Contact Information:
Pamela Riggs-Gelasco
Professor and Chair
Department of Chemistry and Biochemistry
College of Charleston
Charleston, SC 29424
843-953-7455
gelascop@cofc.edu

Academic Background:

Albion College	BA Chemistry 1989
University of Michigan	PhD Chemistry 1995 (supervisor: J. Penner-Hahn)
Massachusetts Institute of Technology	NIH Postdoctoral Fellow (supervisor: J. Stubbe)

Positions:
College of Charleston, Chair, Department of Chemistry and Biochemistry (1/12-present)
College of Charleston, Professor of Chemistry and Biochemistry (8/11-present)
College of Charleston, Associate Professor of Chemistry and Biochemistry (8/04-8/11)
College of Charleston, Assistant Professor of Chemistry and Biochemistry (8/98-8/04)

Research Interests:
The Riggs-Gelasco laboratory uses X-ray absorption spectroscopy to determine the active site structure of metalloenzymes. We have an ongoing interest in the following systems:

- Metal Specificity of ribonucleotide reductases
- Catalytic site of manganese oxidizing proteins
- Characterization of reaction intermediates in non-heme Fe enzymes
- Sulfur oxidation in biological systems
- Characterization of the metal center in the *Pfiesteria Piscicida* ichthyotoxin
- Heavy metal accumulation in *Acanthocephalans*
- Antioxidant properties of Copper-Selenium compounds
- Copper transport in cells
- Iron transport in cells

Honors and Awards:
Superior Post-tenure review, College of Charleston (4/18)
American Chemical Society Local Section Outreach Volunteer of the Year for the SC Section (4/17)
South Carolina Chemist of the Year, South Carolina Section of the American Chemical Society (4/13)
William V. Moore Teacher-Scholar Award, College of Charleston (4/12)
Distinguished Achievement Award, College of Charleston, School of Science and Math (5/04, 5/08)
William Mebane Distinguished Teaching Chair, School of Science and Math, 2009-2012
NIH Post-doctoral Fellow, MIT (8/96 – 8/98)
NIH Cancer Training Grant Fellow, MIT (8/95 - 7/96)
BASF Fellowship, University of Michigan (9/92 -12/92)
NIH Biophysics Training Grant Fellow, University of Michigan (1/90 - 6/92)
Phi Beta Kappa and Omicron Delta Kappa, Albion College (5/89)
Graduated Summa cum Laude with Honors in Chemistry, Albion College (5/89)

Teaching:
Chemistry 111, 1st semester General Chemistry
Chemistry 111 laboratory, 1st semester General Chemistry lab
Chemistry 351, Introduction to Biological Molecules (1st semester of biochemistry sequence)
Chemistry 352, Biochemistry of Metabolic Pathways (2nd semester of biochemistry sequence)
Chemistry 354, Biochemistry Laboratory
Chemistry 481, 482, 499, 397 Independent research and Bachelor's Essay
Chemistry 356, Molecular Basis of Disease
Chemistry 355L, Research Methods in Biochemistry
Chemistry 492, Senior Seminar
Chemistry 111—Biology 111 Freshmen Learning Community
Chem 181L, Chemistry Research Rotation

Grants Funded:
External Funding as Principal Investigator:
Howard Hughes Medical Institute**, 2012 Undergraduate Education Competition**, (**$1,400,000**) 9/12-9/17
*"*College of Charleston*"*

Howard Hughes Medical Institute**, 2008 Undergraduate Education Competition**, (**$1,400,000**) 9/08-9/13
*"*College of Charleston*"*

Camille and Henry Drefus Foundation, **Henry Dreyfus Teacher-Scholar Award ($60,000**) 10/07-10/12, "Oxygen Activation by Metalloenzymes: Ribonucleotide Reductase from *C. ammoniagenes* and its facultative metal cofactor"

National Institutes of Health**-AREA** (R15 GM06790-01: **$100,000** direct cost) 6/03– 5/06
"Is there a Class IV Ribonucleotide Reductase?"

South Carolina Committee on Higher Education **Research Initiative Award ($55,000**) 1/00-1/01
"Characterization of the Manganese oxidizing protein from *Leptothrix discophora*"

American Chemical Society **Petroleum Research Fund** Grant (35151-GB3,4: **$25,000**) 9/00- 9/03
"Oxidation of Manganese in Biological Systems"

Camille and Henry Dreyfus **Faculty Startup Grant** (SU-98-006: **$20,000**) 8/98 – 8/03
"The mechanism of cofactor assembly in manganese enzymes"

External Funding as Co-PI/Target Faculty:
National Institutes of Health, **IDeA Network of Biomedical Research Excellence**, State of South Carolina INBRE (L. Pirisi-Creek, PI at USC; CofC portion **$1,555,000,** CofC PI N. Noonan and J. Deavor) 5/06-4/10
CofC module: "Molecular Models for and Chemical Approaches to Disease Processes"

National Institutes of Health, **Biomedical Research Infrastructure Network**, (J. Baynes, PI at USC, P. Riggs-Gelasco, CofC PI, **$371,768** for CofC direct cost) 9/01-9/04, "South Carolina Biomedical Research Infrastructure"

National Institutes of Health, **Instrumentation Grant** (J. Raymond, PI at MUSC, S10RR13005: **$305,880**) 1/99, "Electron Paramagnetic Spin Resonance Facility"

Internal Grants as Principal Investigator:

College of Charleston SURF Award (student Kristen Hoecker, **$6,500**)
"Metal Binding Properties of Mn dependent ribonucleotide reductases", summer 2014

College of Charleston SURF Award (student Elliot Murphy, **$6,500**)
"Structural and Functional Comparison of the Enzymes Manganese Ribonucleotide Reductase and Manganese Catalase", Summer 2013.

College of Charleston SURF Award (student Andrew Lejman, **$6,500**)
"Isolation and Characterization of Manganese Catalase from *L. plantarum*", summer 2011.

College of Charleston SURF Award (student Corey Seacrist, **$6,500**)
"Evaluating the role of nrdI in ribonucleotide reduction in *C. ammoniagene*s", summer 2010.

College of Charleston SURF Award (student Amy Rhoden; **$4,200**)
"Characterization of the ribonucleotide reductase from *C. ammoniagenes",* summer 2007.

College of Charleston SURF Award (student Onica Washington, **$5,000**)
"Characterization of the Manganese-oxidizing protein from *Leptothrix discophora*", summer 2007.

College of Charleston MAYS Award (students Grimley and Yonce; **$3,750**)
"X-ray Absorption Studies of Iron Metalloproteins", fall 2006.

College of Charleston SURF Award (student J. Duncan-Gould; **$5,000**)
"Isolation of Overexpressed Manganese Catalase", summer 2005.

College of Charleston SURF Award (student Seth Bowman; **$5,000**)
"Role of the nrdI protein in ribonucleotide reduction", summer 2004.

College of Charleston SURF Award (student Jessica Brehm; **$5,000**)
"Metal Specificity of Ribonucleotide Reductase from *C. Ammoniagenes*", summer 2003.

College of Charleston SURF Award (student Kiesha McCausland; **$5,000**)
Investigating the Metal Specificity and Regulation of the Enzyme RNR from *C. ammoniagenes,* Summer 2003.

College of Charleston Faculty Research and Development Award
(Funded two trips to the synchrotron in Fall 2007 **($3,790**).

Undergraduate Research Students:

Taylor Domenick	Spring 2015-Summer 2015 (PhD program, University of Florida)
John Mansure	Spring 2015 (deceased)
Kristen Hoecker	Summer 2014-Summer 2015 (Teaching English in France)
R. Elliot Murphy	Summer 2012-Summer 2014 (PhD program, University of Alabama, Birmingham)
Lidoshka Marc	Summer 2012-Summer 2013 (employed CDC)
Andrew Lejman	Summer 2011-Spring 2012 (Dental School, NYU)
Corey Seacrist	Summer 2010-Summer 2013 (PhD program at Vanderbilt)
Christian Harding	Spring 2009-Summer 2010 (PhD from Ohio State University; Post-doc WUSL)

Jenna Williams	Summer 2009 (in service teacher)
Whitney Gibbs	Summer 2009-Fall 2011 (PhD from MUSC; Post-doc, Harvard)
David Thieker	Summer 2009-Summer 2011 (PhD from University of Georgia; Post-doc UNC)
Matt Keller	Summer 2008-Summer 2010 (PhD from University of Georgia; Post-doc CDC)
Brittney Henderson	Spring 2008-Spring 2009 (MPAS from University of Colorado, Denver)
Onica Washington	Summer 2007-Summer08, (MD/PhD, Duke and MUSC)
Matt Williams	Summer 2006-Spring 2007 (PharmD from MUSC)
Alix Grimley	Summer 2006-Summer 2007 (PhD from FSU)
Ryan Yonce	Summer 2006-Spring 2007 (MLA from Clemson University)
Amy Rhoden	Summer 2006-Summer 2008 (PhD from University of Texas at Austin)
David Lane	Fall 2005 (US Naval Nuclear School Instructor)
Alan Wilder	Summer 2005, Fall 2005 (MS from UC Davis)
Jolene Duncan-Gould	Spring 2005-Summer 2005 (JD from George Washington)
Seth Bowman	Spring 2005-Summer 2005 (MD from MUSC)
Kiesha McCausland	Spring 2004-Summer 2004 (MD from MUSC)
Jessica Brehm	Spring/Summer 2003 (PhD from University of Pittsburg, Infectious Disease)
Emily Choi	Fall 2001-Spring 2002 (MD from Duke)
Rebecca Dagley	Fall 2001-Spring 2002 (Graduate School, Indiana University)
Karen McChesney	Summer 2001 (employed at Biotechnology firm)
Bryan Adams	Spring 2000 (DMD from MUSC)
Jennifer Bracey	Summer 2000-Summer 2001 (MD from MUSC)
Andy Cornwell	Summer 2000 (PhD from Case Western Reserve, Biomedical Engineering)
Shayna Lunsford	Spring 2000 (Graduate School, MUSC)
Kelby Kizer	Summer 1999-Spring 2001 (PhD from UNC Chapel Hill, Biochemistry)
Mindy Stelling	Summer 1999-Spring 2001 (DVM from University of Georgia)
Sean Vincent	Spring 1999

Publications:

College of Charleston: (represents undergraduate student co-author)*

Garcia-Santamarina, S., Probst, Corrina, D., Chen; Riggs-Gelasco, P., Conklin, S., Franz, K., Kinch, L., Grishin, N., Lo Leggio, L. Johansen, K.S., Thiele, D.J. "A Lytic Polysaccharide Monooxygenase family member functions in Cu^{+} import and fungal meningitis", **2020**, *Nature Chemical Biology*, 16, 337-344.

Conklin, S., Bridgman, E., Su, Q., Riggs-Gelasco, P., Haas, K.; Franz, K. "Specific Histidine Residues Confer Histatin Peptides with Copper-Dependent Activity against *Candida albicans*", *Biochemistry*, **2017,** 56**,** 4244-4255.

Barupala, D., Dzul, S., Riggs-Gelasco, P., Stemmler, T. L., Synthesis, delivery and regulation of eukaryotic heme and Fe-S cluster cofactors, *Archives of Biochemistry and Biophysics*, **2016**, 592, 60-75.

Poor, C., Wegner, S., Li, H., Dlouhy, A., Schuermann, J., Sanishvili, R., Hinshawy, J., Riggs-Gelasco, P., Outten, C., He, C. "Molecular mechanism and structure of the *S. cerevisiae* iron regulator Aft2", *Proc. Nat. Acad. Sci.*, **2014**, 111, 4043-8.

Li, H., Mapolelo, D., Dingra, N., Keller, G., Riggs-Gelasco, P., Winge, D. R., Johnson, M. K., Outten, C. E., "Histidine-103 in Fra2 Is AN Iron-Sulfur Cluster Ligand in the [2Fe-2S] Fra2-grx3 Complex and is required for *in vivo* Iron signaling In YEAST", *J. Biol. Chem.* **2011**, *286*, 867-76.

Rubino, J. T., Chenkin, M. P., Keller, M.*, Riggs-Gelasco, P. and Franz, K. J., "A comparison of methionine, histidine and cysteine in copper(I)-binding peptides reveals differences relevant to copper uptake by organisms in diverse environments", *Metallomics*, **2011**, 3, 61-73.

Wang, H. C., Riahi, M., Pothen, J., Bayse, C. A., Riggs-Gelasco, P. and Brumaghim, J. L. "Interactions of Cu(I) with Selenium-Containing Amino Acids Determined by NMR, XAS, and DFT Studies" *Inorg. Chem.*, **2011**, 50, 10893-10900.

Rubino, J. T., Riggs-Gelasco, P., Franz, K. J., "Methionine motifs of copper transport proteins provide general and flexible thioether-only binding sites for Cu(I) and Ag(I)", *J. of Biol. Inorg. Chem.,* **2010**, 15, 1033-1049

Li, H., Mapolelo, D. T., Dingra, N. N., Naik, S. G., Lees, N. S., Hoffman, B. M., Riggs-Gelasco, P. J., Huynh, B. H., Johnson, M. K., Outten, C. E., "The yeast iron regulatory proteins Grx3/4 and Fra2 form heterodimeric complexes containing a [2Fe-2S] cluster with cysteinyl and histidyl ligation", *Biochemistry*, **2009**, 48, 9569-81.

deBuron, I., James, E., Riggs-Gelasco, P., Ringwood, A.H., Rolando, E.*, and Richardson, D. "Overview of the Status of Heavy Metal Accumulation By Helminths with a Note on the Use of *in vitro* Culture". *Neotrop. Helminth.*, **2009**, *3*, 101-110.

Moeller, P. D. R., Beauchesne, K. R. Huncik, K.M, Davis, W. C. Christopher, S. J. Riggs-Gelasco, P. and Gelasco, A. K. "Metal Complexes and Free Radical Toxins Produced by *Pfiesteria piscicida"*, *Environ. Sci. and Technol.,* **2007**, 41, 1166-1172.

Galonić Fujimori, D., Barr, E. W., Matthews, M.L., Koch, G. L., Yonce, J. R.*, Walsh, C. T., Bollinger, J. M., Jr., Krebs, C., Riggs-Gelasco, P. J. "Spectroscopic Evidence for a High-Spin Br-Fe(IV)-Oxo Intermediate in the α-Ketoglutarate-Dependent Halogenase CytC3 from *Streptomyces", J. Am. Chem. Soc.,* **2007**, 129, 13408-13409.

Riggs-Gelasco, P., Price, J. C., Guyer, R. B., Brehm, J.*, Barr, E. W., Bollinger, J. M., Jr., Krebs, C., "XAS-spectroscopic Evidence for an Fe=O Unit in the Fe(IV) Intermediate Observed during Oxygen Activation by Taurine:α-Ketoglutarate Dioxygenase (TauD)", *J. Am. Chem. Soc*., **2004**, 126, 8108-8109.

Baldwin, J., Krebs, C., Saleh, L., Stelling, M.*, Huynh, B. H., Bollinger, J. M., Riggs-Gelasco, P. "Structural Characterization of the Peroxodiiron(III) Intermediate Generated during Oxygen

Activation by the W48A/D84E Variant of Ribonucleotide Reductase Protein R2 from *Escherichia coli*", *Biochemistry*, **2003**, 42, 13269-13279.

Brehm, J.*, Riggs-Gelasco, P. "The 50th Anniversary of the Watson and Crick DNA Structure: Protein Explorer Tutorials of DNA structures for Educators and Students", *The Chemical Educator*, **2003**, 8, 375-377.

Baldwin, J., Voegtli, W., Khidekel, N., Moenne-Loccoz, P., Krebs, C., Pereira, A., Ley, B., Huynh, B. H., Loehr, T., Riggs-Gelasco, P., Rosenzweig, A., Bollinger, J. M. "Rational Reprogramming of the R2 subunit of Escherichia coli Ribonucleotide Reductase into a Self-Hydroxylating Monooxygenase", *J. Am. Chem. Soc.,* **2001,** *123,* 7017-7030.

Massachusetts Institute of Technology

Bennati, M., Farrar, C. T., Bryant, J. A., Inati, S. J., Weis, V., Gerfen, G. J., Riggs-Gelasco, P. J., Stubbe, J., Griffin, R. G. "Pulsed Electron-Nuclear Double Resonance (ENDOR) at 140 GHz", *J. Mag. Res*., **1999**, *138*, 232-243.

Riggs-Gelasco, P. J., Shu, L., Chen, S., Burdi, D., Huynh, B. H., Que, L., Jr., Stubbe, J. "EXAFS characterization of the Intermediate X from the assembly of the *E. coli* ribonucleotide reductase R2 cofactor", *J. Am. Chem. Soc*., **1998**, *120*, 849-860.

Stubbe, J. and Riggs-Gelasco, P. "Harnessing free radicals: formation and function of the tyrosyl radical in ribonucleotide reductase" *Trends in Biochemical Sciences*, **1998**, *23*, 438-443.

Burdi, D., Willems, J.-P., Riggs-Gelasco, P., Antholine, W., Stubbe, J., Hoffman, B. "The core structure of X generated in the assembly of the Diiron Cluster of RNR: $^{17}O_2$ and $H_2{}^{17}O$ ENDOR" *J. Am. Chem. Soc.*, **1998**, *120*, 12910-12919.

Tong, W., Burdi, D., Riggs-Gelasco, P., Edmondson, D., Huynh, V., Stubbe, J., Han, S., Tainer, J. "Characterization of Y122F R2 of *E. coli* Ribonucleotide Reductase by Time Resolved Physical Biochemical Methods and X-ray Crystallography", *Biochemistry*, **1998**, *37*, 5840-5848.

University of Michigan

Riggs-Gelasco, P. J., Mei, R., Yocum, C. F., and Penner-Hahn, J. E. "Reduced Derivatives of the Mn cluster in the Oxygen Evolving Complex of Photosystem II: An EXAFS Study", *J. Am. Chem. Soc.,* **1996**, *118*, 2387-2399.

Riggs-Gelasco, P. J., Mei, R., Ghanotakis, D. F., Yocum, C. F., and Penner-Hahn, J. E. "X-ray Absorption Spectroscopy of Calcium substituted Derivatives of the Oxygen Evolving Complex of Photosystem II" *J. Am. Chem. Soc*., **1996**, *118*, 2400-2410.

Caudle, M., Riggs-Gelasco, P. J., Stemmler, T., Penner-Hahn, J. E., Pecoraro, V. L. "Interaction of high valent Mn complexes with t-butyl hydroperoxide" *Inorg. Chem.,* **1996**, *35*, 3577-3584.

Riggs-Gelasco, P. J., Mei, R., and Penner-Hahn, J. E. "Structural Characterization of Manganese Redox Enzymes: Results from X-ray Absorption Spectroscopy" in *Mechanistic Bioinorganic*

Chemistry, H.H. Thorp and V.L. Pecoraro, eds., ACS Advances in Chemistry Series, Vol. 246, **1995**, 219-248.

Riggs-Gelasco, P. J., Stemmler, T. L., and Penner-Hahn, J. E. "XAFS of Dinuclear Metal Sites in Proteins and Model Compounds" *Coord. Chem. Rev.,* **1995**, 144, 245-286.

Baldwin, M. J., Stemmler, T. L., Riggs-Gelasco, P. J., Kirk, M. L., Penner-Hahn, J. E., and Pecoraro, V. L. "Structural and Magnetic Effects of Successive Protonations of Oxo Bridges in High-Valent Manganese Dimers" *J. Am. Chem. Soc.*, **1994**, *116,* 11349-11356.

Riggs, P. J., Mei, R., Yocum, C. F., and Penner-Hahn, J. E. "Reduced Derivatives of the Mn cluster in the Photosynthetic Oxygen Evolving Complex" *J. Am. Chem. Soc.*, **1992**, *114*, 10650-651.

Larson, E. J., Riggs, P. J., Penner-Hahn, J. E., and Pecoraro, V. L. "Protonation of $[\{Mn^{IV}(saltn)\mu_2\text{-}O)\}]_2$ results in significant modification of structure and catalase-like reactivity" *J. Chem. Soc., Chem. Commun.,* **1991**, 102-103.

Student Presentations

Kristin Hoecker, Convocation Day poster, Fall 2014
Corey Seacrist, School of Science and Math Poster Session poster, Spring 2013
Elliot Murphy, Convocation Day poster, Fall 2013
Lidoshka Marc, Convocation Day poster, Fall 2013
Elliot Murphy, Southeast Regional ACS poster, Fall 2013
Lidoshka Marc, SCAMP, Fall 2013
Lidoshka Marc, SCAMP, Fall 2012
Andrew Lejman, School of Science and Math Poster Session poster, Spring 2012
Andrew Lejman, Southeast Enzyme Conference poster, Spring 2012
Corey Seacrist, Southeast Enzyme Conference poster, Spring 2012
Corey Seacrist, School of Science and Math Poster Session poster, Spring 2012
Whitney Gibbs, School of Science and Mathematics Poster Session, (poster) Spring 2012
Whitney Gibbs, SCAMP, oral Fall 2011
Andrew Lejman, Convocation Poster Day poster, Summer 2011
Corey Seacrist, Convocation Poster Day poster, Summer 2011
Corey Seacrist, South Carolina Academy of Science oral, Spring 2011
Corey Seacrist, SSM Poster Day poster, Spring 2011 *award winner
David Thieker, SURF Poster Day, (poster) Summer 2010
Corey Seacrist, SURF Poster Day, (poster) Summer 2010
Matt Keller, School of Science and Math Poster Session poster, Spring 2010 *award winner
Christian Harding, School of Science and Math Poster Session poster, Spring 2010 *award winner
Whitney Gibbs, McNair Program oral, Summer 2010
Whitney Gibbs, State of South Carolina, SCAMP oral, Fall 2009
Whitney Gibbs, State of South Carolina, SCAMP oral, Fall 2009
Matt Keller, SURF Poster Day poster, Summer 2009
Christian Harding, SURF Poster Day poster, Summer 2009
David Thieker, SURF Poster Day poster, Summer 2009
Onica Washington, South Carolina Academy of Science oral, Spring 2008
Amy Rhoden, Southeast Regional American Chemical Society oral, Fall 2007 *award winner
Ryan Yonce, Annual Meeting of the South Carolina Academy of Science oral, Spring 2007
Amy Rhoden, Meeting of the South Carolina Academy of Science oral, Spring 2007
Alix Grimley, Annual Meeting of the South Carolina Academy of Science oral, Spring 2007
Alan Wilder, School of Science and Mathematics Poster Session poster, Spring 2006
Seth Bowman, College of Charleston SUR Poster Day poster, Fall 2005
Jolene Duncan-Gould, College of Charleston SURF Poster Day poster, Fall 2005

Kiesha McCausland, College of Charleston SURF Poster Day poster, Fall 2004
Kiesha McCausland, State of South Carolina SCAMP oral, Summer 2004 *award winner
Jessica Brehm, College of Charleston SUR Poster Day poster, Fall 2003
Rebecca Dagley, Southeastern American Chemical Society Meeting poster, Fall 2002
Rebecca Dagley, South Carolina Academy of Science, oral 2002
Mindy Stelling, School of Science and Mathematics Poster Session poster, Spring 2001
Kelby Kizer, School of Science and Mathematics Poster Session poster, Spring 2001
Jennifer Bracey, School of Science and Mathematics Poster Session poster, Spring 2001
Kelby Kizer, South Carolina Academy of Science oral, Spring 2001
Mindy Stelling School of Science and Mathematics Poster Session poster, Spring 2000
Kelby Kizer School of Science and Mathematics Poster Session poster, Spring 2000
Mindy Stelling, Southeast Regional American Chemical Society Meeting oral, Fall 1999
Kelby Kizer, Southeast Regional American Chemical Society Meeting poster, Fall 1999
Shaun Vincent School of Science and Mathematics Poster Session, poster, Spring 1999

College of Charleston, Invited Talks

Winthrop University, Department of Chemistry and Biochemistry, 2014.
Wake Forest University, Department of Chemistry and Biochemistry, 2014.
University of Maryland, Department of Biological Sciences, 2012.
University of South Carolina, Department of Chemistry and Biochemistry, 2004.
Wayne State University, Department of Molecular Biology and Biochemistry, 2003.
Clemson University, Department of Chemical Engineering, 2003.

College of Charleston: Selected Published Abstracts and Presentations

Riggs-Gelasco, P., Bayse, C., Brumaghim, J. **2009**, "Structural Characterization of Copper-Selenium Complexes Relevant to the Antioxidant Activity of Selenium," Southeastern Regional ACS Meeting, Puerto Rico.

Riggs-Gelasco, P., Galonic, D., Barr, E., Matthews, M., Koch, G., Yonce, J.* Bollinger, J. M, Jr., Walsh, C., Krebs, C. "Characterization of an Iron(IV) Intermediate from the Fe(II)- and a-Ketoglutarate-Dependent Halogenase CytC3", **2007** International Meeting of Bioinorganic Chemistry, Vienna, Austria.

Riggs-Gelasco, P., Gelasco, A., Brehm, J.*, Stelling, M.*, Dagley, R.*, McChesney, K.* Kizer, K.*, Bowman, S.*, Wilder, A.*, Duncan-Gould, J.* "Manganese in the active site of *C. ammoniagenes* ribonucleotide reductase can activate oxygen to generate a tyrosyl radical", **2005** International Meeting of Bioinorganic Chemistry, Ann Arbor, MI.

Baldwin, J., Krebs, C., Ley, B., Stelling, M.*, Huynh, B. H., Bollinger, J. M., Riggs-Gelasco, P. "Structural characterization of a peroxo intermediate generated during cofactor assembly of an *E.*

coli ribonucleotide reductase mutant", presentation, Southeast Regional American Chemical Society Meeting, Charleston, SC, **2002**.

Riggs-Gelasco, Yu, E., Heckathorn, S. "Evidence from X-ray Absorption Spectroscopy that Methionine residues in the chloroplast small heat shock protein are oxidized *in vivo* from heat

stress", presentation, Southeast Regional American Chemical Society Meeting, Charleston, SC, **2002**.

Riggs-Gelasco, P., B. H. Huynh, B. Ley, J. Baldwin, C. Krebs, J. M. Bollinger, Jr. "EXAFS of genetically engineered mutants of *E. coli* ribonucleotide reductase" *J. Inorganic Biochemistry ,* **1999***, 74,* 277. (International Conference on Bioinorganic Chemistry, 1999, Minneapolis, MN)

Service:

To the Profession:

Reviewer for Stanford Synchrotron Radiation Laboratory, Journal of the American Chemical Society, Biochemistry, Inorganic Chemistry, Journal of Inorganic Biochemistry, Photosynthesis Research, MUSC Faculty Research Award, NIH.
PhD Thesis Committee (Drs. Jeremy Cook, Poorna Subramanian, Andria Rodriguez), Wayne State University, 2010-15.

To the College of Charleston:

Hearing Committee, 2018-19
Faculty Senate, 2009-10; 2011-12, 2014-17, 2018-19
Ad hoc Committee on Repeat Policy, 2018-19
Ad hoc Committee on Institutional Vision, 2018-19
Budget Committee, 2017-18
PI for two sequential grants to the HHMI Undergraduate Education Program, 2008-17
SACSOC Review Writing Groups, 2016-17
Co-Chair, Committee on Institutional Effectiveness, 2015-16
Council of Chairs, President, 2014-16
Council of Chairs, Secretary, 2013-14
Presidential Search Committee, 2014
First Year Experience Committee, 2012-14
Provost Search Committee, 2009
Academic Planning Committee, Secretary, 2009-10
Ad Hoc Committee to review School Evaluation Plans, 2009
Tenure and Promotion, Chair, 2007-08, Secretary, 2006-07, Member 2005-06
Faculty Research and Development, 2003-04

Administrative Achievements:

As Program Director and PI of Howard Hughes Medical Institute grants, 2008-2017:

- Managed $2.8 million in funding covering curriculum development, faculty development, summer research, and assessment, across multiple departments and three schools at the College of Charleston.
- Assessed effectiveness of new courses and initiatives, prepared extensive annual reports, and represented the College at HHMI meetings of Program Directors.
- Added two new faculty lines, one in Chemistry and one in Biology, to create teaching and research depth in the area of neuroscience and chemical biology.
- Coordinated the addition of new upper level courses to develop interdisciplinary strength in the sciences, including Chemical Biology, Molecular Basis of Disease, Biochemical Research Methods, Neuroscience Techniques, and Biophysical Modeling of Excitable Cells.

- Developed and taught two of these upper-level courses, Biochemical Basis of Disease and Biochemical Research Methods.
- Added lower level courses to excite students about research and teaching and to equip them with skillsets needed for the demands of a science curriculum: Calculations in Chemistry, Freshmen Research Rotation, and Science Outreach.
- Provided equipment for the building of a neuroscience laboratory, the computational neuroscience course, and a research-based biochemistry techniques course. Provided benchtop NMRs and HPLCs for use of instrumentation in lower level chemistry courses.
- Funded numerous large-scale K-12 outreach activities that involved faculty and students from the College of Charleston. Estimates of students reached through Brain Awareness Week, National Chemistry Week, Teacher Workshops, Darwin Week, and others are ~20,000 K-12 students.
- Created a Teacher Training Fellowship Program for graduate students and post-doctoral associates at the Medical University of South Carolina to develop teaching skills and to encourage contact of CofC undergraduates with other practicing scientists.
- Developed, nurtured, and taught freshmen learning community classes in Chemistry and Biology as part of the College's First Year Experience. This doubled the number of freshmen taking chemistry, improved retention in the sciences, and led to higher performance in subsequent courses. Learning Community students are more likely to participate in high impact activities, as well.
- Helped assess and support other science learning communities such as Biology-Calculus and Biology-Psychology (Neuroscience).
- Established and assessed a robust summer undergraduate research program that operated in synergy with the College's own research program, providing funds for ~200 students to participate with 35 different faculty members. The HHMI program doubled student access to research opportunities in the Biomedical Sciences.
- Supported the development of a Summer Research Skills Seminar for research students in biomedical research to focus on graduate admissions, writing skills, ethics, and safety (directed by Agnes Southgate).
- Developed a high school student summer research experience for area students, involving undergraduate peer mentors and faculty in multiple science disciplines; 38 students (directed by Neal Tonks).
- Supervised a grant administrator, Alma Hurd and then Michele Deneau.
- Cultivated diversity in science through support of the College's bridge program, the establishment of learning communities, and through incentivizing research with minority students. ~50% of the minority students who participated in research left to pursue a PhD.

As Chair of the Department of Chemistry and Biochemistry, 2012-present:

- Received rating of "exceptional professional performance" in the area of Administration and Leadership in all annual evaluations as Chair.
- Unanimous support for extension of Chair appointment to a second term.

Duties:

- Supervise and evaluate 17 roster faculty members and ~20 adjunct faculty, plus five staff members.
- Responsible for the fiscal oversight of the department's annual state budget for equipment, supplies, student employment, and other expenses, along with overhead and foundation accounts.
- Responsible for the annual submission of departmental annual and assessment reports to the College and to the American Chemical Society.
- Oversees a complex curriculum and lab program that includes 46 courses and draws ~2000 enrollments each semester.
- Responsible for decisions about the care, maintenance, and expansion of the department's multi-million dollar equipment holdings.
- Responsible for scheduling and enrollment management of ~70-80 sections of courses each semester.
- Responsible for personnel changes: conducted seven successful faculty searches and seven staff searches and led the successful tenure and promotion reviews and third year reviews of nine faculty members.

Funding and Philanthropy:

- Coordinated and helped to write a departmental effort to procure a new 400 MHz NMR for use in research (funded for $320,000 from the NSF-MRI program—Justin Wyatt and Tim Barker, PIs).
- Wrote several program grants to the Beckman Foundation in support of undergraduate research in the department (finalist but not funded).
- Created a funding mechanism to support student travel to the Southeast Regional American Chemical Society Meeting; for the past five years, twenty+ students presented each year.
- Worked with Development Office and donors to create six new endowed research or scholarship stipends and to nurture other existing relationships with donors to the department.
- Advertised and completed a $5k alumni donation drive to support an undergraduate research stipend.
- Met with industry heads in the area to encourage philanthropy and student opportunities: O2si, Mead-Westvaco, Innovative Resource Management, Kemira, High Purity Standards, Ingevity, Cummins, Mankiewicz, GEL.
- Hosted industry mixer that drew representatives from 17 local companies; resulted in several donations.
- Hosted alumni social events, including one that recently resulted in a $70,000 commitment to support research in the department.

Leadership Initiatives:

- Established annual alumni tracking process to monitor effectiveness of our degree programs. 90-95% of Chemistry and Biochemistry majors are either in a graduate program or in a career using their chemistry by three years post-graduation.
- Created a structure for better lab management in lower level courses by consistently scheduling a lead faculty member for each course who is charged with specific

responsibilities for safety, communication with adjunct faculty, the creation of common rubrics and tests, etc.
- Standardized expectations and syllabi for chemistry research courses, creating a more cohesive research community with the students and higher standards of performance in these courses.
- Supported a partnership with an area company, Innovative Resource Management, that created a half dozen internship positions and several permanent jobs for our students (Neal Tonks, coordinator and liaison).
- Evaluated and adjusted space usage to accommodate swing space for Biology Department during building renovations and to create more lab space for junior faculty.
- Led the Council of Chairs of the College of Charleston to successfully petition the Board of Trustees for additional faculty representation on the Presidential Search Committee.
- Created and implemented a graduated safety curriculum for use in all lab courses.
- Implemented a research lab safety program, including monthly self-evaluations, inspections, and rigorous summer training. 100% of graduating seniors report "very satisfied" with safety in the department for past 4 years.

Student Success Efforts:
- Improved culture of academic advising by creating biannual advising newsletter for students and by implementing mandatory advising.
- Implemented pre-semester online review requirements to improve student performance in general and organic chemistry. GPA increased, D and F grades decreased, and performance on standardized exams increased (coordinated by Jason Overby).
- Facilitated new methods of student help in organic chemistry through creation of a departmentally led peer mentor program and faculty led practicum sessions; improved withdraw rate, course GPA, and standardized test scores.
- Cultivated a sense of community for our majors through communication, social events, well maintained shared space, and a joint focus on research; Nearly 100% of all graduating chemistry and biochemistry majors report satisfaction with their curriculum and with their instruction.
- Assist recent alumni and exiting seniors with job placement opportunities by meeting individually with each student and by connecting them to contacts in industry and headhunters.

Assessment:
- Lead instructional assessment, including the senior exit survey and Major Fields Test, and implemented a framework for assessment for departmental programs.
- Plan and lead annual departmental retreats focused on assessment and program improvement.
- Wrote the department's 2016 successful resubmission for accreditation of the BS Biochemistry and BS Chemistry degree by the American Chemical Society.
- Led organic faculty to implement student success strategies which won 2019 College of Charleston Assessment Award.

Curricular Reforms:

- Overhauled the biochemistry degree program to better reflect American Chemical Society standards and to respond to student feedback.
- Facilitated the addition of an accelerated honors chemistry course and sequence.
- Facilitated the addition of courses on Chemistry of Alcohol (Michael Cohen and Jason Overby) supplemented with industry internships.
- Facilitated the addition of course of Bioanalytical chemistry (Mike Giuliano and Jay Forsythe) subsequently featured in several faculty grants.
- Developed standard learning outcomes for each course in the curriculum.
- Supported, funded and assessed a Research-Based Freshmen chemistry lab, replacing the weekly activities that predominate in lower-level labs with an authentic research experience for ~300 students annually (curriculum and implementation by Wendy Cory).
- Implemented a new Math course for chemistry and biochemistry majors, Vector Calculus with Chemical Applications; the 5-credit math class combines elements of Calculus II, Calculus III, Differential Equations and Linear Algebra (developed collaboratively with the Math Department and members of the Chemistry Department).
- Created a research rotation course for majors to introduce younger students to the various projects and faculty leaders in the department.
- Established three (and created 2 of these 3) new upper-level biochemistry courses to enrich the curriculum in this area.
- Overhauled the BA in Chemistry to be more flexible and to attract additional majors.
- Added a study abroad course in Costa Rica for environmental chemistry (Kate Mullaugh) and entered into partnership with University of Aalen in Germany to create chemistry-related study abroad opportunities for our students.