

**EDUCATION**

- 1998 – 2003     **Doctorate of Philosophy** degree in physical chemistry from the University of Victoria. Thesis: “Intramolecular interactions in rhodium monoxide and halogen azides”
- 1995 – 1999     **Master of Science** degree in physical chemistry from the University of Denver. Thesis: “Chain decomposition of chlorine azide”
- 1992 – 1995     **Bachelor of Science (with distinction)** degree in chemistry from the University of Victoria
- 1990 – 1993     **General Science** diploma from Camosun College, Victoria, BC.

**ACADEMIC APPOINTMENTS**

- 2012 – present     **LECTURER** in the Chemistry Department, University of Alberta, Edmonton, AB
- 2003 – 2012     **INSTRUCTOR** in the Chemistry Department, Grant MacEwan University, Edmonton, AB
- 2001 – 2003     **INSTRUCTOR** in the Department of Chemistry and Geoscience, Camosun College, Victoria, BC
- 1998 – 2002     **LABORATORY INSTRUCTOR** in the Chemistry Department, University of Victoria
- 1998             **INSTRUCTOR** in the Chemistry Department, Red Rocks Community College, Red Rocks, CO
- 1995 – 1996     **LABORATORY INSTRUCTOR** in the Department of Chemistry and Biochemistry, University of Denver

**ADMINISTRATIVE APPOINTMENTS**

- 2014 – present     **FACULTY ADVISOR** for student science clubs promoting science in schools: Science FUNdamentals, Let’s Talk Science, TeamUP Science.
- 2008 – 2010     **VICE PRESIDENT PROFESSIONAL AFFAIRS**, MacEwan Faculty Association
- 2006 – 2012     **PEER REVIEWER** in the peer evaluation and peer consultation programs at Grant MacEwan University, Edmonton, AB.
- 2006 – 2009     **LABORATORY SUPERVISOR** for first-year chemistry at Grant MacEwan University, Edmonton, AB. I supervised instructors and technicians, incorporated technology and real-world examples into the laboratory program, maintained the laboratory manual, and handled student questions and concerns.

2004 – 2011     **LECTURE COORDINATOR** for first-year chemistry at Grant MacEwan University. I mentored new instructors, facilitated discussions on curriculum, encouraged faculty to integrate real-world examples into their instruction, and met with instructors to ensure consistency in instruction and assessment.

### INSTRUCTIONAL EXPERIENCE (summary)

*My Teaching Dossier provides additional detail on my instructional experience.*

I have been teaching since 1995, and teaching full time since 2003. I have primarily taught the lecture and laboratory components of first-year chemistry and been both the first-year lecture coordinator and first-year laboratory supervisor.

As an instructor, I teach with a constructivist philosophy, building on the students existing knowledge and providing real-world examples to emphasize the importance of chemistry in society. I use an array of instructional strategies, endeavor to get students active and engaged in learning, and endeavor to move students along the path to becoming self-directed learners. Overall, I endeavored to establish an instructional environment where students are comfortable engaging and sharing in class.

To keep myself interested, engaged, and learning, I focused on exploring instructional strategies and developing a detailed understanding of the material. This endeavor led to

- an interest in chemical pedagogy
- the development of *Exploring Chemistry*, a first-year chemistry textbook (in draft)
- the development of *Communicating Science*, an introductory science communication book
- the revision of dated and inconsistent instructional material

From 2008 – 2011, I was involved with the development of a science baccalaureate program at MacEwan. This involved developing courses, designing multifunction research & teaching laboratories, and installing and commissioning scientific equipment.

### RESEARCH EXPERIENCE

My undergraduate and graduate experience has provided me with research experience in gas phase kinetics, spectroscopy, and computational chemistry. Working at a teaching-focused institution has shifted my scholarly interests to chemical pedagogy.

While developing *Exploring Chemistry*, I discovered inconsistencies in how concepts are presented and documented strategies to update and improve how these concepts could be taught. Several of these updates have been incorporated into *Exploring Chemistry* and have formed the basis for presentations at regional, national, and international conferences. Many others still need investigation and would be suitable projects for undergraduate students.

The scope and goals of my pedagogical scholarly interests include

- revising and updating instructional material based on current scientific understanding
- developing self-consistent explanations for chemical phenomena that are simplistic enough to be understood by first-year students, are sufficiently accurate to not introduce misconceptions, and lead into more complex explanations in future courses

- developing and modernizing laboratory experiments so that the student experience involves real-world examples and mimics modern laboratory practices
- applying computational chemistry and kinetic modeling to chemical systems with real world interests, and with a pedagogical focus
- exploring the barriers faced by students transitioning from high school to post-secondary science, understanding where students are on the path to being independent learners, and identifying a balance between traditional and non-traditional instruction that optimizes learning and moves students on the path to becoming independent learners

### **COLLABORATIONS**

- 2014 Amelia Keehn (University of Alberta) developed a chapter on pharmaceutical science for *Exploring Chemistry*.
- 2014 Stephanie Almond (Alberta Medical Examiners Office) developed a chapter on forensic science for *Exploring Chemistry*.
- 2012 – 2013 Ms. Sarah-Nelle Jackson (University of Alberta) and Erin Dul (University of Alberta) worked on the development of *Communicating Science*.
- 2010 Kerrienne Ibsen (Grant MacEwan University) developed a chapter on food and nutrition science for *Exploring Chemistry*.
- 2011 – 2012 John Nychka (University of Alberta) developed a chapter on materials science for *Exploring Chemistry*.
- 2010 – 2011 Adam Gottleib (University of Victoria) worked on the development of *Exploring Chemistry*.
- 2010 Sara van Veen (Concordia University College) worked extensively on the *Exploring Chemistry Solution's Manual* and is a co-author thereof.

### **PERSONS SUPERVISED**

- 2011 Co-supervised one student assisting with the development of chemistry laboratory courses.
- 2010 Co-supervised two students assisting with the development of chemistry laboratory courses.
- 2008 Supervised a Professional Writing student editing *Exploring Chemistry*.

**PUBLICATIONS AND PRESENTATIONS**

*Pedagogical publications are listed in my Teaching Dossier.*

***Articles published in refereed journals***

Jensen, R. H. "Temperature dependent van der Waals coefficients" <in preparation>, **2015**.

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

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, 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<sub>x</sub> 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*

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", 27<sup>th</sup> 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 2009**. 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 academic activities*

2012 – present    Examiner/proctor for the Alberta Solicitor General's office.

2008                Science consultant to Bear Productions of Edmonton, Alberta for a television commercial filmed for The Medicine Shoppe.

**SERVICE AND PROFESSIONAL AFFILIATIONS*****Conferences and symposia 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 and hosted the third annual Alberta Chemistry Educators (ACE) meeting at MacEwan.

***Committees*****University of Alberta**

2013 – present On2Campus Outreach Committee

**Grant MacEwan University**

- 2009 – 2011 Technology Committee
- 2008 – 2010 Faculty Evaluation Committee
- 2008 – 2010 Faculty Development Committee
- 2008 – 2010 Copyright Committee
- 2010 Appointment Committee for a laboratory instructor
- 2009 Appointment Committee for a laboratory supervisor
- 2009 Appointment Committee for two laboratory instructors
- 2008 Appointment Committee for an analytical instructor
- 2008 Appointment Committee for a sabbatical replacement instructor
- 2007 – 2008 Vice Chair, Academic Council
- 2006 Employee Recognition Selection Committee
- 2005 – 2006 Faculty Evaluation Committee
- 2004 – 2007 Academic Council

- 2004 – 2006     Student Success Committee  
                         Orientation and Student Support Strategies Subcommittee  
                         Instructional Strategies Subcommittee
- 2004             Appointment Committee for an organic chemistry laboratory instructor
- 2004             Planning Committee for a new science laboratory wing
- 2003 – 2005     Science Council

**University of Victoria**

- 2003             University SARS Emergency Response Working Group
- 2000 – 2003     University Health & Safety Committee
- 1999 – 2003     Chair, CUPE 4163 Health & Safety Committee
- 1999 – 2003     Faculty of Science Teaching Advisory Committee
- 1998 – 2003     Executive Member, Canadian Union of Public Employees (CUPE) 4163

***Professional memberships***

- 2006 – present     Alberta Chemistry Educators (ACE)
- 2003 – present     International Union of Pure and Applied Chemistry (IUPAC)
- 1998 – present     Chemical Society for Canada
- 1998 – present     Chemical Institute of Canada
- 2006 – 2011     Alberta Center for Research in Youth, Science Teaching and Learning (CRYSTAL-Alberta). Member of the Language in Science & Mathematics working group

***Other activities***

- 2010 – present     Taekwondo instructor with Valley Taekwondo, Sherwood Park.
- 2011             Laser Safety Officer (LSO) course completed through Laser Institute of America (LIA).
- 2009 – 2012     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.
- 2008 – 2009     Working with the Northern Alberta chapter of the Solar Energy Society of Canada to host monthly presentations at MacEwan.
- 2007 – 2012     Arranging for external speakers to give public lectures at MacEwan on applications of science.

- 2007 Reviewer for the Hazardous Materials section of [www.inspect-ny.com](http://www.inspect-ny.com), a building and environmental inspection company.
- 1993 – 1995 First aid and CPR instructor.
- 1992 – 1995 Paramedic (EMA I) with BC Ambulance Service in Lake Cowichan, BC.

**GRANTS, AWARDS, AND SCHOLARSHIPS**

- 2015 ΔX (Delta Chi) Teacher Excellence Appreciation award
- 2014 Funding to attend the International Conference on Chemical Education (ICCE) Biennial Conference on Chemical Education (BCCE). Value: 5400 \$
- 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 pedagogical scholarly activity from the Faculty of Arts and Science, Grant MacEwan College.
- 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 College. Value: 1350 \$
- 2008 Travel grant from the MacEwan Research Office, Grant MacEwan College. Value: 500 \$
- 2007 Workload adjustment to engage in research from the Faculty of Arts and Science, Grant MacEwan College.
- 2007 Project grant from the Faculty of Arts and Science, Grant MacEwan College. 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 College. Value: 1250 \$
- 2005 Travel grant from the Faculty of Arts and Science, Grant MacEwan College. Value: 1752 \$
- 2005 Travel grant from the Faculty Development Office, Grant MacEwan College. Value: 830 \$
- 2004 Travel grant from the Faculty of Arts and Science, Grant MacEwan College. Value: 850 \$



- 2004 Project grant from the Faculty of Arts and Science, Grant MacEwan College. Value: 4000 \$
- 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: 2500 \$
- 2001 Lewis J. Clark Research Award from the University of Victoria. Value: 1500 \$
- 2000 Petch Research Award from the University of Victoria. Value: 5000 \$
- 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: 3000 \$
- 1990 – 1994 Royal Canadian Legion Scholarship. Value: 1000 \$ per year
- 1989 Duke of Edinburgh Gold Award from the Duke of Edinburgh, Prince Philip.