

Curriculum vitae of
Karen K. Bernd

Davidson College
Biology Department
Davidson, NC 28035
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www.bio.davidson.edu/Bernd

Education:

1996-1998	Post doc	Duke University; Developmental Molecular and Cell Biology (PI: Bruce Kohorn)
1990-1996	Ph.D.	Princeton University; Molecular Biology (Advisor: Elizabeth Sztul)
1986-1990	B.A.	Franklin and Marshall College; Maj. Biology; Min. Philosophy. <i>Cum laude</i> and High Honors in Biology

Academic Appointments

2004-present	Associate Professor	Biology Department, Davidson College
1998-2004	Assistant Professor	Biology Department, Davidson College

Awards and Funding (since 1998)

External

2013-2016	NSF-TUES (Transforming Undergraduate Education in STEM disciplines) Breathe, Eat, Touch Project: Co-PIs: K. Bernd, C Hauser, K Foley. \$199,930
2011	Promega, Co. Honorarium, Product Development GSH/GSSG-Glo Kit \$1000
2007-2010	Summer Research Internship Program in Biochemistry Merck Foundation/AAAS: \$60,000 Co-PI Karen Bernd and Cindy Hauser
2003-2006	Summer Research Internship Program in Biochemistry Merck Foundation- AAAS: \$60,000 Co-PI Karen Bernd and Erland Stevens
2002-2006	NSF-REU Site Grant : \$248,101 "REU Site: Developing Student Scientists: Collaborative Research in the Life Sciences at Davidson College." Co-PI: Michael E. Dorcas, Mark T. Stanback, (added '04 to administer) Karen K. Bernd,
2002	Mellon Technology Fellow Associated Colleges of the South: \$2,500 "Providing Connections: Resources for Cell Biology" Updated syllabus and wrote course guide http://www.bio.davidson.edu/people/kabernd/cellbiohm.html

- 2001 Information Fluency Grant Associated Colleges of the South: \$3,655
“Maximizing Audience and Student-Perceived Relevance: Teaching Information Fluency in Introductory Biology Courses”
- 2000-2001 Educational Enhancement Grant North Carolina Biotechnology Center, Durham, NC: \$23,430 “Development of DNA sequencing and RNA detection methods for the undergraduate laboratory” Co-Principal Investigator: Dr. D. Wessner: Davidson College
- 2000 Mellon Technology Fellow Associated Colleges of the South: \$2,500
“Integrating WWWeb-based Technology into a Cell Biology Course”
- 1997-1999 NIH National Research Service Award: \$65,020 “Genetic analysis of *Chlamydomonas* protein translocation”
Declined final year to accept position at Davidson College
- Internal*
- 2014 Faculty Study and Research Grants: Davidson College, Davidson, NC: Environmental Cell Biology Research Fellow support \$3,500
- 2013 HHMI Course Release: Seminar Development \$7,000
- 2012 Course Development Stipend: Davidson College, Davidson, NC: Cases in Environmental Health \$2,000
- 2012 Faculty Study and Research Grants: Davidson College, Davidson, NC: Environmental Cell Biology Research Fellow support and supplies \$3,500
- 2011 Faculty Study and Research Grants: Davidson College, Davidson, NC: Environmental Cell Biology Study Supplies and Research Fellow support \$3,000
- 2010 Course Development Grant; Davidson College, Davidson, NC: Developing Bio107: Forensic Science w/ lab \$2000
- 2010 Faculty Study and Research Grants: Davidson College, Davidson, NC: Environmental Cell Biology Study Supplies \$2,600
- 2008 Faculty Study and Research Grants: Supplies Davidson College, Davidson, NC: Characterizing the effects of ozone and internal stressors on lung cell viability \$2,600
- 2007 HHMI Summer Research Program. Student Fellow support Co-Advisor

Karen Bernd and John Yukich. "Characterization of Functional Flagella with Optical Tweezers" \$5700

- 2007 Faculty Study and Research Grants; Student Fellowship Davidson College, Davidson, NC: "Establishing models to study the effects of ozone on surfactant and lung epithelial cells" \$3,200
- 2006 Faculty Study and Research Grants; Student Fellowship Davidson College, Davidson, NC: "Characterization of swimming force generated during flagella generation using the laser trap" \$3,200
- 2005 Faculty Study and Research: Teaching Improvement Grant Davidson College, Davidson, NC: "Forensic Serology Seminar: Communicating Scientific Information to Audiences with Different Scientific Backgrounds" \$2,600
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- 2003 Faculty Study and Research Grants Davidson College, Davidson, NC: Student stipends (2) "Optimizing Comparative RT-PCR for Cell Biology" and "Building Optical Tweezers," \$3,000
- 2002 Faculty Study and Research Grant Davidson College, Davidson, NC: "Microscale screening: Testing the general applicability of a novel technique" \$2,750
- 2001 Faculty Study and Research Grant Davidson College, Davidson, NC: "Characterizing the resistance of *Chlamydomonas reinhardtii* tip mutants to the herbicide Valor" \$3,000
- 2000 Faculty Study and Research Grant Davidson College, Davidson, NC: "Characterization of herbicide resistance in mutant algae strains" \$2,500
- 1999 Faculty Study and Research Grant Davidson College, Davidson, NC: "Investigating the link between translocation and herbicide resistance" \$2,500

Courses Taught (Since Davidson appointment in 1998)

- Bio107: Introduction to Forensic Sciences w/lab
- Bio111: Molecules, Genes and Cells w/ lab
- Bio308/ Bio208 Cell Biology w/ lab
- Bio238 Cell Biology and Signaling, under development for Spring 2015
- Bio361/2 Seminars "Forensic Serology"; "Genetically Modified Organisms"; / (prior to '04) "From Venoms and Toxins to Drugs"; "Vesicular traffic—Dogma/myth"

- Bio261 “Forensic Serology”
- Bio262 “Cases in Environmental Health”,
- Bio352: Group Investigations in Epithelial Cell biology
- Bio371/Bio372 Independent Laboratory Research Mentor: 42 students including students majoring in Biology, Chemistry, Spanish, English, Mathematics, and Center for Interdisciplinary Studies
- Bio373 Honors Thesis Research Mentor: 5 students
 - Honors Thesis 2nd reader: 18 students
- Env232/MHU 232: Introduction to Environmental Health *with community based learning component* - team taught (1sem)
- Env233/MHU233: Introduction to Environmental Health *with laboratory component* - team taught (1sem)
- CIS341: Introduction to Forensic Sciences: team-taught (3 offerings)
- CIS 241: Redesigned Introduction to Forensic Sciences, team-taught (2 offerings) (All CIS offering taught as teaching overloads)
- Summer research students: 37 students
- HHMI Bridge program advisor (volunteer working for 10wks w/ 3 Davidson students to develop and offer 80 contact hour lab course for 16 underrepresented minority HS students) 2 summers. Student interns majors in Biology, Chemistry, Psychology and Spanish
- Center for Interdisciplinary Studies:
 - Biophysical Chemistry major advisor and primary research mentor: 1 student
 - Biochemistry major advisor: 2 students
 - Biophysics major advisor and primary research mentor: 3 students
 - Bioethics major advisor and primary research mentor: 1 student
 - Forensic Science major advisor: 1 student
 - Neuroscience major 2nd reader: 6 students
 - Member of CIS advisory board 2000-2006
- July Experience Instructor “Genetic maps and Mood Swings”: 3 wk summer course for rising high school seniors: summers of ‘03, ‘05-‘09

For recent syllabi and course information please access my self-designed website: www.bio.davidson.edu/Bernd or my courses in Moodle (guest access is activated)

Professional Activities

A. Professional Society Memberships

1990-present	Phi Beta Kappa President 2010-2011, Executive committee 2011-2012 Chapter Initiation Banquet Committee 2002-2004
1991- 2010	American Society for Cell Biology NC Congressional Liaison Coalition 1999-2008
1999- 2010	National Association of Biology teachers
1991- 2002	Federation of American Societies for Experimental Biology

1999- 2002 American Association for the Advancement of Science

B. Reviewer (selected activities since 1998)

- GRE Committee of Examiners: Cellular, Molecular and Biochemistry Subject Test. Responsible for writing and reviewing and selecting the questions for the GRE test (ETS, Princeton NJ). As of 2013, preparing two full tests per year. Chair duties include additional question review and revision and final decisions on whether to include questions that whose scoring is flagged for statistical reasons during test scoring.
Committee Chair 2012-2013
 Sub-committee chair 2010-2014
 Panel member 2006-2014
- AP Biology *Revised AP Biology test Comparative Study (2013):* selections from test given at end of Intro. Biology to test scale of high school test takers scored by me and then by AP test scorers)
 Participated in standardizing (selections from test given and scored at end of Intro. Biology to test scale of high school test takers)
 Reviewer of AP Biology test as needed (ex. 2 WebEx meetings between myself and ETS staff in Fall 2012)
- Multimedia resource Development Cell Biology Interactive, packaged with Alberts et al. Molecular Biology of the Cell^{4th} ed., Garland Publishing
Involved in storyboard design, reviewing presentation and content at alpha and beta testing levels
- External Reviewer Emory & Henry Biology Department
- Educational Literature Reviewer Human Genome Traveling Exhibit: Teacher Guide
 Topics in Education Co, Charlotte, NC;
Involved in development and content review "Genome: The Secret of How Life Works" on display at Smithsonian Institution Fall 2003.
- Grant Proposal Reviewer NSF Graduate Research Fellowship Proposal reviewer
 Genetics and Cell Biology Panel 2003-2006, 2008, 2009, 2011
Ad hoc reviewer of NSF proposals (2007, 2008, 2009, 2012, 2013)
- Peer Review- Journal manuscript, Textbooks proposal and Textbook revision reviewer

C. Invited Speaker

2014 “Do summer afternoons hurt your lungs? Examining how lung cells recover from ozone damage” Winthrop University, Biology Department 3/14

2008 Scholarship; Teaching Research and Researching Teaching: Duke University: 2-hour seminar to graduate level course Bio390: Seminar in Teaching College Biology. 3/08

2006 ‘Making Labs Engaging’ Duke University: Invited speaker for 2-hour seminar to graduate level course Bio390: Seminar in Teaching College Biology. 3/06.

2005 “The Broad Spectrum of Academia: How academic cultures vary across institutions” Panelist with Albert Young, Assistant Professor, Physics, North Carolina State University; and Jeff Rathmell, Assistant Professor, Pharmacology and Cancer Biology, Duke University Medical Center. Duke University Postdoctoral Association organized event. Duke University, 1/05

2003 ‘Protein Translocation and Herbicide Resistance: How the Summer Sun Causes the Birth of an Assay’ Franklin and Marshall College: Lancaster, PA Biology Evening Seminar Series/ Porter Science Society (3/03)

2003 Metabolism and Information Pathways. Franklin and Marshall College: Lancaster, PA Guest lecturer Bio334: Biochemistry and Molecular Biology (3/03)

2002 “Information Fluency: Promoting critical reading and webpage” authoring in biology courses NSF: Preparing Future Faculty: Duke University, Durham, NC (3/02)

2001 “Integrating Webauthoring into Seminar Courses” NSF: Preparing Future Faculty, Guilford College, Greensboro, NC (3/01)

2000 “Linking the WWWeb and Seminar Courses: Lessons learned from Vesicular Traffic: Dogma or Myth” American Society for Cell Biology Annual Meeting: San Francisco, CA (12/00)

1999 "Webpage authoring as an instructional tool for seminar classes" Southwestern University: ACS technology workshop (7/99)

1998 Novartis Corporation, Durham, NC (2/98)

Selected Publications (since 1997)

A. Research Papers *denotes undergraduates as co-authors

Valauri-Orton, A* Bschorer, F*, and KK Bernd. Dichloroacetate Decreases Cell Health and Activates Oxidative Stress Defense Pathways in Rat Alveolar Type II Pneumocytes. *Manuscript drafted/ formatting for submission in progress, available upon request*

2014 Valauri-Orton, A* and K Bernd "STOP: Can you drink that water?" Microbiology, Chemistry and Advocacy in an Inquiry-based Water Quality Curriculum for Eighth Graders. *American Biology Teacher*. Provisionally accepted 9/26/14.

Chalfant, M*, and K K Bernd. 2014. 17 β -estradiol alters rat type-II alveolar cell recovery from high levels of ozone. *PLoS One* 9(3): e90530 doi:10.1371/ journal.pone.0090530

Guilford, W.H., Aust, L.E.* , and K.K. Bernd. 2006. Whole-cell flagellum-based motility studied using back focal plane interferometry in a laser trap transducer. Conference Record of the Fortieth Asilomar Conference on Signals, Systems and Computers: 178-82.

McCord, R.P.* , Yukich, J. N. and Bernd, K.K.. 2005. Analysis of Force Generation during Flagellar Assembly Through Optical Trapping of Free-swimming *Chlamydomonas reinhardtii*. *Cell Motility and the Cytoskeleton* 61: 137-144

____(pre tenure publications below)

Bernd, K. K., and Cook, N.*. 2002. Microscale assay monitors algal growth characteristics. *Biotechniques* 32: 1256-1259. <http://www.biotechniques.com/>

Timm, K.S., Titus, B.J., Bernd, K. and Barroso, M. 1999. The EF-hand calcium-binding protein p22 associates with microtubules in a N-myristoylation-dependent manner. *MBC* 10: 3473-3478. <http://www.molbiolcell.org/cgi/content/full/10/10/3473>

Hsing, W., Russo, F.D., Bernd, K.K., and Silhavy, T.J. 1998. Mutations that alter the kinase and phosphatase activities of the two-component sensor EnvZ. *Journal of Bacteriology* 180:4538-4546. <http://jb.asm.org/cgi/reprint/180/17/4538.pdf>

Bernd, K.K., and Kohorn, B.D. 1998. Tip loci: Six *Chlamydomonas* nuclear suppressors that permit the translocation of proteins with mutant thylakoid signal sequences. *Genetics* 149:1293-1301
<http://www.genetics.org/content/vol149/issue3/>

B. Books and Book Chapters

Bernd K.K. 2004. *Biology In Condense Knowledge* Eds W. Pearson, L. Hunt and M. Hattikudur. Harper Collins.

___(pre tenure publications below)

Bernd, K.K. 2002. Teaching Guide: Integrating Molecular Biology of the Cell 4th edition and Cell Biology Interactive. Garland Science
<http://www.garlandscience.com/MBoC4/supplements.html>

Bernd, K.K., Perret, M.C., and Kohorn, B.D. 1998. Chloroplast protein translocation in Chlamydomonas. *In* Molecular Biology of Chloroplasts and Mitochondria in Chlamydomonas. Eds. J. –D. Rochaix, M. Goldschmidt-Clermont, and S. Merchant

C. Invited Book Reviews and articles *denotes undergraduates as co-authors

Chalfant*, M. and Bernd, K. 2011. Detecting Ozone-Induced Changes in Cellular Redox Balance via GSH/GSSG-Glo™ Assay. [Internet] Available from:
http://content.promega.com/resources/articles/pubhub/tpub_059-detecting-ozone-induced-changes-in-cellular-redox-balance-via-gsh-gssg-glo-assay/

Interviewed by Kerri McWinney for MoBio newsletter, the quarterly electronic newsletter for their company, featuring collaborative field/lab work with M. Dorcas.
<http://www.mobio.com/blog/2009/10/18/csi-meets-crocodile-hunter-undergraduate-scientists-hunt-for-the-deadly-chytrid-fungus/>

Bernd K.K. 2005. TP Msg. 623 “Merging Teaching and Research” a response to ‘Sufficient Time for Research’ Initially posted 2/14/05, ‘Tomorrow’s Professor’ faculty development resource sponsored by the Stanford University Center for Teaching and Learning. Posting written at the request of the moderator Rick Reis. Archived at
<http://ctl.stanford.edu/Tomprof/index.shtml>

Bernd, K.K. and V. Statler*. 2004. Customer Focus: Undergraduates Study Gene Expression in *S. cerevisiae* Using a Student-Optimized Protocol. Epicentre Forum 11; 4

___(pre tenure publications below)

Bernd, K.K. 2003. Waiting for 4.1: Review of Roche Genetics Education Program CD-rom version 4.0 Cell Biology Education 2: 152-155.
<http://www.cellbioed.org/articles/vol2no3/article.cfm?articleID=66>

Bernd K.K. 2002. Book Review: Mood Genes: Hunting for the Origins of Mania and Depression. *J. of Undergraduate Neuroscience*. 1(1); R1-R2.
<http://www.funjournal.org/downloads/R1bernd.pdf>

D. Abstracts/Posters/Presentations at Meetings *denotes undergraduates as co-authors, posters presented as part of Davidson Fall and Spring research symposiums not included.

C. Bennett* and K.K. Bernd. Characterizing The Effects Of Classic Tobacco Flavored Electronic Cigarette Vapor On Rat Alveolar Type II Lung Cells. Society for Research on Nicotine and Tobacco Annual Meeting. Philadelphia, PA (Feb 2015, abstract submitted 9/12/14)

K. Bernd, K.L Foley, and C.D. Hauser. Breathe, Eat, Touch Project (BET): Engaging students in STEM through Case Method Teaching in Environmental Health. American Association of Colleges and Universities *Transforming STEM Higher Education Conference*. Atlanta, GA (Nov 2014)

D. Merrill* and K. Bernd. Bacterial Population Density, Composition, & Antibiotic Resistance a Comparison of College Cleaning Regimes. Association of Southeastern Biologists Annual meeting. Spartanburg, SC. (April 2014)

C. Bennett* and K. Bernd. Characterizing the Effects of Electronic Cigarettes: The Development of a Vaping Study. Association of Southeastern Biologists Annual meeting. Spartanburg, SC. (April 2014)

D. Merrill* and K. Bernd. Characterization of Bacterial Population Density, Composition, and Antibiotic Resistance in College Gyms. NC Branch of the American Society for Microbiology Annual Meeting, East Carolina University, Greenville, NC (October 2013)

K. Foley, C. Hauser, and K. Bernd. Using Formative Data to Develop a Case-Based Curriculum in Environmental Health. 14th Annual Conference on Case Study Teaching in Science. hosted by the National Center for Case Study Teaching in Science Buffalo, NY. (September 2013)

A. Valauri-Orton* and K Bernd. Water Purification Byproduct Dichloroacetic Acid Induces Stress in Lung Cells. ASB meeting. UGA, Athens, GA. Presented by A. V.O. (April 2012)

D. Cook* and K Bernd. Characterizing the effects of selenium treatment on lung cell viability and antioxidant production. ASB meeting. UGA, Athens, GA. Submitted/accepted but Daniel later unable to attend. (April 2012)

R. Lightsey*, K. Bernd, J. Myers, and J. Yukich. (2011) Measuring the mechanical properties of spider silk using optical tweezers. *SNCURCS*, East Carolina University. (Nov 2011)

D. Cook* and K. Bernd Effect of Selenium treatment on alveolar type II lung cells exposed to ozone. Association of Southeastern Biologists Annual Meeting, Ashville, NC (April 2010)

M. Chalfant* and K Bernd 17-beta estradiol administration timing alters lung cell response to ozone exposure. Association of Southeastern Biologists Annual Meeting, Ashville, NC (April 2010)

J. N. Yukich, C. Clodfelter,* K.K. Bernd. Flagellar force production during regeneration in *Chlamydomonas reinhardtii* . Platform presentation Southeastern Section of the American Physical Society, Atlanta, GA, (Nov 2009.)

M. Chalfant*, K. Bernd. 17- β Estradiol affects lung cell response to oxidative stress. State of NC Undergraduate Research and Creativity Symposium (SNCURCS). UNC-Wilmington, (Nov 2009)

D. Cook*, K. Bernd. Selenium treatment post ozone exposure improves lung cell recovery 12th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences sponsored by National Institutes of Health (NIGMS), Univ of Maryland, Baltimore County, MD. (Oct 2009)

C. Clodfelter*, J. Yukich and K. Bernd. Abnormal movement and the trend of flagellar force production during regeneration in *Chlamydomonas reinhardtii* Biophysical Society Annual Meeting. Boston, MA. (Feb 2009)

M. Shaban*, C. Clodfelter*, J. Yukich, K.K. Bernd. Comparing Laser Trap-based Approaches to Investigate and Model Flagella Force Generation in *Chlamydomonas reinhardtii*. Biophysical Society Annual Meeting. Long Beach CA Poster presented by MS and CC (Feb 2008)

M. Shaban* C. Clodfelter*, K.K. Bernd. J. Yukich. Developing optical trapping techniques to measure swimming force generation in *Chlamydomonas* cells NC Academy of Science Annual Meeting. UNC Greensboro. Platform talk by M.S. (Mar 2008)

L. Woeste*, M Esposito*, and K.K. Bernd . A thyroid disorder model based on metabolic differences in cell culture to demonstrate the varying effect of thyroid hormone on glucose consumption. NC Academy of Science Annual Meeting. UNC Greensboro. (Mar 2008)

*Clodfelter, C., *Shaban, M., Yukich, J., Bernd, K.K Analysis of Force Generation Patterns During *C. reinhardtii* Flagella Regeneration. America Society for Cell Biology Annual Meeting, Washington, D.C. (Dec 2007)

Bernd, K.K., DeForest Hauser, C., *Nam, A., *Raver, C., *Weaver, A. An epithelial Type II Cell System to Investigate Links between Environmental Factors and Lung Injury. America Society for Cell Biology Annual Meeting, Washington, D.C. (Dec 2007)

M. Shaban*, C. Clodfelter*, J.Yukich, K.K. Bernd. Examining Swimming Force Generation as *Chlamydomonas reinhardtii* Flagella Regenerate. Regional meeting American Society for Microbiology, Greensboro, NC. Pster presented by M.S. (Oct 2007)

Yukich, J. *Shaban, M., * Clodfelter, C., Bernd. KK Measurement of swimming force generation in *Chlamydomonas reinhardtii* using optical tweezers. Optics in the Southeast Annual Meeting. Clemson University Platform Talk (Oct 2007)

Guilford W., *Aust,L, Bernd, K.K., Whole-cell flagellum-based motility studied using back focal plane interferometry in a laser trap transducer. 40th Asilomar Conference on Signals, Systems and Computers. Pacific Grove, California. Platform talk. (Nov 2006)

Shaban, M.*, Bernd, K, and Yukich, J., Improving Optical Trap Calibration Techniques for Chlamydomonas Cells. NCS-AAPT meeting Elon College. (Sept 2006)
Mona Shaban presented platform talk.

Yukich, J., Bernd, K.K., and R.P.McCord*. Biophysical analysis of swimming force by *Chlamydomonas* flagella. Annual Meeting of the SE section of the American Physical Society. Platform talk. (Oct 2005)

Newton, K.*, Pickens, A.*, and K.K.Bernd. 2005. Novel organic compounds DRR 3 and DRR 5 affect growth rate differentially in model bacteria *Escherichia coli*, *Salmonella typhimurium*, and *Staphylococcus simulans*. North Carolina Academy of Science Annual Meeting. Meredith College, Raleigh, NC. (Nov 2005)

McCord, R.P.*, Yukich, J. N., and K.K. Bernd. Optical Trap Analysis Reveals *Chlamydomonas reinhardtii* Exhibit Complex Patterns of Swimming Force Increase During Flagella Elongation. American Society for Cell Biology annual meeting, Washington, DC. (Dec 2004)

Bernd, K. K. Undergraduates Ranking Grant Proposals and Writing a *Curriculum Vitae* Why and How? American Society for Cell Biology annual meeting, Washington, DC. (Dec 2004) Mol Biol Cell 15 (Suppl. S):233A

___(pre tenure below)

McCord, R.P.*, Yukich, J. N.. and K.K. Bernd. Using Optical Tweezers to Measure the Force Exerted by Original and Regenerated Flagella of *Chlamydomonas reinhardtii*. NC Academy of Science Annual meeting, Catawba College, (March 2004_ . Awarded First Place in Cell and Developmental Biology Oral Presentation Section.

McCord, R.P.*, Bernd, K.K., and J.N. Yukich. Optical Tweezers and Biological Forces: Using a Laser Trap to Measure the Swimming Force Exerted by the Flagella of *Chlamydomonas reinhardtii*. Biophysical Society Annual Meeting. Baltimore, MD presented by McCord. (February, 2004)

Wilson, A.R.*, Neill, J.,* Stevens, E. and K.K. Bernd. Analysis of Purine Derivatives for Antimicrobial Activity. NC Academy of Science Annual meeting, Catawba College, (March 2004). Awarded First Place in Cell and Developmental Biology Poster section. McCord, R.P.*, Yukich, J.N., and K.K. Bernd. The Design and Construction of an Optical Tweezers Laser Apparatus to Measure Piconewton Scale Biological Forces. Annual Meeting of the SE section of the American Physical Society. (2003) Wilmington, NC. Awarded Second Place in Undergraduate Poster Division.

Stevens, E. Neill, J., * Wilson, A, * and Bernd, K.K. Synthesis and Biological Activity of 1,2,3-triazoles. American Chemical Society Annual meeting Atlanta, GA, (2003)

Newton, K. *, Chase, M. *, Toran, P. *, and Bernd, K.K. Characterizing golgin targeting requirements. Poster at North Carolina Academy of Science Meeting, at UNC-Wilmington, Wilmington, NC. Awarded Third Place John Derieux Award for Outstanding Undergraduate Research; Student Poster division. (2003) Presented by 3 students

Statler, V. * and K. K. Bernd.. Optimizing Comparative RT-PCR for undergraduate Cell Biology laboratories. Presentation at North Carolina Academy of Science Meeting, at UNC-Wilmington, Wilmington, NC. Awarded Second Place John Derieux Award for Outstanding Undergraduate Research; Science Education division. (2003) Platform presentation by Victoria Statler ('03)

Bernd, K. K. and Cook, N. * Protein translocation mutants demonstrate altered herbicide resistance in novel microscale assay. American Society for Cell Biology annual meeting, Washington, DC. (2001)

Larned, C. *, Nugent, E*, McKillop, J. C., Bernd, K. K. and Wessner, D. Use of Rapid, Chemiluminescent DNA Sequencing and Phenol-free RNA Isolation Protocols in the Undergraduate Curriculum. ASM Annual Meeting abstract/poster, Orlando, FL (June 2001) Presented by C. Larned.

McKillop, J. C. * and K.K. Bernd. 2001. Optimizing *S. cerevisiae* differential gene expression protocols for use in undergraduate laboratories. NC Academy of Science meeting. (2001) Platform presentation by J.C. McKillop ('01).

Bernd, K K, Larned, C*, McKillop, J, *Nugent, E*, Riedley, S*, and Wessner, D. DNA Sequencing and Differential Expression Studies: Non-radioactive, Non-toxic and Accessible. American Society for Cell Biology Annual Meeting. (Dec 2001)

Cook, N. * and Bernd K. Maximize screening capabilities, minimize cost: Using liquid and solid media microtiter assays to screen microorganisms American Society for Cell Biology Annual Meeting. (1999)

Bernd, K.K., Perret, M. C., Zerges, W., and Kohorn, B.D. Tip loci: Six suppressors that permit the translocation of proteins with mutant signal sequences. *8th International Conference on the Cell and Molecular Biology of Chlamydomonas*. Seminar and poster. Tahoe City, California (1998)

E. Davidson College Service

1. College committees

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| 2012- pres. | Professional Affairs Committee |
| 2014 | Biology Department Search Committee: Departmental Assistant |
| 2012 | Biology Department Search SubCommittee: Conservation Ecologist |
| 2012 | Biology Department Search Committee: Intro Bio Adjunct(s) |
| 2006-2012 | Faculty Committee on Admissions and Financial Aid (“Admissions Committee.”)
Chair 4 years (08-12) |
| 2009 | Search committee: HHMI Postdoctoral fellow |
| 2006-2007 | Search committee Associate Director Medical Humanities Program (2 rounds) |
| 2004-2007 | Student Conduct Council
Elected by the Natural Sciences Division |
| 2001 – 2006 | Center for Interdisciplinary Studies Advisory Board
Critique all Center Major applications (approx. 15-20 per year)
Participate in thesis proposal defenses (approx. 3 per year)
Participate in final oral thesis defenses (approx. 4 per year) |
| 2006 | Search Committee Biology Department Immunologist |
| 2005-2006 | SAC committee reviewing the Humanities program |
| 2005 | Search committee for VP/Dean of Admission and Financial Aid |
| 2005 | Search Committee Biology Department for one semester position teaching Introductory Biology |

- 2003 – 2006 Sexual Misconduct Board
Appointed to board by President Vagt Spring 2003.
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- 2000 – 2004 Graduate Grants and Fellowships committee:
Interview and grant Davidson's Smith Fellowship
Determine college's candidates for Watson fellowship
Mock interviews for Rhodes and Mellon Fellowships
Aid students in preparing NSF graduate fellowship applications
- 2009, 2003, 1999 Premed Advisory Committee Subcommittee member
Interviewed and ranked students applying to medical school.
- 2002 Premedical Advisory Committee
Held interviews and participated in student review process during spring semester as substitute for M. Stanback (on sabbatical) 5 students interviewed, 42 students reviewed and ranked by panel
- 1999 - 2001 Review Board: Heard cases appealing sanctions imposed by Honor Council or Judiciary Board (approx 3 cases each semester)
Chair of Review Board Fall 2000 – Fall 2001
- 1999-2000 Writing Center Advisory Committee

2. College Organizations

- 2001-2007 **Reproductive Rights Alliance of Davidson** faculty advisor (since its inception). Student group focusing on educational resources for reproductive issues. Outreach includes education regarding reproductive health and safety as well as resources concerning birth control, abortion and adoption services.
- 1998-2004 NOAH Junior faculty group meeting monthly to discuss pedagogy and insights to being junior faculty and being at Davidson. (no longer eligible to participate after tenure)
Co-coordinator Fall 2000-2003

3. College Presentations and Service (since tenure 2004)

- 2012-2014 Biology Student Thesis Coordinator: Contact point and organizer for students completing research theses and pursuing Honors research. Developed Moodle page to centralize information for current thesis student and students exploring research opportunities.
- 2008-2010 BioCenter Newsletter: Writer, Editor-in Chief and head bottle washer:
Prepare and distribute weekly electronic newsletter containing departmental events,

seminars, job and fellowship opportunities, study tips and jokes to all majors, students in biology courses and department staff and faculty (~1.5hr/week)

2006-2012 Host Forensic Science Workshop for local middle school students. As part of Forensic Serology seminar design and host 2.5hour workshop for 30 students.

1998- present Departmental 'Public Relations' contact:

Provide contact point for inquiries about the biology major, Davidson's facilities, and other more random scientific questions (i.e. ' Please tell me everything you know about biology' ;' a friend took a non-fatal overdose of aspirin as a child, could that have caused his childhood habit of banging his head against the floor?; "what is the life expectancy of red wiggler (worms)?" ; "I want my grandson to stay in school, will you talk to him?"). Provide personal tours, answer questions in person, by email and phone.

1998-present Work with Office of Admission and Financial Aid

Faculty Admission Committee

Member and Chair 6 years, see committee work above

Tours:

Introduce prospective Davidson students to the opportunities and facilities in the Biology department (Approx 2 tours per week during academic year, 1-2 tours per week during summer)

Provide biology training for summer campus tour guides

Discover Davidson and Decision Davidson: weekend recruiting events

Biology Department Representative for Science Tours (2hr 9/09, 9/12, 9/14)

Invited speaker for science section of the following events (ea 1hr talk + Q&A)

"Stress Responses: Why Bears Always Chase Biologists" 10/07

Davidson Junior Day: Part of four-person panel that provided information about our division of the college and opportunities for students. Answered questions posed by the prospective students and their parents. 2/19/06

Scholar Interview committee

2003-2015 Belk Scholarship Interview Panel: Belk Scholarship is a merit based scholarship that provides 10 students in each entering class with 4 years of full tuition, room, board, and two summer stipends (have been placed on spring 2015 panel as of August 2014)

2011 Baker Scholarship Interview Panel: 2011: Baker Scholarship is a merit based scholarship that provides 2 students in each entering class with 4 years of full tuition, room, board, and two summer stipends

Course Registration Contact

First year student scheduling advisor. One of four faculty members provided as contacts to help incoming students submit their first course registration forms. (2005-2013)

Admissions Biology contact: emailed accepted students with stated Biology interest, congratulating them on acceptance and offering to help with any questions that remained.

2009 *CatsConnect* Panel discussion with student mentors

2009 *Air quality and lung function: An argument from the couch*: CIS lunch series speaker

2007, 2008 *How to succeed at Davidson*: First Year Orientation panel presentation. Came in costume as the late, baseball cap and sweats wearing, texting, student (example of what not to do). Panel included Registrar, Student and Asst Dean of Students.

2006, 2008 'Goggles for Non-Geeks' Forensic Science: With Dr Cindy Hauser (Chemistry) developed and led 3 hour Saturday morning investigative lab integrating biological and chemical analysis into crime solving. Participants were 8, 8th graders 11/06 4/08

2006 Participated in external review of Anthropology Department

Participated in external review of Medical Humanities Program

Family Weekend Speaker 'From Pedagogy to Practice' Presentation discussing the HHMI Bridge Program and pedagogy intended to instill interest in continuing on to College and continue on in science. 10/20/06

'Blood Hunters: Lessons in Communication from a Forensic Serology Seminar' Teaching Improvement Grants - Sharing Session 4/11/06

2005-06 SACs accreditation committee examining Humanities program

4. Other Advising responsibilities

1998-present Academic advisor for 65 students during their first two years (Admission committee service is non overlapping with 1st year advising)
 Biology major advisor for 112 students
 Primary major advisor for 9 students through Center for Interdisciplinary Studies (majors in Bioethics, Biophysics, Biophysical Chemistry,

Biochemistry, Forensic Science)

2001-2013; 'Master teacher' mentor as part of the NSF Preparing Future Professors/ Teaching Certificate program. Meet bimonthly, critique guest lectures, maintain contact by email, help develop teaching portfolio, develop teaching skills and resources.

2011- 2013 Heidi Cedercoln, Graduate Student, Duke University
Biology Department

2004- 2008 Samantha Kerry, Ph.D. Postdoctoral fellow, Duke
University Microbiology Department

2001-2004 Jennifer Nelson, Graduate Student, Duke University
Biology Department

F. Community (since tenure 2004)

Volunteering /Community involvement

End of Grade Testing Proctor Mooresville Intermediate school (5th grade and 6th grade) 2011, 2012

Senior Project Judge Mooresville High School. Part of panel that evaluated senior project presentations. May 2012

Lent in the Living Room Facilitator. Facilitator for church group discussion of 'Loving to Pray' (book and accompanying CD) during 6 weeks of Lent.

Tutor 1hr/wk at Mooresville Intermediate School. Primary focus: reading comprehension skills working with third grade students 9/05-12/05

Designed and constructed entire set for 'Country Store Mouse', a 30min play presented by Mrs. Farabee's First grade class, South Elementary School, Mooresville, NC. (construction Jan and Feb '04, play presented March 5th, 8th and 9th 2004)

Classroom volunteer/ reading tutor South Elementary, Mooresville, N.C. Work with students for two hours every Monday 9/04- 12/04.

Scientific Outreach

Davidson Learns: "Current Issues in Environmental Studies; Environmental Health"
Co- taught w Cindy Hauser. 1.5 hour session for twenty community members ranging in age between 30s and 80s

'*Scientist Letter*' project run by Beth Becker in Maple Street School in PA. 6th graders write letters to scientists asking them about their work and their lives and we respond. 2009-2014

'*Splat*' Designed and offered 1.5 hr hands-on workshop to groups of sixth grade students over 4 days at Mooresville Intermediate School (200 students total).

"SPLAT!" uses biology and mathematics to analyze simulated blood spatter and solve a crime. Designed with background to connect with their unit on World War II (May 29-June 1, 2012)

Volunteer: Mooresville Intermediate School 6th grade .

- Pond Microorganism Survey:* learning the microscope (60 children 3hr)
- Prepared digital images of fresh water specimens for future analysis (4hr, materials used by multiple classes)
- Details at Your Fingertips:* 2hr hands on exercise exploring the biology behind and forensic uses of fingerprints. (90 children)

NC Center for the Environment Volunteer. Collected air quality samples from Mooresville for 8 weeks during summer 2011 as part of a five county air quality study
Interviewed by Kathy Chaffin, Center for the Environment, regarding participation in Center for the Environment five county study.

<http://www.campaignforcleanair.org/news-reader/items/charlotte-was-ranked-20th-in-a-recent-green-city-index-rating-27-major-metropolitan-areas-in-the-united-states-and-canada-in-env.html>

Interviewed by Dustin McClain, Challenger Early College High School in Houston, TX for his Earth and Environmental Science project on 'what is science' 2010

Taught 7th grade science class at Mooresville Middle School on 'Cells'. Talk was videotaped in that class, and showed to all 7th graders in their science class 2010

The Case of the Missing Lottery Ticket: Bio361 course designed and hosted a 2 hour hands-on workshop for 30 6th, 7th, and 8th graders from the Children's Community School. 11/2/09

'What is science' Corresponded with 8th grader in Hickory participating in an enrichment program. 2009

"Who Killed Mr. Katt" w/ Forensic Science class, developed and led 2 hour of hands on lab exercises using forensic serology techniques to introduce biological concepts. Participants were 22, 6th and 7th graders from The Children's Community School. (11/08)

Harry the Skeleton and friends: 1 ½ hour presentation to 3rd graders at Mooresville Intermediate School including skeletons, Harry, Phillippe (the frog) and Schroedinger (the cat). Introduction to comparative anatomy and 'make your own' skeleton exercise. 2008

AP Chemistry student tour: tour of the biology department to James Buchanan's AP Chemistry class (North Mecklenberg High School). 2006

National Board Certification Process: Provided materials and letters of support to help Mrs. Susan Stutts (Kindergarten teacher, South Elementary School, Mooresville) work toward receiving National Board for Professional Teaching Standards Certification. 2006

Forensic Serology presentation: Coordinated hands-on forensic serology presentation for Boy Scout Troop, Nov 1 2005. Students from Forensic serology class main presenters.