



Jeremy N. Friedberg, HBSc, PhD

Education

- 1998 – 2003 University of Guelph, Department of Plant Agriculture - Ph.D. in Molecular Genetics & Biotechnology
- 1993 – 1998 University of Western Ontario, Faculty of Science - Honors HB.Sc. in molecular genetics (*with academic distinction*)
- 1994 – 1995 McGill University, Faculty of Science

Awards

2011	Honorable Mention: Interactive Media	International Science & Engineering Visualization Challenge. National Science Foundation & The Journal of Science.
2009	First Place - World Summit Award Interactive eScience	United Nations
	First Place: Interactive Media	International Science & Engineering Visualization Challenge. National Science Foundation & The Journal of Science.
	Silver Honour	Parents Choice Awards
2008	First Place: Interactive Media	International Science & Engineering Visualization Challenge. National Science Foundation & The Journal of Science.
2002	North American Alfalfa Improvement	North American Alfalfa Improvement Conference Award Conference
2001	NSERC PGSB	Canadian Federal Government
	Kasha Scientific Travel Award	University of Guelph
	Ontario Graduate Scholarship	Ontario Provincial Government
	University Graduate Scholarship	University of Guelph
2000	Ontario Graduate Scholarship in Science and Technology	Ontario Provincial Government
	University Graduate Scholarship	University of Guelph
1999	University Graduate Scholarship	University of Guelph



Curriculum Vitae

1998	McConkey Scholarship	University of Guelph
	Deans Honors List	University of Western Ontario

1997	Deans Honors List	University of Western Ontario
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RESEARCH

Grants & Patents

2011	NSERC Strategic Partnership Grant in conjunction with Centennial College (400K)
2011	Patent pending, under non-disclosure
2011	FedDev, Federal Development Grant (100K)
2010	First Job Grant, Ontario Centres of Excellence
2009	Interactive Digital Media Fund Grant (150K)
2009	Export Fund, Ontario Media Development Corporation
2008	First Job Grant, Ontario Centres of Excellence
2008	Patent pending, under non-disclosure
2008	Export Fund, Ontario Media Development Corporation
2007	Talent Grant, Ontario Centres of Excellence
2007	Export Fund, Ontario Media Development Corporation
2003	The genetic improvement of forage crops, non-disclosure, patent pending
2001	PGSB, National Science & Engineering Research Counsel

Science Education Research Experience

2003 - present Research on educational design for science education and communication. Technology development for rich media design and global web-based distribution. Game-based learning, eLearning and hybrid tech education for the Canadian educational system.

Publications & Proceedings

Friedberg, J., Husain, N., Jenson, J., & Muehrer, R. *Challenges and opportunities: using a science-based video game in secondary school settings*. Cultural Studies of Science Education, Online First, 26 March 2012. [10.1007/s11422-012-9409-z](https://doi.org/10.1007/s11422-012-9409-z)

Friedberg JN, Husain H, Wood I, Brydson G, Sheng W, Trecroce L, St-Denis K, Rowe D, Pajares R, Al Chawaf, A, Rana S, Reilly N and Bielecki, A (2012). *2011 international Science & Engineering Visualization Challenge: Honourable mention - Spongelab: Build-a-Body*. Science 335(6068): 532-533



Curriculum Vitae

DeCoito, I., DiGiuseppe, M., & **Friedberg, J.** (2012, March). *Exploring the nature of science through an online digital game*. Paper presented at the annual meeting of NARST, March 25-28, Indianapolis, IN.

Friedberg JN, Bielecki A (2009). Visualization Challenge: Interactive Media First Place – Genomics Digital Lab: Cell Biology. *Science* 327(5968): 949

Friedberg JN, Sors TG, Bonifacio M, Lui M, Cummins R, Wong J, and Salt DE (2008). Visualization Challenge: Interactive Media First Place – Genomics Digital Lab: Plant Cells. *Science* 321(5897): 1773

Friedberg JN. (2008). Unique strategies for building games designed to work in classrooms settings. FuturePlay Conference, Toronto Ontario.

Friedberg JN. (2007). Using games to teach biology: Immersive learning and the genomics approach. National Bioscience Educators' Conference Seneca College, Toronto, Canada.

Friedberg JN, Bowley SR, McKersie BD, Gurley WB and Czarnicka-Verner E (2006) Isolation and characterization of class A4 heat shock transcription factor from alfalfa. *Plant Sci.* 171: 332-344.

Friedberg JN, Shearer H, Czarnicka-Verner E and Bowley SR (2006) Profiling the Alfalfa heat shock response via the expression of HSF, HSP 86, HSP 18 and low molecular weight HSPs during chamber heat and cold stress and fall field conditions. In review

Friedberg JN (2005) Workshop: Technology and teaching: The use of gaming technology to teach biology. Conference: The American Society of Plant Biologists, July 16 – 21, Seattle, Washington, USA

Shearer H, **Friedberg JN** and Bowley SR (2006) A sucrose-phosphate synthase gene is involved in the temperature-dependent accumulation of raffinose in alfalfa: gene structure characterization and transgenic studies. *J. Plant Physiol.* (Submitted for Review)

Friedberg JN and Bowley SR (2005) Improving yield & winter survival through increased stress tolerance: Transgenic alfalfa containing sense and antisense Arabidopsis class A4a heat shock transcription factors (Submitted for Review)

Friedberg JN, Shearer HS and Bowley SR (2005) Profiling the Alfalfa heat shock response via the expression of HSF, HSP 86, HSP 18 and low molecular weight HSPs during chamber heat and cold stress and fall field conditions (Submitted for Review)

Friedberg JN (2003) An Investigation of a heat shock transcription factor and the heat shock response under temperature stress in alfalfa. PhD. Thesis, University of Guelph (online at www.uoguelph.ca/~jdborg).

Friedberg JN, Shearer H and Bowley SR (2003) Activity of a heat shock transcription factor and the heat shock response under heat stress, cold stress and field low temperature stress. Molecular Breeding of Forage and Turf Conference. Dallas, Texas, USA.

Friedberg JN, Shearer H and Bowley SR (2002) Alfalfa, Cold Stress and a Heat Shock Transcription Factor. North American Alfalfa Improvement Conference. Sacramento, California USA.

Friedberg JN, Czarnicka-Verner E, McKersie B, Gurley W and Bowley SR (2002) Alfalfa, Cold Stress and a Heat Shock Transcription Factor. Plant Molecular and Cellular Biology Conference Workshop. Daytona Beach, Florida, USA.

Friedberg JN, Czarnicka-Verner E, McKersie B, Gurley WB, Cunningham SM, Volenic JJ and Bowley SR (2001) Activity of a Heat Shock Transcription Factor Under Low Temperature Stress in Alfalfa. Joint meeting of Canadian Society of Plant Physiologists & American Society of Plant Biologists. Providence,



Curriculum Vitae

Rhode Island, USA.

Friedberg JN, Czarnicka-Verner E, Cunningham S, Bowley SR and McKersie BD (2000) Characterization of a heat shock transcription factor from *Medicago sativa*. North American Alfalfa Improvement Conference and American Forage and Council Conference. Madison, Wisconsin, USA.

Friedberg JN, Czarnicka-Verner E, Gurley WB, Bowley SR and McKersie BD (2000) Isolation and characterization of an alfalfa heat shock transcription factor. Conference of the International Society of Plant Molecular Biologists. Quebec City, Quebec, Canada.

Friedberg JN and Walden DB (1999) The expression and localization of HSP 18 mRNA in *Zea mays* callus. Maize Genetics Cooperation Newsletter. 73

Friedberg JN, Yang Z, and Walden DB (1998) The thermal induction of HSP 18 mRNA in *Zea mays* callus. Maize Genetics Cooperation Newsletter. 72: 56.

Maillet DS, Quinn CE, **Friedberg JN** and Walden DB (1998) Nucleolar fusion in different maize cell types. Maize Genetics Cooperation Newsletter. 72: 56-58.

Wang Y, **Friedberg JN** and McKersie BD (1998) A genome walking method for plant promoter isolation. Conference of the Canadian Society of Plant Physiologists. Toronto, Ontario.

TEACHING

- 2005 – 2006 **Course Instructor:** Cell Biology and Molecular Aspects of Genetic Processes (BGYB10Y3), Department of Life Sciences, University of Toronto at Scarborough.
- Course Instructor:** Introductory Cell Biology (Distance Education), (Biology – 130), Department of Biology, University of Waterloo.
- Course Instructor:** Introductory Cell Biology (Distance Education), (Biology – 130), Department of Biology, University of Waterloo.
- 2004 – 2005 **Course Coordinator & Lecturer:** Applied Cell Biology, Department of Biology, Wilfrid Laurier University
- Thesis Advisor:** Department of Biology, Wilfrid Laurier University
- 2003 – 2004 **Course Coordinator & Lecturer:** Introductory Cell Biology, Department of Biology, Wilfrid Laurier University
- 2002 – 2004 **Sessional Lecturer:** Plant Physiology (4th year course), Department of Biology, Wilfrid Laurier University
- 1999 – 2002 **Teaching Assistant & Laboratory Instructor:** Botany, Plant Physiology & Genetics, Department of Plant Agriculture, University of Guelph
- 1998 **Teaching Assistant & Laboratory Instructor:** Introductory Biology, Department of Zoology, University of Western Ontario

PROFESSIONAL & SPEAKING ACTIVITIES:



- 2012 Speaker: **Revolution(s) in Play:** TEDx Youth Toronto. Toronto, Ontario. Nov.17, 2012.
- 2012 Speaker: **The Science of Play: Teaching science with interactive games.** Science Teachers Association of Ontario, Annual Meeting, November 9-12, 2011. Toronto, Ontario.
- 2012 Speaker: **The Cutting Edge of Science Education: Interactive Online Learning.** Conference for the Advancement of Science Teaching. Corpus Christi, Texas. November 7-10, 2012.
- 2012 Speaker: **The science of play: teaching science with interactive games.** National Association of Biology Teachers. Dallas, Texas. October 31 – November 3, 2012.
- 2012 Speaker: **Beyond eLearning: Online Teaching Platforms.** K-12 online Conference. October 24, 2012.
- 2012 Speaker: **Educating Through Simulations and the Business of Game-Based Learning.** Association of Medical Illustrators Annual Conference, Toronto, Ontario. July 25-28, 2012.
- 2012 Speaker: **Educating through simulations, game-based learning and the gamification of education.** Academic Librarians 2012 Conference Syracuse, New York. June 12-13, 2012
- 2012 Panel Speaker: **Gamification of Education.** INplay 2012 Conference. Toronto, Ontario. May 15-16, 2012
- 2011 Speaker: **Play the Science: experiencing science through game based learning.** Science Teachers Association of Ontario, Annual Meeting, November 9-12, 2011. Toronto, Ontario.
- 2011 Speaker: **Play the Science: experiencing science through game based learning.** Alberta Teachers Association Science Council Conference, Annual Meeting, October 20-22, 2011. Lake Louise, Alberta.
- 2011 Speaker: **Using Rich-Media to Communicate Science and Employ Temporal Learning Approaches.** American Society of Agronomy - Crop Science Society of America - Soil Science Society of America, Annual Meeting, October 16-19, 2011. San Antonio, Texas.
- 2011 Speaker: **Playing Biology: Engaging Students with Dynamic Games, Animations and Simulations.** National Association of Biology Teachers, Annual Meeting, October 12-16, 2011. Anaheim, California.
- 2011 Speaker: **Play is Education.** Serious Play Conference. Redmond, Washington. August 23-25, 2011.
- 2011 Speaker: **Immersive Learning Through educational Gaming.** The Western Conference on Science Education. July 6-8, 2011
- 2011 Speaker: **Science, Art & Education – The Business of Learning Through Play** Mitacs Globalink Industry Conference. July 7-11, 2011
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Curriculum Vitae

- 2011 Speaker: **Game-Based Learning: How to Integrate Educational Games Into the Classroom.** eLearning DevCon. University of Utah, Salt Lake City June 15-19, 2011
- 2011 Panel: **Why So Serious? Valuable Play & eLearning.** INplay 2011 Conference. Toronto, Ontario. May 17-18, 2011
- 2011 Speaker: **Simulation, Visualization & Animation.** The School of Arts, Communication & New Media. Salt Lake City Community College, Salt Lake City, April 15, 2011.
- 2011 Speaker: **Game-based learning for classrooms.** Science Teachers Conference. Toronto, Canada. January 2011.
- 2010 Panel Speaker: **Games in Education.** INPlay Conference. Toronto, Canada. June 18-19, 2010.
- 2009 Panel Speaker: **Technology in Education,** United Nations World Summit Award Conference. Monterrey, Mexico, September, 2009.
- 2009 Presenter: **Serious Games Summit,** San Francisco, USA March, 2009.
- 2008 Speaker: **Educational gaming.** Interactive Content Exchange (ICE) conference, Toronto, Ontario.
- 2007 – present **Founder & Partner:** Spongelab Interactive. Scientific educational communication and educational gaming company (www.spongelab.com).
- 2007 – present Committee Member: eLearning committee for Interactive Ontario.
- 2006 **Biology Educational Game Developer:** McGraw-Hill Companies USA.
- 2006 **Software Developer and Project Manager:** Cell voyager project. Purdue University, Indiana USA
- 2006 – 2007 **Content and Graphic Editor:** textbook “Intro to Genetics” by Dr. David Hyde to be published by McGraw-Hill Higher Education, USA
- 2006 **Project Leader & Content Developer:** “Plant Cell Voyager Software” for the Genomics Revealed exhibit at Purdue University, Lafayette, Indiana, USA
- 2006 **Content Editor:** new “Intro to Genetics” University Textbook, By David Hyde, published by McGraw-Hill Companies USA.
- 2003 **President & Founder:** vive Technologies Inc. Innovative teaching tools for cell and molecular biology (www.vivetechnologies.com)
- 2003 **Developer:** “Cellscope Explorer™” Interactive Teaching Software (www.vivetechnologies.com)
- 2002 – **Founder, Animator, and Media Designer:** In Vivo Designs, web design, animation and scientific identity for scientists (www.vivetechnologies.com/invivo)
- 1996 – **Program Director:** Camp Chi, Lake Delton Wisconsin
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