improving the Solution's Manual and is co-author of the Solution's Manual.
- Carter Wagner (currently a pharmacy student @ UofA) and Amber Thistle (currently a pharmacy student @ UofA) partially developed a chapter on pharmaceutical science.
- Kerriane Ibsen (currently a science student @ MacEwan) developed a chapter on food and nutrition science.
- Adam Gottlieb (chemistry instructor @ UVic) edited, reviewed, and provided technical suggestions on 15 chapters.
- 2010 Co-supervised two undergraduate summer students assisting with the development of chemistry laboratory courses.
- 2008 Supervised an undergraduate Professional Writing student editing a draft first-year chemistry textbook.

PUBLICATIONS AND PRESENTATIONS*Articles published in refereed journals*

Jensen, Roy H. "Thermal Dissociation of Halogen Azides" *in preparation*.

Li, R.; Jensen, R. H.; Balfour, W. J.; Sheppard, S. A.; Adam, A. G. "The first observation of the rhodium monofluoride molecule: jet cooled laser spectroscopic studies" *Journal of Chemical Physics*, **2004**, *121*, 2591.

Balfour, W. J.; Cao, J.; Jensen, R. H.; Li, R. "The spectrum of nickel monoxide between 410 and 510 nm: laser-induced fluorescence and dispersed fluorescence measurements" *Chemical Physics Letters*, **2004**, *385*, 239.

Jensen, Roy H.; Fougère, Scott J.; Balfour, Walter J. "Laser-induced fluorescence and dispersed fluorescence spectroscopy, isotopic studies, and lifetime measurements for rhodium monoxide" *Chemical Physics Letters*, **2003**, *370*, 106.

Ding, Chuan-Fan; Yu, Yongzhi; Jensen, Roy H.; Balfour, Walter J.; Qian, Charles X. W. "Transition metal-chlorine anions and cations: monomers, clusters, and periodic trends" *Chemical Physics Letters*, **2000**, *331*, 163.

Jensen, Roy H.; Mann, Aaron; Coombe, Robert D. "Energy transfer from $N_2(v)$ to ClN_3 and a kinetic model for the chain decomposition of chlorine azide" *Journal of Physical Chemistry A*, **2000**, *104*, 6573.

Articles published in non-refereed journals

—

Books and monographs

Jensen, Roy H., *Exploring Chemistry* (field test III) is an independently published first-year chemistry textbook for advanced students and science majors. The text consists of 20 core chapters plus chapters on the applications of chemistry in specialized fields (food science, forensic science, pharmaceutical science, etc.). **circulation: freely available online, 150 print copies**

Jensen, Roy H., *Exploring Chemistry* (field test II). **circulation: 300 copies**

Jensen, Roy H., *Exploring Chemistry* (field test I). **circulation: 180 copies**

Jensen, Roy H. "Intramolecular interactions in rhodium monoxide and halogen azides", Ph.D. dissertation, University of Victoria, **2003**.

Jensen, Roy H. "Applied statistics in chemistry", This document forms part of the analytical and physical laboratory manuals at the University of Victoria and a stand alone document available from www.consol.ca, **2002**.

Jensen, Roy H. "Rovibronic spectroscopy of singlet and triplet states of organic compounds: naphthalene and anthracene derivatives", Ph.D. candidacy report, University of Victoria, **2001**.

Jensen, Roy H. "Chain decomposition of chlorine azide: optimization for a new chlorine nitrene-iodine laser", M.Sc. thesis, University of Denver, **1999**.

Oral presentations

Jensen, R. H. “*Exploring Chemistry: a micropublishing success*”, Biennial Conference on Chemical Education (BCCE), University of North Texas, Denton, Texas, **August 2010**.

Jensen, R. H. “Computational chemistry first!”, Biennial Conference on Chemical Education (BCCE), University of North Texas, Denton, Texas, **August 2010**.

Jensen, R. H. “*Exploring Chemistry: A micropublishing success*”, Chemical Society of Canada Conference, Toronto, Ontario, **June 2010**.

Jensen, R. H.; Sheppard, M. “Alternate grading of student experimental results”, Chemical Society of Canada Conference, Toronto, Ontario, **June 2010**.

Jensen, Roy H. “Barriers to Post-Secondary Science: transitioning from high school”, Alberta Teachers Association, Science Council (ATASC) conference, Red Deer, Alberta, **November 2009**.

Jensen, Roy H. “Barriers to Post-Secondary Science: transitioning from high school”, invited presentation to the University of Alberta WISEST (Women in Science, Engineering, and Technology) students, University of Alberta, **August 2009**.

Jensen, Roy H. “Barriers to Post-Secondary Science: transitioning from high school”, invited presentation at the Alberta Biology and Chemistry Regionals conference, sponsored by Alberta Education, **May 2009**.

Jensen, Roy H. “Pedagogical Continuity: Minimizing learning barriers”, Greater Edmonton Teacher’s Convention Association (GETCA), **February 2009**.

Jensen, Roy H. “Leadership: doing what’s right and/or easy”, invited presentation to the MacEwan Student Ambassador Program, **February 2009**.

Jensen, Roy H. “Barriers to Post-Secondary Science: transitioning from high school”, invited presentation at the Science and Mathematics Education Students’ Association (SMESA) conference, University of Alberta, Alberta, **January 2009**.

Jensen, R. H. “Pedagogical Continuity: Minimizing learning barriers”, Alberta Teachers Association, Science Council (ATASC) conference, Calgary, Alberta, **November 2008**.

Jensen, R. H. “Pedagogical Continuity: Minimizing learning barriers”, Biennial Conference on Chemical Education (BCCE), Indiana University, Bloomington, Indiana, **July 2008**.

Jensen, R. H.; Sheppard, M. “Dynamic grading of student laboratory results”, Biennial Conference on Chemical Education (BCCE), Indiana University, Bloomington, Indiana, **July 2008**.

Jensen, R. H. “Pedagogical Continuity: Minimizing learning barriers”, College Chemistry Canada (C₃) conference, Edmonton, Alberta, **June 2008**.

Jensen, Roy H. “Pedagogical Continuity: Minimizing learning barriers”, invited presentation at the Science and Mathematics Education Students’ Association (SMESA) conference, University of Alberta, Alberta, **January 2008**.

Jensen, Roy H. “Chemical Explorations: discovery and understanding”, Opening plenary presentation at the Society for the Advancement of Gifted Education (SAGE) conference, Northern Alberta Institute of Technology (NAIT), Edmonton, Alberta, **November 2007**.

Jensen, Roy H. “Chemistry Exposition: careers in science”, Dream Catchers conference, Grant MacEwan University, Edmonton, Alberta, **October 2007**.

Jensen, Roy H. “Pedagogical Continuity: Minimizing learning barriers”, invited presentation at the Science and Mathematics Education Students’ Association (SMESA) conference, University of Alberta, Alberta, **January 2007**.

Jensen, Roy H. “Science Outreach: Scientists in the classroom”, invited presentation at the Science and Mathematics Education Students’ Association (SMESA) conference, University of Alberta, Alberta, **January 2007**.

Gelmini, Lucio; Jensen, Roy H. “Science Outreach: Scientists in the Classroom”, Annual Alberta Teachers Association Science Council (ATA SC) conference, Kananaskis, Alberta, **November 2006**.

Jensen, Roy H. “Pedagogical Continuity: Minimizing learning barriers”, Annual Alberta Teachers Association Science Council (ATA SC) conference, Kananaskis, Alberta, **November 2006**.

Jensen, Roy H. “Pedagogical Continuity: Minimizing learning barriers”, a presentation to invited science teachers (open invitation), Grant MacEwan University, **February 2006**.

Jensen, Roy H. “Pedagogical Continuity: Minimizing learning barriers”, Science Immersion Workshop (Edmonton Science Outreach Network), University of Alberta, **January 2006**.

Jensen, Roy H. “Pedagogical Continuity: Errant Topics in Chemistry”, Chemical Education 2005 Conference, University of British Columbia, **August 2005**.

Jensen, Roy H. “Chain decomposition of chlorine azide”, University of Denver, **1999**.

Jensen, Roy H.; Coombe, Robert D. “Chain decomposition of chlorine azide”, Photons and Chemistry Conference, held in Estes Park, Colorado, **1998**.

Jensen, Roy H. “HO_x formation by electric discharges — implications in stratospheric ozone depletion”, University of Denver, **1998**.

Jensen, Roy H.; Qian, Charles X. W.; Balfour, Walter J. “Electronic spectroscopy of rhodium carbide: the C–X transition near 466 nm”, Western Canada Undergraduate Conference, held at the University of Victoria, **1995**.

Poster presentations

Jensen, R. H.; Sheppard, M. “Dynamic grading of student laboratory results”, 35th College Chemistry Canada (C₃) conference, Edmonton, Alberta, **June 2008**.

Balfour, W. J.; Li, R.; Jensen, R. H.; Sheppard, S. A.; Adam, A. G. “The first observation of the rhodium monofluoride molecule: jet cooled laser spectroscopic studies”, 27th International Symposium on Free Radicals, held in Taipei, Taiwan, **2004**.

Jensen, Roy H. “Thermal dissociation of halogen azides”, Chemical Institute of Canada Conference, held in Vancouver, British Columbia, **2002**.

Jensen, Roy H.; Coombe, Robert D. “Chain decomposition of chlorine azide”, Sigma-Xi Conference, held in Denver, Colorado, **1998**.

Publications in the popular press

Jensen, Roy H. “MacEwan Evolution”, **April 2008**. MacEwan Faculty Forum.

Jensen, Roy H. “Education as a Business II: business models”, **April 2008**. MacEwan Faculty Forum.

Jensen, Roy H. “Education as a Business I: business models”, **February 2008**. MacEwan Faculty Forum.

Jensen, Roy H. “Administrative integrity at MacEwan”, **December 2008**. MacEwan Faculty Forum.

Jensen, Roy H. “Intellectual Property”, **October 2008**. MacEwan Faculty Forum.

Jensen, Roy H. “Novel, inexpensive, high efficiency dual water and space heating system”, **2008**. Published in Home Energy Magazine, Jan/Feb.

Jensen, Roy H. “Selected topics on governance”, **2002**. Published in StrataSphere, ISOA, and VISOA newsletters — organizations that assist condominium and townhome communities.

Jensen, Roy H. “Planning for the future: preparing a depreciation report”, **2001**. Published in CHOA, ISOA, and VISOA newsletters — organizations that assist condominium and townhome communities.

Other scientific activities

Science consultant to Bear Productions of Edmonton, Alberta for a television commercial filmed for The Medicine Shoppe.

SERVICE AND PROFESSIONAL AFFILIATIONS

Conferences and presentations organized

August 2010 Hosted three symposia — “Micropublishing”, “Strategies for Student Engagement in General Chemistry”, “Physical Chemistry: Applied, Interesting, and Relevant” — at the Biennial Conference on Chemical Education (BCCE), University of North Texas, Denton, Texas.

2008 – 2010 Hosted monthly presentations by the Northern Alberta Chapter of the Solar Energy Society of Canada.

June 2009 Hosted a conference of the Science Technicians of Alberta Schools.

July 2008 Hosted a symposium — “Publishing for Today’s Learner” — at the Biennial Conference in Chemical Education (BCCE) Biennial Conference on Chemical Education (BCCE), Indiana University, Bloomington, Indiana.

June 2008 Organized the third annual Alberta Chemistry Educators (ACE) meeting at MacEwan.

Committees

Grant MacEwan University

2009 – 2011 MacEwan Technology Committee
2009 MacEwan Faculty Evaluation Committee
2008 – 2010 MacEwan Faculty Development Committee
2008 – 2010 MacEwan Copyright Committee
2008 – 2010 Vice President Professional Affairs, MacEwan Faculty Association
2010 ASAC for a laboratory instructor
2009 ASAC for a laboratory supervisor
2009 ASAC for two laboratory instructors
2008 – 2009 MacEwan Faculty Evaluation Committee
2008 ASAC for an analytical instructor
2008 ASAC for a sabbatical replacement instructor
2007 – 2008 Vice Chair, Academic Council
2006 Member, Employee Recognition Selection Committee
2005 – 2006 MacEwan Faculty Evaluation Committee
2004 – 2007 Member, Academic Council
2004 – 2006 Member, Student Success Committee
Orientation and Student Support Strategies Subcommittee
Instructional Strategies Subcommittee
2004 Hiring Committee for an organic chemistry laboratory instructor
2004 Member, Ad Hoc Planning Committee (new science laboratory wing)
2003 – 2005 Member, Science Council

University of Victoria

2003 Member, University SARS Emergency Response Working Group
2000 – 2003 Member, University Health & Safety Committee
1999 – 2003 Chair, CUPE 4163 Health & Safety Committee
1999 – 2003 Member, Faculty of Science Teaching Advisory Committee

1998 – 2003 Executive Member, Canadian Union of Public Employees (CUPE) 4163

Professional memberships

2006 – present Member, Alberta Chemistry Educators (ACE)

2006 – present Member, Alberta Center for Research in Youth, Science Teaching and Learning (CRYSTAL-Alberta). Member of the Language in Science & Mathematics working group

2003 – present Member, International Union of Pure and Applied Chemistry (IUPAC)

1998 – present Member, Chemical Society for Canada

1998 – present Member, Chemical Institute of Canada

Other activities

2009 – present Hosted grade school students visiting MacEwan. I gave them a tour of the institution and coordinated them visiting two or three classrooms of their personal interest. Between 5 and 15 students visit per year, usually individually.

2007 – present Attended the annual Alberta Chemistry Educators (ACE) conference. I organized the hosting of this conference at MacEwan 2008.

2007 – present Arranging for external speakers to give public lectures at MacEwan on applications of science. Topics: Clandestine labs by RCMP Corporal Rick Goldstein.

2005 – present Developed and coordinated a chemistry outreach program where MacEwan chemistry instructors visit local grade schools. (This initiative has evolved to become a science outreach program within the Faculty of Arts and Science at Grant MacEwan University.)

2005 – present Visiting scientist with the MacEwan science outreach program.

2004 – present Curriculum consultant with Alberta Learning on chemical education and technical reviewer for chemistry 30 provincial exams.

1995 – present Involved in various programs to bring science to the public and schools.

2011 Laser Safety Officer (LSO) course completed through Laser Institute of America (LIA). Every institution must have an LSO to establish and ensure safe laser practices.

2008 – 2009 Working with the Northern Alberta chapter of the Solar Energy Society of Canada to host their monthly presentations at MacEwan.

2008 Attended the College Chemistry Canada (C₃) annual conference in Edmonton, Alberta.

2008 Attended the Chemistry Society of Canada (CSC) annual conference in Edmonton, Alberta.

- 2007 Reviewer for the Hazardous Materials section of www.inspect-ny.com, a building and environmental inspection company.
- 2007 Presenter at the Alberta Young Scientist Conference.
- 2007 Attended the national CRYSTAL conference at the University of Alberta.
- 2007 Attended the CRYSTAL-Alberta partner meeting at the University of Alberta.
- 1998 – 2003 Judge with the Vancouver Island Regional Science Fair.
- 1993 – 1995 Standard/Emergency first aid and CPR instructor.
- 1992 – 1995 Paramedic (EMA I) with BC Ambulance Service in Lake Cowichan, BC.

GRANTS, AWARDS, AND SCHOLARSHIPS

- 2010 Travel grant from the MacEwan Research Office, Grant MacEwan University. Value: 3035 \$
- 2010 Travel grant from the MacEwan Faculty Development Office, Grant MacEwan University. Value: 2000 \$
- 2008 Workload adjustment to engage in research from the Faculty of Arts and Science, Grant MacEwan University.
- 2008 Project grant from the Association of Alberta Colleges and Technical Institutes (AACTI); matching funds from the MacEwan Research Office. Value: 4000 \$
- 2008 Project grant from the MacEwan Research Office, Grant MacEwan University. Value: 1350 \$
- 2008 Travel grant from the MacEwan Research Office, Grant MacEwan University. Value: 500 \$
- 2007 Workload adjustment to engage in research from the Faculty of Arts and Science, Grant MacEwan University.
- 2007 Project grant from the Faculty of Arts and Science, Grant MacEwan University. Value: 230 \$
- 2006 Obtained funding to attend, with Dr. Lucio Gelmini, the Alberta Teachers Association Science Council conference in Kananaskis, Alberta from the Faculty of Arts and Science, Grant MacEwan University. Value: 650 \$
- 2006 Conference grant to attend the Great Teachers' Seminar in Banff, Alberta from the Faculty Development Office, Grant MacEwan University. Value: 1250 \$
- 2005 Travel grant from the Faculty of Arts and Science, Grant MacEwan University. Value: 1752 \$
- 2005 Travel grant from the Faculty Development Office, Grant MacEwan University. Value: 830 \$

- 2004 Travel grant from the Faculty of Arts and Science, Grant MacEwan University. Value: 850 \$
- 2004 Project grant from the Faculty of Arts and Science, Grant MacEwan University. Value: 4 000 \$
- 2003 Nominated for the President's Distinguished Service Team award at the University of Victoria.
- 2003 Andy Farquharson Teaching Award from the University of Victoria.
- 2002 Charles S. Humphrey Research Award from the University of Victoria. Value: 2 500 \$
- 2001 Lewis J. Clark Research Award from the University of Victoria. Value: 1 500 \$
- 2000 Petch Research Award from the University of Victoria. Value: 5 000 \$
- 2000 University of Victoria Research Fellowship from the University of Victoria. Value: 13 400 \$
- 1999 Dr. Julius Schleicher Graduate Scholarship from the University of Victoria. Value: 10 500 \$
- 1999 – 2003 Research grant from the Department of Chemistry, University of Victoria. Value: 10 000 \$ per year
- 1997 Visiting Scientist of the Year Award from Metropolitan State College, Denver Colorado.
- 1995 – 1998 University of Denver Graduate Scholarship from the University of Denver. Value: 16 200 \$ per year
- 1995 Colorado Graduate Fellowship from the University of Victoria. Value: 3 000 \$
- 1990 – 1994 Royal Canadian Legion Scholarship. Value: 1 000 \$ per year
- 1989 Duke of Edinburgh Gold Award from the Duke of Edinburgh, Prince Philip.

REFERENCES

References available upon request.