

ARMIN KARGOL

Department of Physics
Loyola University New Orleans
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DEGREES

Ph.D. in Physics, 1994

Virginia Polytechnic Institute and State University, Blacksburg, VA 24061, USA
Advisor: George A. Hagedorn
Ph.D. Dissertation: "The Born-Oppenheimer approximation in scattering theory"

M.Sc. in Mathematics, 1992

Virginia Polytechnic Institute and State University, Blacksburg, VA 24061, USA
Advisor: George A. Hagedorn

M.Sc. in Theoretical Physics, 1987 (awarded with distinction)

Advisor: Witold Karwowski
MS Thesis: "Partial *-algebras and their applications"

EMPLOYMENT HISTORY

Department of Physics, Loyola University, New Orleans, LA 70118

- Rev. James C. Carter, S.J., Distinguished Professor in Experimental Physics (2012-present)
- Department Chair (2009-2012)
- Associate Professor (2007-present, tenured since 2008)
- Assistant Professor (2003-2007)

Department of Physics and Astronomy, Tulane University, New Orleans, LA 70118

- Visiting Assistant Professor (2001-2003)
- Faculty Member of Neuroscience Graduate Program (2001-2003)
- Research Fellow (1999-2001)

Department of Physics, Eastern Mediterranean University, Famagusta, N. Cyprus

- Associate Professor (1999)
- Assistant Professor (1995-1998)

Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN 55455, USA

- Postdoctoral Fellow in "Waves and Scattering" Program (1994-1995)

Institute of Physics, Jan Kochanowski University, Kielce, Poland

- Instructor (1987-1989)

RESEARCH AND SCHOLARLY ACTIVITIES

PUBLICATIONS

Peer-reviewed papers and book chapters published:

1. **A. Kargol**: The infinite time limit for the time-dependent Born-Oppenheimer approximation, *Commun. Math. Phys.* 166 (1994) 129-148
2. M. Kargol, T. Kosztolowicz, **A. Kargol**: Gravidiffusion in the liquid state. An attempt at a mathematical description, *Current Topics Biophys.* 19(2) (1995) 58-65
3. M. Kargol, T. Kosztolowicz, **A. Kargol**, S. Przystalski: Kedem-Katchalsky equations for gravi-diffusion, *Current Topics Biophys.* 19(2) (1995) 50-57
4. **A. Kargol**, M. Kargol: The plant root as an osmo-diffusive converter of free energy, *Gen. Physiol. Biophys.* 15 (1996) 17-26
5. M. Kargol, **A. Kargol**: A synthetic approach to biophysical theories of water translocation in plants occurring over long distances, *Current Topics Biophys.* 20 (1996) 149-153
6. **A. Kargol**: An integrated approach to water transport in a plant over long distances, *J. Biol. Phys.* 22 (1996) 157-173
7. **A. Kargol**, A. Markowski: Energetic efficiency of osmotic water transport across a root, *Acta Physiol. Plant.* 18 No.4 (1996) 351-358
8. M. Kargol, **A. Kargol**, S. Przystalski: Kedem-Katchalsky equations adapted for describing substance transport across biological membranes, *Cell. Mol. Biol. Lett.* 2 (1997) 117-124
9. **A. Kargol**: A description of reverse osmosis using practical Kedem-Katchalsky equations, *J. Biol. Phys.* 23 (1997) 111-120
10. **A. Kargol**: Hyperfiltration described using the Kedem-Katchalsky formalism, *Polish J. Med. Phys. Eng.* 3 No.1 (1997) 33-41
11. **A. Kargol**, M. Kargol, S. Przystalski: Correlation relation between the membrane transport parameters L_p , σ , and ω , *J. Biol. Phys.* 23 (1997) 233-238
12. M. Kargol, T. Kosztolowicz, **A. Kargol**, S. Przystalski: A study of concentration profiles in near-membrane unstirred layers, *Polish J. Med. Phys. and Eng.* 4 (2) (1998) 69-85
13. M. Kargol, G. Suchanek, S. Przystalski, **A. Kargol**: Mathematical analysis of the modified Muench model (Analiza matematyczna zmodyfikowanego modelu Muencha), *Current Topics Biophys.* 22 (1998) 31-33
14. **A. Kargol**: The Born-Oppenheimer approximation to the wave operators, *Commun. Theoret. Phys.* 31 (1999) 397-402
15. **A. Kargol**: Semiclassical scattering by the Coulomb potential, *Ann. Inst. H. Poincaré, Theoret. Phys.* 71 (1999) 339-357
16. **A. Kargol**: Effect of boundary layers on reverse osmosis through a horizontal membrane, *J. Membr. Sci.* 159 (1999) 177-184
17. M. Kargol, **A. Kargol**: Gravidiffusion effects, *Current Topics Biophys.* 24(1) (2000) 65-77
18. **A. Kargol**: Modified Kedem-Katchalsky equations and their applications, *J. Membr. Sci.* 174 (2000) 43-53
19. M. Kargol, **A. Kargol**: Membrane transport generated by the osmotic and hydrostatic pressure. Correlation for the parameters L_p , σ , and ω . *J. Biol. Phys.* 26 (2000) 307-320

20. M. Kargol, G. Suchanek, **A. Kargol**: Modification and quantitative analysis of the Muench model in the integrated system of water translocation in plants. *Gen. Physiol. Biophys.* 20 (2001) 191-202
21. M. Kargol, **A. Kargol**, S. Przystalski: Studies on the structural properties of porous membranes: measurement of linear dimensions of solutes. *Biophys. Chem.* 91 (2001) 263-271
22. **A. Kargol**: A mechanistic model of transport processes in porous membranes generated by osmotic and hydrostatic pressure. *J. Membr. Sci.* 191 (2001) 61-69
23. **A. Kargol**, B. Smith, M.M. Millonas: Application of nonequilibrium response spectroscopy to the study of channel gating. Experimental design and optimization. *J. Theoret. Biol.* 218 (2002) 239-258
24. A. Hosein-Sooklal, **A. Kargol**: Wavelet analysis of nonequilibrium ionic currents in human heart sodium channel (hH1a). *J. Membr. Biol.* 188 (2002) 199-212
25. **A. Kargol**, M. Kargol: A reply to remarks on the mechanistic model of transport processes in porous membranes. *J. Membr. Sci.* 214 (2003) 335-338
26. M. Kargol, **A. Kargol**: Mechanistic equations for membrane substance transport and their identity with Kedem-Katchalsky equations. *Biophys. Chem.* 103 (2003) 117-127
27. M. Kargol, **A. Kargol**: Mechanistic formalism for membrane transport generated by osmotic and mechanical pressure. *Gen. Physiol. Biophys.* 22 (2003) 51-68
28. M. Kargol, G. Suchanek, M. Przystalski, **A. Kargol**: Modification of integrated system of long-distance transport of water in plants. Where the plant has its heart? *Current Topics Biophys.* 27 (2003) 3-9
29. **A. Kargol**, A. Hosein-Sooklal, L. Constantin, M. Przystalski: Application of oscillating potentials to Shaker potassium channel. *Gen. Physiol. Biophys.* 23 (2004) 53-75
30. **A. Kargol**: Application of the ensemble nonequilibrium response spectroscopy to Shaker potassium ion channel gating. *Cell. Mol. Biol. Lett.* 9(2) (2004) 375-388
31. **A. Kargol**, A. Hosein-Sooklal: Optimal sensitivity analysis of ion channel gating kinetics. *J. Membrane Biol.* 199 (2004) 113-118
32. M. Kargol, **A. Kargol**: Biophysical mechanisms of physiological water exchange with the surroundings by the cells of the *Nitella Translucens* and *Chara Corallina* plants. *Acta Physiol. Plant.* 27 (2005) 71-79
33. M. Kargol, G. Suchanek, M. Przystalski, J. Siedlecki, **A. Kargol**: Problem of water exchange across the living cell in the light of the mechanistic equations of transport. *Polish J. Environment. Studies* 14 (2005) 65-71
34. **A. Kargol**, M. Przystalski, M. Kargol: A study of porous structure of cellular membranes in human erythrocytes. *Cryobiology* 50 (2005) 332-337
35. M. Kargol, **A. Kargol**, M. Przystalski, J. Siedlecki, M. Karpinska, M. Rogowski: Human red blood cells' physiological water exchange with the plasma. *Annales Academiae Medicae Bialostocensis* 50 (2005) 237-240
36. M. Kargol, G. Suchanek, M. Przystalski, **A. Kargol**: Investigations into biophysical regulation mechanisms of physiological water exchange of the *Nitella translucens* cells with the surroundings. *Acta Physiol. Plant.* 28 (2006) 13-19
37. M. Kargol, **A. Kargol**: Investigation of reverse osmosis in the basis of the Kedem-Katchalsky equations and mechanistic transport equations. *Desalination* 190 (2006) 267-276
38. M. Kargol, **A. Kargol**, Z. Mnich, M. Rogowski, J. Siedlecki: A membrane hypothesis for the pathogenesis of the Meniere's disease, *Otolaryngology* 7 (2007) 16-20 (in Polish)

39. M.Kargol, S.Dziech, **A.Kargol**: Introduction. In: *Biophysical and informatical aspects of water exchange between water plants and the environment*, WSTTK Kielce 2008 (in Polish)
40. M.Kargol, **A.Kargol**, G.Suchanek, K.Starz, A.Markowski, J.Siedlecki: Kedem-Katchalsky transport equations. In: *Biophysical and informatical aspects of water exchange between water plants and the environment*, WSTTK Kielce 2008 (in Polish)
41. M.Kargol, **A.Kargol**: Mechanistic equations of membrane mass transport. In: *Biophysical and informatical aspects of water exchange between water plants and the environment*, WSTTK Kielce 2008 (in Polish)
42. M.Kargol, **A.Kargol**: Water exchange in cells of water plants described with the mechanistic transport equations. In: *Biophysical and informatical aspects of water exchange between water plants and the environment*, WSTTK Kielce 2008 (in Polish)
43. M.Kargol, **A.Kargol**: Regulatory aspects of water exchange with the surroundings by water plants. In: *Biophysical and informatical aspects of water exchange between water plants and the environment*, WSTTK Kielce 2008 (in Polish)
44. M.Kargol, S.Dziech, **A.Kargol**: Research outlook. In: *Biophysical and informatical aspects of water exchange between water plants and the environment*, WSTTK Kielce 2008(in Polish)
45. **A. Kargol**, K. Kabza: Test of nonequilibrium kinetic focusing of voltage-gated ion channels, *Phys. Biol.* 5(2008)026003
46. **A. Kargol**, M. Kargol: Passive transport processes in cellular membranes. In: *Porous media: Applications in biological systems and biotechnology*, Taylor and Francis Group, LLC (2011)
47. **A. Kargol**, L. Malkinski, G. Caruntu: Biomedical applications of multiferroic nanoparticles. In: *Advanced magnetic materials*, InTech Publishing (2012)
48. **A. Kargol**: Wavelet-based protocols for ion channel electrophysiology. *BMC Biophysics* 6:3 (2013). DOI: 10.1186/2046-1682-6-3
49. L. Ponzoni, G.L. Celardo, F. Borgonovi, L. Kaplan, **A.Kargol**: Focusing in multiwall potentials: Applications to ion channels. *Phys. Rev. E* 87 (2013) 052137

Books

50. M. Kargol, **A. Kargol**: *Physics*. WSTKT Kielce 2006 (in Polish)

Conference Proceedings:

51. M. Kargol, **A. Kargol**: Some critical remarks on physics education in technical universities, Proc. XI Conf. on Physics Education in Technical Universities, Warsaw, Poland, 27-28 June 1996, 44-46
52. M. Kargol, **A. Kargol**, S. Przystalski: Kedem-Katchalsky equations as applied for describing substance transport across biological membranes, Proceedings VI Polish Conference "Cell Biology", Lublin, 12-14 Sept. 1996, *Folia Histochem. et Cytobiol.* 34(2) (1996) 12
53. M. Kargol, **A. Kargol**, A. Markowski, S. Przystalski: A procedure for separation of membrane transport into passive and active components, Proc. IV Nat. Conf. "Applications of mathematics in biology and medicine", Zwierzyniec, Poland, Sept. 15-18, 1998, 53-63

54. **A. Kargol**, M.M. Millonas: Optimal waveform analysis of voltage sensitive ion channel gating kinetics (abstract). *Biophys. J.* 78 (2000) 219a
55. **A. Kargol**, B. Smith, M.M. Millonas: Applications of nonequilibrium response spectroscopy to the study of channel gating (abstract). *Biophys. J.* 80 (2001) 442a
56. M. Kargol, G. Suchanek, **A. Kargol**, M. Dobkowicz, S. Przystalski: Pobieranie wody glebowej i jej długodystansowa translokacja w roślinie (Soil water uptake and its long-distance transport in plants). (abstract) Proc. Conf. "Agrophysics in the beginning of XXI century", Lublin, May 14-15, 2001, 77-78
57. G. Suchanek, M. Przystalski, M. Kargol, **A. Kargol**: Mechanistic equations of membrane transport of multicomponent solutions (abstract). *Current Topics Biophys.* 28 (2004) Proc. XII Conf. of Polish Biophys. Soc., Wrocław, Poland, Sept. 15-17, 2004
58. G. Suchanek, M. Przystalski, M. Kargol, **A. Kargol**: Water transport route from the soil to the root xylem according to the mechanistic approach (abstract). *Current Topics Biophys.* 28 (2004) Proc. XII Conf. of Polish Biophys. Soc., Wrocław, Poland, Sept. 15-17, 2004
59. G. Suchanek, M. Przystalski, M. Kargol, **A. Kargol**: Mechanistic interpretation of transport parameters of root endodermis (abstract). *Current Topics Biophys.* 28 (2004) Proc. XII Conf. of Polish Biophys. Soc., Wrocław, Poland, Sept. 15-17, 2004
60. M. Kargol, **A. Kargol**, G. Suchanek, M. Przystalski, M. Dobkowicz, J. Dobkowicz: The influence of some parameters of water medium on stationary water exchange by plants living therein, *Monographs of Environmental Engineering Committee of Polish Academy of Sciences (PAN)* 22 (2004) 369-377 Proc. of V Conf. "Membranes and Membrane Processes in Environmental Protection"
61. **A. Kargol**: Non-equilibrium studies of voltage-gated ion channels. Proc. Intl. Conf. on Interdisciplinary Science (ISIS), Natchitoches, LA, Oct. 2004, eds. A.Ludu, N.R.Hutchins, D.R.Fry, AIP 2005, p. 159-164
62. **A. Kargol**: Non-equilibrium studies of voltage-gated ion channels (abstract), Proc. Workshop on Applications of Methods of Stochastic Systems and Statistical Physics in Biology, Oct. 2005 University of Notre Dame, p. 24
63. K. Kabza, K. George, S. von Meer, **A. Kargol**: Preliminary comparative studies of *Thermus aquaticus* resilience to thermal and microwave heat input (abstract). 2008 March APS Meeting. *Bull. Amer. Phys. Soc.* 53, 2008
64. **A. Kargol**, K. Kabza, S. von Meer: Test of the noise-induced nonequilibrium kinetic focusing of voltage-gated ion channels (abstract). 2008 March APS Meeting. *Bull. Amer. Phys. Soc.* 53, 2008
65. **A. Kargol**: Wavelet-based protocols for ion channel electrophysiology (abstract). 2008 March APS Meeting. *Bull. Amer. Phys. Soc.* 53, 2008

OTHER PROFESSIONAL ACTIVITIES

Membership in professional organizations:

- American Physical Society (1994-present)
- Biophysical Society (1999-present)
- International Association of Mathematical Physics (1995-9)
- American Mathematical Society (1993-6)

Honors, Awards, Fellowships

- M.Sc. Diploma with distinction, University of Wroclaw, Wroclaw, Poland (1987)
- ΣΠΣ Physics Honor Society (1993)
- IMA Postdoctoral Fellowship (1994-5)
- Marquette Fellowship, Loyola University (2005)
- Cottrell College Science Award (2005)
- Marquette Fellowship, Loyola University (2012)
- Rev. James C. Carter, S.J., Distinguished Professorship in Experimental Physics (2012)

Grant Support

- Funded external grants
 - LA EPSCoR Pfund grant “Control of voltage-gated ion channels with nonequilibrium voltage fluctuations”, PI, 2005-2006
 - LA Board of Regents Enhancement grant “Interdisciplinary laboratory training: Introducing biophysics into physics laboratory courses”, PI, Co-PI’s: C. King, M. McHugh, 2005-2006
 - Research Corporation Cottrell College Science Award “Novel voltage protocols and analysis methods for the non-equilibrium response spectroscopy of voltage-gated ion channels”, PI, 2005-2007
 - NSF “Towards wireless nano-electrostimulation of ion channels in mammalian cells”, PI, Collaborative research with L. Malkinski (UNO), 2012-2013
- Major external grants submitted but not funded
 - DARPA BAA05-16, “Ion channel sensor using engineered bio-molecular nanodevices/systems”, co-PI, PI’s: Mark Pease, Jost Goettert. Grant submitted jointly by Center for Advanced Microstructures and Devices, Baton Rouge, LA; Neuroscience Center, LSUHSC, New Orleans; Physics Department, Loyola University New Orleans; Department of Pathology and Laboratory Medicine, Texas A&M Health Sciences Center, College Station, TX; NVE Inc., Eden Prairie, MN, 2005
 - Louisiana Board of Regents Research Commercialization and Educational Enhancement Subprogram (RC/EEP) “NOMaC: New Orleans Materials Consortium”; co-PI, PI’s: Gary McPherson and Scott L. Whittenburg. Grant submitted jointly by Tulane, UNO, Dillard and Loyola, 2007
 - NIH “Remote stimulation of voltage-gated ion channels by localized electric fields from composite nanoparticles”. PI – L.Malkinski, co-PI A.Kargol, 2012-14
 - NSF “Collaborative Research: Application of Magnetoelectric Nanoparticles as Wireless Probes for Stimulation of Biological Macromolecules in Mammalian Cells”. PI – A.Kargol, 2012-15. A collaborative proposal, linked to the proposal submitted by PI L.Malkinski and co-PI G.Caruntu from UNO

- Internal grants and fellowships
 - PIES Project “Interdisciplinary research experience for first year students”, 2004-2005
 - PIES Project, with T. Spence (Chem). “An integrated natural science Common Curriculum course: Fundamentals of Science I – Atoms and Energy”, 2005
 - Marquette Fellowship “An experimental test of kinetic focusing of voltage-gated ion channels”, 2005
 - PIES Project, “Continuation of interdisciplinary research experience for first year students”, 2006
 - Marquette Fellowship “Effect of nanoscale electric fields generated by nanopatterned electrodes and magnetoelectric nanoparticles on voltage-gated ion channels”, 2012
 - Faculty Research Grant “Experimental study of conductance hysteresis in voltage-gated ion channels” 2013
 - Faculty Development Grant “Research laboratory experience for Physics freshmen” 2013

Journal, book, and grant reviewer

- Journal and book reviewer:
 - Physical Review E
 - Journal of Membrane Science
 - Biophysical Journal
 - Physica A
 - General Physiology and Biophysics
 - Journal of Porous Media
 - Neurocomputing
 - Central European Journal of Physics
 - Mathematical Reviews
 - Wiley Publ.
- Grant reviewer
 - NASA Gravitational Biology Program
 - Research Corporation
 - Fonds de recherche du Québec - Nature et technologies

Conferences, seminars:

1. XXV Winter School of Theoretical Physics, Karpacz, Poland, February 1988
2. Midwest-Southeast Atlantic 2-nd Joint Regional Conference on Differential Equations, Lexington, KY, Nov. 13-15, 1992 (contributed talk)
3. 13-th Meeting of the Southeast Atlantic Regional Conference on Differential Equations, Wilmington, NC, Oct. 15-16, 1993 (contributed talk)
4. 22-nd Midwest Differential Equations Conference, Columbia, MO, Nov. 12-14, 1993 (contributed talk)
5. AMS-MAA Joint Meeting, Cincinnati, OH, Jan. 12-16, 1994
6. The UAB - Georgia Tech International Conference on Differential Equations and Mathematical Physics, Birmingham, AL, March 13-17, 1994 (contributed talk)

7. IMA Workshop on Computational Wave Propagation, Minneapolis, MN, Sept. 19-23, 1994
8. IMA Workshop on Wavelets, Multigrid and Other Fast Algorithms And Their Use In Wave Propagation, Minneapolis, MN, Oct. 17-21, 1994
9. International Symposium on Computational Molecular Dynamics, Minneapolis, MN, Oct. 24-26, 1994
10. IMA Workshop on Waves in Random and Other Complex Media, Minneapolis, MN, Nov. 14-18, 1994
11. IMA Workshop on Inverse Problems in Wave Propagation, Minneapolis, MN, March 6-17, 1995
12. Japan - US Mathematics Institute Conference on Linear and Nonlinear Scattering, Baltimore, MD, March 31 - Apr. 3, 1995
13. IMA Workshop on Singularities and Oscillations, Minneapolis, MN, Apr. 10-14, 1995
14. IMA Workshop on Quasiclassical Methods, Minneapolis, MN, May 22-26, 1995
15. IMA Workshop on Multiparticle Quantum Scattering with Applications to Nuclear, Atomic and Molecular Physics, Minneapolis, MN, June 12-16, 1995
16. VI Polish Conference "Cell Biology", Lublin, Poland, 12-14 Sept. 1996 (co-author of a contributed talk)
17. Mathematical Results in Quantum Mechanics (Qmath7), Prague, Czech Republic, 22-26 June 1998 (contributed talk)
18. IV National Conference "Applications of mathematics in biology and medicine", Zwierzyniec, Poland, 15-18 Sept. 1998 (co-author of contributed talk)
19. Biophysical Society meeting, New Orleans, LA, Feb. 12-16, 2000 (poster)
20. Biophysical Society meeting, Boston, MA, Feb. 17-21, 2001 (poster)
21. Tulane University, New Orleans, LA, Feb 2002 (seminar lecture)
22. University of Wisconsin – Milwaukee, Milwaukee, WI, Feb. 6, 2003(seminar lecture)
23. New Orleans Protein Folding Intergroup – New Orleans, Jan. 15, 2004 (seminar lecture)
24. Loyola University, Chemistry Department – New Orleans, Nov. 8, 2004 (seminar lecture)
25. XII Conf. of Polish Biophysical Soc., Wroclaw, Poland, Sept. 15-17, 2004 (co-author of 3 contributed talks)
26. International Symposium on Interdisciplinary Science, Natchitoches, LA, Oct. 6-8, 2004 (invited lecture)
27. Loyola University, Chemistry Department – New Orleans, Nov. 8, 2004 (seminar lecture)
28. 62nd American Chemical Society Southwest Regional Meeting – Houston, TX, Oct 2006 (co-author of a poster presented by an undergraduate student)
29. University of New Orleans, Physics Department – New Orleans, Oct. 17, 2007 (seminar lecture)
30. March Meeting of the American Physical Society, New Orleans, LA, March 2008 (three posters)
31. Southeastern Louisiana University, Hammond, LA, Dec. 2010 (seminar lecture)
32. 87th Annual Meeting of Louisiana Academy of Sciences, Grambling State University, Ruston, LA, March 9, 2013 (co-author of a poster presented by an undergraduate student)
33. Catholic University of Brescia, Department of Mathematics and Physics – Brescia, Italy, May 9, 2013 (seminar lecture)

TEACHING RECORD

Courses taught at Loyola

1. Introduction to Mechanics PHYS A101
2. Introduction to Electromagnetism and Relativity PHYS A102
3. Mechanics Lab PHYS A103
4. Electricity and Magnetism Lab PHYS A104
5. Basic Physics Lab I-II PHYS A112-3
6. Physics for Life Sciences I-II PHYS A115-6
7. Introduction to Waves and Quantum Physics PHYS A240
8. Classical Mechanics PHYS A340
9. Cellular Biophysics PHYS A436
10. Quantum Mechanics PHYS A450
11. Introduction to Physics PHYS T122
12. Investigating Nature PHYS T194/T129

Ph.D. Dissertations and M.Sc. Theses supervised

- Azida Hosein-Sooklal, Tulane University. Ph.D. awarded 2003. Dissertation title: Model selection and optimization of the sodium channel through the use of single and ensemble pulse protocols
- Sadik Aral Bozkirli, Eastern Mediterranean University. M.Sc. awarded 1998. Thesis title: Diffusion process. Analytical, numerical and Monte Carlo solutions.

Independent studies and directed undergraduate research supervised at Loyola

- Independent studies
 - S'2005 "Experimental Biophysics I" Stella von Meer (Phys), Kyle Dudley (Biol)
 - SI'2006 "Experimental Biophysics II" Stella von Meer (Phys)
 - S'2007 "Experimental Biophysics II" Meagan Relle (Biol), Joseph Phillipp (Biol), Donald MacNaught (Phys)
 - S'2008 "Experimental Biophysics I" Bryan Lavoie (Biol)
 - F'2008 "Experimental Biophysics II" Bryan Lavoie (Biol)
 - S'2009 "Experimental Biophysics III" Bryan Lavoie (Biol)
 - S'2009 "Experimental Biophysics I" Anne Leonpacher (Biol)
 - S'2010 "Experimental Biophysics I" Michael Kammer (Phys/Rels), David Vumbaco (Biol/Phys)
 - S'2011 "Ion Channel Electrophysiology I" Michael Kammer (Phys/Rels), David Vumbaco (Biol/Phys)
 - S'2012 "Physics for Life Sciences II" Jonathan Lee (Biol)
 - F'2012 "Experimental Biophysics I" Dustin Lindberg (Phys)
- Directed undergraduate research projects
 - Stella von Meer ('08) "A comparative study of thermally and microwave induced growth of *Saccharomyces cerevisiae* in aqueous media", with Konrad Kabza (SELU), Karen George (SELU-undergrad)

- Stella von Meer ('08), Meagan Relle ('09) "Test of the noise-induced nonequilibrium kinetic focusing of voltage-gated ion channels", with K. Kabza (SELU)
- Warner Sevin ('11) "Analysis of experimental data for nonequilibrium focusing of ion channels"
- Warner Sevin ('11) "Optimization of voltage protocols" (research project for the computational science minor)
- Michael Kammer ('12) "Osmotic transport in membranes. Design of an osmotic engine"
- Michael Kammer ('12) "Nonequilibrium kinetic focusing of Shaker K⁺ ion channels through wavelet-based pseudo-random voltage fluctuations" (honors thesis)
- David Vumbaco ('12) "Dichotomous noise induced kinetic focusing in Shaker K⁺ ion channels" (honors thesis)
- Douglas Alexander ('14) "The effect of nano-scale electric fields generated by patterned electrodes on voltage-gated ion channels"
- Douglas Alexander ('14), Dustin Lindberg ('14) "Conductance hysteresis in voltage-gated ion channels"

SERVICE TO THE COLLEGE AND UNIVERSITY

- College Rank and Tenure Committee (2008-9, 2012-present)
- College Planning Team (2007-present)
- Monroe Hall Renovation Steering Committee (2010-12)
- Physics Department Chair (2009-12)
- Physics Faculty Search Committee Chair (2009-10, 2011-12)
- Faculty Senate (2004-6, 2008-10)
- Health Professions Board (2004-10)
- Physics Department Library Liaison (2003-10)
- University Board of Review (2008-10)
- Society of Physics Students Faculty Advisor (2005-10)
- College Handbook Revision Committee (2007-8)
- Physics Curriculum Revision Committee (2004-07)