

Dr. Erich S. Uffelman
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Dr. Erich Stuart Uffelman: Brief Biography

Erich Uffelman graduated as the Outstanding Senior Chemistry Major in Bucknell University's class of 1984 with a Bachelor's of Science Degree (magna cum laude). He obtained an NSF Predoctoral Fellowship to attend the California Institute of Technology, and received his Ph.D. in Inorganic Chemistry from Caltech in 1991 under the direction of Prof. Terrence J. Collins. Under Dr. Collins, he designed a series of macrocyclic tetraamide ligands and metallation protocols that resulted in several unprecedented oxidation states/coordination numbers for the first row transition metals from chromium to copper. These multiply-patented macrocyclic systems resulted in Dr. Collins' receiving the 1999 Presidential Green Chemistry Challenge Award in 1999 for the development of Fe-TAML hydrogen peroxide activating catalysts; Uffelman received a certificate of achievement in recognition of his initiation of the TAML systems. Uffelman was an NIH Postdoctoral Fellow in the laboratories of Prof. James P. Collman at Stanford University from 1991-1993, where he worked on biomimetic complexes of cytochrome P450. Uffelman joined the Chemistry faculty at Washington and Lee University in 1993 and continued to pursue high-valent synthetic inorganic complexes and catalysts. He has won four W&L Class of '65 Excellence in Teaching Awards. He has been awarded external funding from the NSF, American Chemical Society-PRF, Research Corporation, Hewlett Packard, Associated Colleges of the South, Kress Foundation, etc. He has trained 80 undergraduate students in his research labs. In 2009, he was one of twelve faculty in the Commonwealth of Virginia to win the State Council of Higher Education of Virginia's Outstanding Faculty Award. In 1994 he began planning a course on the technical examination of 17th century Dutch painting, which he first taught in 1999. He has taught several variations of the course at W&L, taking the class to The Netherlands since 2005. He helped teach the NSF CWCS Chemistry in Art Workshops from 2005-2017. He was part of a Kress Foundation initiative spear headed by Jennifer Mass and Rick Johnson to create a technical art history syllabus suitable for undergraduates. Among the museums he has collaborate with are the National Gallery of Art, the Frans Hals Museum, Winterthur Museum, the North Carolina Museum of Art, Stichting Restauratie Atelier Limberg, The Mauritshuis, the Smithsonian, the Balboa Art Conservation Center, Monticello, Mount Vernon, the Dordrechts Museum, the Museum Boijmans van Beuningen, the Bonnefanten Museum, the Virginia Museum of Fine Art, the Chrysler Museum, the Rijksmuseum, the Guggenheim, and NU ACCESS. He has collaborated with dozens of colleges and universities. In 2012 he was named the Cincinnati Professor of Chemistry. In 2014 he was named the inaugural Bentley Professor of Chemistry. In 2017 he was named the "Advisor of the Year" by the W&L student body. He is currently Department Head of Chemistry and Biochemistry at W&L. He has served as University Parliamentarian since 2004.

Erich S. Uffelman

Date of Birth: August 5, 1962

Education:

2020	Sabbatical leave spent at W&L due to global COVID-19 pandemic.
2015	Portion of sabbatical leave at the National Gallery of Art (Washington, DC); another portion at NU ACCESS (Northwestern University/Art Institute of Chicago program)
2015	Cultural Heritage Institute week-long course on Reflectance Transformation Imaging
2011	McCrone Research Institute course in "Scanning Electron Microscopy and X-ray Microanalysis"
2010	McCrone Research Institute course in "Microscopy for the Conservator of Art and Artifacts" (portion of 2010 sabbatical leave)
2010	Portion of sabbatical leave at The Royal Picture Gallery, Mauritshuis
2006	Sabbatical leave with Professor M.G. Finn, The Scripps Research Institute
2001	Sabbatical leave with Professor M.G. Finn, The Scripps Research Institute
1991-1993	NIH Postdoctoral Fellow, Professor James P. Collman, Stanford University
1991	Ph.D., NSF Predoctoral Fellow, Chemistry, California Institute of Technology, Professor Terrence J. Collins; Thesis Topic: Macrocyclic Tetraamido- <i>N</i> Ligands that Stabilize High-Valent Complexes of Chromium, Manganese, Iron, Cobalt, Nickel, and Copper
1984	B.S., magna cum laude, Chemistry, Bucknell University

Professional Positions:

2019-	Department Head of the Department of Chemistry and Biochemistry at Washington and Lee University
2014-	Bentley Professor of Chemistry, Washington and Lee University (endowed chair, inaugural professor)
2012-2014	Society of the Cincinnati Professor of Chemistry, Washington and Lee University (endowed chair)
2008-2012	Professor of Chemistry, Washington and Lee University
1999-2008	Associate Professor of Chemistry, Washington and Lee University
1993-1999	Assistant Professor of Chemistry, Washington and Lee University

Awards and Fellowships:

2017	Advisor of the Year (awarded annually by W&L students)
2014	Bentley Professor of Chemistry, Washington and Lee University (endowed chair, inaugural professor)
2012	Society of the Cincinnati Professor of Chemistry (endowed chair)
2009	SCHEV Award Winner (one of twelve faculty in all higher education in Virginia chosen for an Outstanding Faculty Award from the State Council of Higher Education for Virginia)
2008	Washington and Lee Class of '65 Excellence in Teaching Award
2004	Washington and Lee Class of '65 Excellence in Teaching Award
1999	Certificate for Dr. Terrence Collins' Presidential Green Chemistry Challenge Award
1999	Washington and Lee Class of '65 Excellence in Teaching Award

1996	Washington and Lee Class of '65 Excellence in Teaching Award
1991-1993	National Institutes of Health Postdoctoral Fellow, Stanford University
1984-1987	National Science Foundation Predoctoral Fellowship, California Institute of Technology
1984	ACS Susquehanna Valley Section: Outstanding Senior Chemistry Major
1984	Alpha Chi Sigma Senior Major with Highest Scholastic Standing
1984	Elizabeth M. Oliphant Prize for Highest Class Average in Chemistry or Biological Science
1984	Phi Beta Kappa
1984	Sigma Xi
1983	First Place Seminar in Inorganic Chemistry, ISC Convention at Temple University

Peer-Reviewed Publications and Patents (not including meeting abstracts):

- (47) Murray, A.; Biggs, K.; Shugar, A.; Ploeger, R.; Uffelman, E.; Stols-Witlox, M.; Gonzales, P.; Smith, G.; Loubser, M.; Fuster-Lopez, L. F.; Di Pietro, G.; Sah, A.; Nevin, A.; Sardarli, A.; Wei, S.; Casanova-González, E. "Conservation Science Education Online (CSEO) - A Heritage Science Resource" *Chemistry Teacher International* **2023**, in press.
- (46) Uffelman, E. S.; Abraham, L.; Abry, A.; Barbi, N. Billings, H. Collins, S.; Florescu, S.; Kargol, C.; Koenen, J.; te Marvelde, M.; Mass, J.; Mazow, L.; Monteagudo, D.; Muensterman, K.; Sawyer, C.; Seymour, K.; Stephens, M. "X-ray Fluorescence Spectroscopy in Painting Analyses: Undergraduate Classroom, Teaching Laboratory, and Research" in *Contextualizing Chemistry in Art & Archaeology: Inspiration for Instructors*, Labby, K. and Braun, K. eds., American Chemical Society Symposium Series, volume 1386, Web Publication Date September 3, **2021**, pp 135-164. [Hardcover version published July, 2022.]
- (45) Uffelman, E. S.; Abraham, L.; Davis, J.P.; Delaney, J. K.; Dooley, K. A.; Hewitt, L.; Koenen, J.; te Marvelde, M.; Muensterman, K.; Oikonomou, K.; Olmstead, D.; Perdue, T.; Rocha, J.; Roeders, J.; Roy, A.; Speleers, L. "Multispectral and Hyperspectral Reflectance Imaging Spectrometry (VIS, VNIR, SWIR) in Paintings Analyses: Undergraduate Teaching and Interfacial Undergraduate Research at the Nexus of Chemistry and Art" in *Contextualizing Chemistry in Art & Archaeology: Inspiration for Instructors*, Labby, K. and Braun, K. eds., American Chemical Society Symposium Series, volume 1386, Web Publication Date September 3, **2021**, pp 165-216. [Hardcover version published July, 2022.]
- (44) Betts, Pamela; Barbi, Nicholas; Gates, Glenn; Uffelman, Erich; Jones, Howland; Kemeny, Gabor "Hyperspectral and Multispectral Reflectance Imaging of Paintings" *Microsc. Microanal.* **2021**, *27 (Suppl 1)*, 3008-3010.
- (43) Zumbulyadis, N; Fuchs, R.; Uffelman, E. S. "Nim englischen Galmey welcher der beste ist ...' Hoeroldts bemerkenswerte Rezepte für das Eisenrot / 'Take English calamine which is the best...' Höroldt's remarkable recipes for iron oxide red" *Keramos* **2020**, *247*, 15-34.
- (42) Sawyer, C. W.; Suffield, B. H.; Finnefrock, A. C.; Billings, H. M.; Uffelman, E. S.; Zoeller, J. R.; Dombrowski, M. S.; Delaney, J. K.; Dooley, K. A.; Mass, J. L.; Samonina-Kosicka, J.; Whitesell, M. M. "A John White Alexander Painting: Comparison of Imaging Technologies for Resolving a Painting under Another Painting" *Journal of the American Institute of Conservation* **2019**, *58(1-2)*, 37-53.
- (41) Uffelman, E. S.; Stephenson, M.; Kirin, A.; K. A.; Eiland, W. U., The Scientific Imaging and Spectroscopic Investigation of the "Portrait of a Youth" Featured in the Exhibition "Gifts and Prayers: The Romanovs and Their Subjects" at the Georgia Museum of Art. *Georgia Museum of Art Bulletin* **2017**, *25*, 45-58.

- (40) Uffelman, E. S.; Brown, W.; Caspers, C.; Soley, T.; Marsh-Soloway, K., Bringing together undergraduates, graduate students, and professionals in cultural heritage preservation. A case study from the North Carolina Museum of Art. *IIC Newsletter* Issue 58, **2017**, 12-16.
- (39) O'Connell, C. M.; Uffelman, E. S.; Delaney, J. K.; Stephenson, M. E. "Multispectral Reflectance Imaging and Reflectance Spectroscopy at the Interface of Cultural Heritage Research and Undergraduate Education: Investigating a Golden Age Dutch Painting at The Huntington", 50th Annual Asilomar Conference on Signals, Systems, and Computers, Asilomar, CA, Postprints; IEEE Signal Processing Society: Asilomar, CA, **2016**; 149-153.
- (38) Archie, E.; Fuchs, R. W., II; Mass, J.; Uffelman, E. "'The most dangerous imitations': A Group of Spurious Chinese Export Porcelain Decorated with Fame and the American Eagle" *Ceramics in America* **2016**, 105-117.
- (37) Huang, X.; Uffelman, E.; Cossairt, O.; Walton, M.; Katsaggelos, A.K. "Computational Imaging for Cultural Heritage" *IEEE Signal Processing Magazine*, **2016**, September, 130-138.
- (36) Albrecht, M.; Daugherty, M.; Oudheusden, S. V.; d'Hont, L.; Seymour, K.; Rief, M.; Marchant, R.; Uffelman, E. "Unravelling the History of Two Fifteenth-Century Spanish Panels" in *The Non-Invasive Analysis of Painted Surfaces: Scientific Impact and Conservation Practice*; Nevin, A.; Doherty, T.; eds; Smithsonian Institution Scholarly Press, Washington, DC; **2016**; 37-51.
- (35) Mass, J.; Uffelman, E.S.; Buckley, B.; Grimstad, I.; Vila, A.; Delaney, J.; Wadum, J.; Andrews, V.; Burns, L.; Florescu, S.; Hull, A. "Portable X-ray Fluorescence and Infrared Imaging Studies of Cadmium Yellow Alteration in Paintings by Edvard Munch and Henri Matisse in Oslo, Copenhagen, and San Francisco" in *The Non-Invasive Analysis of Painted Surfaces: Scientific Impact and Conservation Practice*; Nevin, A.; Doherty, T.; eds; Smithsonian Institution Scholarly Press, Washington, DC; **2016**; 53-64.
- (34) Pouyet, E.; Cotte, M.; Fayard, B.; Salomé, M.; Meirer, F.; Mehta, A.; Uffelman, E. S.; Hull, A.; Vanmeert, F.; Kieffer, J.; Burghammer, M.; Janssens, K.; Sette, F.; Mass, J. "2D and X-ray and FTIR micro-analysis of the degradation of cadmium yellow pigment in paintings of Henri Matisse" *Applied Physics A: Materials Science & Processing*; **2015**; 121, 967-980.
- (33) Mass, J.; Uffelman, E.S.; Buckley, B.; Plahter, U.; Grimstad, I.B.; Florescu, S. A.; Hull, A.M.; Andrews, V.M.; Burns, L.N. "Cadmium Yellow Degradation Mechanisms in Henri Matisse's Le Bonheur de vivre (1905-1906) Compared to the Munch Museum's The Scream (c. 1910): Fluorescence Imaging and Chemical Speciation as a Function of Depth Part 2: Fluorescence Imaging" In *Public Paintings by Edvard Munch and His Contemporaries: Change and Conservation Challenges* Frøysaker, T.; Streeton, N.; Kutzke, H.; B.; Hanssen-Bauer, F.; Topalova-Casadiago, Archetype Publications: London, **2015**, 308-324.
- (32) Mass, J.; Pouyet, E.; Cotte, M.; Meirer, F.; Mehta, A.; Uffelman, E.S.; Plahter, U.; Grimstad, I.B.; Buckley, B.; Hull, A.M.; Church, J.; Opila, R. "Cadmium Yellow Degradation Mechanisms in Henri Matisse's Le Bonheur de vivre (1905-1906) Compared to the Munch Museum's The Scream (c. 1910) Part 1: Chemical Speciation as a Function of Depth" In *Munch150 Conference Proceedings* Frøysaker, T.; Streeton, N.; Kutzke, H.; Hanssen-Bauer, F.; Topalova-Casadiago, B., Archetype Publications: London, **2015**, 294-307.
- (31) Uffelman, E. S.; Abraham, L.; Van den Burg, J.; Florescu, S.; Hoppenbrouwers, R.; Van der Knaap, F.; Koenen, J.; Te Marvelde, M.; Van Putten, H.; Roeders, J.; Seymour, K. "A New Three Legged Stool: Research and Educational Ventures Between the Frans Hals Museum, Stichting Restauratie Atelier Limburg, and Washington and Lee University" International Council of Museums Conservation Committee 17th Triennial Conference Preprints, Melbourne, Australia, 15-19 September **2014**, ed. J.Bridgland, art. 0310, 8 pp. Paris: International Council of Museums.
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- (28) Uffelman, E. S.; Court, E.; Marciari, J.; Miller, A.; Cox, L., "Handheld XRF Analyses of Two Veronese Paintings." In *Collaborative Endeavors in the Chemical Analysis of Art and Cultural Heritage Materials*, Lang, P. L.; Armitage, R. A., Eds. American Chemical Society: Washington, DC, **2012**; pp 51-73.
- (27) Uffelman, E. S.; Fuchs, R. W. II; Hobbs, P. A.; Sturdy, L. F.; Bowman, D. S.; Barisas, D. A. G. "Technical Examination of Cultural Heritage Objects Associated with George Washington" In *Collaborative Endeavors in the Chemical Analysis of Art and Cultural Heritage Materials*, Lang, P. L.; Armitage, R. A., Eds. American Chemical Society: Washington, DC, **2012**; pp 251-283.
- (26) Uffelman, E. S. *The Emergence and Spread of "Chemistry in Art" Undergraduate Courses in United States Universities*, International Council of Museums Conservation Committee Triennial 16th Conference, Lisbon, Portugal, September 19-23, 2011, **2011**; Criterio: Lisbon, Portugal, 2011; paper 312; 1-8.
- (25) Uffelman, E. S. "Teaching Science in Art: Technical Examination of 17th-Century Dutch Painting as Interdisciplinary Coursework for Science Majors and Nonmajors" *J. Chem. Educ.* **2007**, *83*, 1617-1624.
- (24) Uffelman, E. S. "A Review of Materials for Teaching Science in Art: Technical Examination of 17th-Century Dutch Painting as Interdisciplinary Course Work for Non-Science and Science Majors" *J. Chem. Educ.* **2007**, October Web Online, 38 pages.
<http://www.jce.divched.org/Journal/Supplements/index.html>.
- (23) Uffelman, E. S. "NMR Studies of Polyamide Macrocyclic Tetradentate Ligands and Their Complexes Relevant to Green Chemistry (with Other Inorganic/Organometallic Experiments)" in *Modern NMR Spectroscopy in Education*; Stockland, R. A.; Rovnyak, D.; Eds.; ACS Symposium Series 969; American Chemical Society: Washington, DC, **2007** 300-316.
- (22) Uffelman, E. S. "News from Online: Renewable Resources" *J. Chem. Educ.* **2007**, *83*, 220-222.
- (21) Weng, T-C.; Hsieh, W-Y.; Uffelman, E. S.; Gordon-Wylie, S. W.; Collins, T. J.; Pecoraro, V. L.; Penner-Hahn, J. E. "XANES Evidence Against a Manganyl Species in the S3 state of the Oxygen Evolving Complex" *J. Am. Chem. Soc.* **2004**, *126*, 8070-8071.
- (20) Uffelman, E. S. "News from Online: Green Chemistry" *J. Chem. Educ.* **2004**, *81*, 172-176.
- (19) Uffelman, E. S.; Doherty, J. R.; Schulze, C.; Burke, A. L.; Bonnema, K.; Watson, T. T.; Lee, D. W., III "Microscale Syntheses, Reactions, and ¹H NMR Spectroscopic Investigations of Square Planar Macrocyclic Tetraamido-N Co(III) Complexes Relevant to Green Chemistry" *J. Chem. Educ.* **2004**, *81*, 325-329.
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- (13) Collins, T. J.; Gordon-Wylie, S. W.; Woome, C. G.; Horwitz, C. P.; Uffelman, E. S. "Oxidation Catalysis" *PCT Int. Appl.* (1998), 62 pp. CODEN: PIXXD2 WO 9858735 A1 19981230 CAN 130:111826 AN 1999:27764
- (12) Zhang, X.; Uffelman, E. S.; Collman, J. P. "Bridged, crown-containing tetraphenylporphyrin metal complexes as water-soluble oxygen carriers." U.S. (1995), 24 pp. Cont.-in-part of U.S. 5,274,090. CODEN: USXXAM US 5384397 A 19950124 CAN 123:143544 AN 1995:383026
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- (10) Collman, J. P.; Zhang, X.; Herrmann, P. C.; Uffelman, E. S.; Boitrel, B.; Straumanis, A.; Brauman, J. I. "Congruent Multiple Michael Addition for the Synthesis of Biomimetic Heme Analogues," *J. Am. Chem. Soc.* **1994**, *116*, 2681-2682.
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- (7) Collins, T. J.; Kostka, K. L.; Uffelman, E. S.; Weinberger, T. "Design, Synthesis, and Structure of a Macrocyclic Tetraamide That Stabilizes High-Valent Middle and Later Transition Metals," *Inorg. Chem.* **1991**, *30*, 4204-4210.
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- (5) Collins, T. J.; Powell, R. D.; Slobodnick, C.; Uffelman, E. S. "Stable Highly Oxidizing Cobalt Complexes of Macrocyclic Tetraamide Ligands," *J. Am. Chem. Soc.* **1991**, *113*, 8419-8425.
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Invited Presentations and Posters: Many. For a list since 2005, see the end of this document.

Courses Currently Taught:

Chem 110	General Chemistry
Arth 356	Technical Examination of 17 th Century Dutch Painting
Chem 156	Science in Art
Chem 250	Intermediate Inorganic and Bioinorganic Chemistry

Courses Previously Taught:

Chem 111	General Chemistry
Chem 206	Survey of the Periodic Table
Chem 207	Synthesis of Inorganic Complexes
Chem 241	Organic Chemistry Lecture
Chem 242	Organic Chemistry Lecture
Chem 241L	Organic Chemistry Laboratory
Chem 242L	Organic Chemistry Laboratory
Chem 243L	Organic Spectroscopy Laboratory
Chem 252	Inorganic Chemistry Laboratory
Chem 254	Bioinorganic Chemistry
Chem 295	Special Topics in Solid State Chemistry
Chem 297A	Materials of 17th Century Dutch Art
Chem 297B	Instrumental Methods in Art Conservation
Chem 350	Advanced Inorganic Chemistry
Chem 399B	Imaging Science in Art and Medicine with Applications to Astronomy
Univ 202	Science in Art
Arth 380	Seminar in 17th Century Dutch Art
Arth 394	Technical Examination of Paintings

Research Interests:

The Uffelman group uses portable XRF, digital IR photography, SEM-EDS, stereomicroscopy, FORS, RTI, hyperspectral reflectance imaging spectrometry, and multispectral reflectance imaging spectrometry (and sometimes MS methods) to investigate art and cultural objects both in collaboration with other museums and universities as well as with W&L collections and faculty and staff.

The Uffelman group in the past developed a set of novel polyamide macrocyclic ligands in order to expand the fundamental chemistry and Green Chemistry applications of iron-catalyzed oxidation reactions.

These research programs have, to date, involved ninety-three different undergraduates, who have gained experience in cultural heritage science or in synthetic inorganic chemistry.

Pedagogical Research:

In addition, technical analysis of 17th century Dutch painting is used to teach an interdisciplinary non-science majors course at the interface of chemistry, physics, analytical instrumentation, history, economics, and religion. The course takes students abroad to The Netherlands for four weeks.

Uffelman has participated from 2005-2017 in helping teach the NSF CWCS Chemistry in Art Workshops run by Patricia Hill and Michael Henchman and Deberah Simon. Uffelman and W&L hosted the 2008 workshop.

Undergraduate Research Students Supervised:

Ninety-three at W&L---many for more than one summer or semester [Tamara Hopkins, T. R. Kinsey, Ryan Aday, Matthew Smith, Robert Eison, Anna Mirk, Hilary Rhodes, Jesse Taylor, Holly Layman, Charity Forstmann, Daniel Lee, Anne McElhaney, Jon Doherty, Leonard Rorrer, Carl Schulze, Stephen Hopkins, Michele Connors, Robert Hughes, Alison Cartwright, Ashley Shreves, Tom Stoklasek, Kristen Bonnema, Amy Burke, Gary Davis, Mac Everist, Tanya Watson, Ashley Acker, Bryan Carmody, Andrew Thomas, Marisa Meyer, Johnathan Coleman, Nana Ohene-Baah, Jessica Lloyd, Matthew Reilley, Jared Meyer, Emily Binns, Christopher Diebold, Carly Levin, Scot Pittman, Robert Whitener, Kehvon Clark, Elizabeth Webb, Zachary Haulsee, M. Ian Childers, Kendall Massengill, Carolyn Small, Allison Lemon, Charles William Heaps III, EW Malachosky, Derek Barisas, Riley Hampsch, Grace Lee, Victoria Andrews, Lindsay Burns, Samuel Florescu, Kyle Turpin, Alexandria Garcia, Ashley Ooms, Mallory Stephenson, Eleni Timas, Brett Becker, Daniel Monteagudo, Michael Sullivan, Harris Billings, Madison Whitesell (JMU undergraduate), Joseph Zoeller, Christina Kargol, Casey Hamlet, Sawera Khan, Charles Weeks, David Salchert, Lindsey Hewitt, Darcy Olmstead, Dino Oikonomou, Kathryn Muensterman, JD Davis, Jensen Rocha, Trinity Perdue, Lauryn McCray, Brynne Gould, James Blatchford, Anna Blomerth, Emma Robertson, Eli Staubi, Tom Son, Ewunik McCarthy, Syd Peppe, Madison Lily, Anna Clair Mackey, Charlotte Baker, Pierson Hull, Kristen Clodgo]

External Grants and Major Internal Grants Awarded (numerous small internal grants, ~60, can be listed on request). In addition, we are grateful for expense money we have received to assist museum friends with research for the past several years, and cumulatively, this has added up to a significant amount (>\$55K) of funding (including, but not limited to, the Virginia Museum of Fine Arts, North Carolina Museum of Art, Freer-Sackler Galleries, Walters Museum, Frans Hals Museum, The Mauritshuis, Dordrechts Museum, Stichting Restauratie Atelier Limburg, Mount Vernon, Chrysler Museum, Bard Graduate Center; Solomon R. Guggenheim Museum)

Virginia Foundation for Independent Colleges Mednick Award. Awarded April, 2019---\$2,320

Gordon Research Conference Travel support from the conference organizers to assist in attending the July 2018 Gordon Research Conference on the Examination of Cultural Heritage. Awarded June, 2018---\$750

Johnson Strategic Initiative---“Hyperspectral Imaging in Chemistry and Art History at Washington and Lee University” [Uffelman Project Director; George Bent, Andrea Lepage, David Harbor, Jennifer Mass, Co-PIs; John Delaney and Kathryn Dooley, Consultants] Awarded November, 2016---\$15,000

Samuel H. Kress Foundation---“Technical Art History at the 2016 and 2018 Gordon Research Seminars: Assembling an International Team of Experts to Build a Curriculum of the Latest

Technical Art History”[Jennifer Mass and C. Richard Johnson Project Directors; Uffelman co-PI] Awarded December, 2015---\$87,630

NU ACCESS (Joint program between Northwestern University and the Art Institute of Chicago)---“Multispectral Imaging, Fiber Optic Reflectance Spectrometry, Portable X-ray Fluorescence Spectroscopy, and Infrared Imaging Applied to Works Relevant to the Cadmium Sulfide Degradation Problem at the Art Institute of Chicago” Project grant to Uffelman, Awarded August, 2015---\$3,000

National Science Foundation---“MRI: Fiber Optic Reflectance Spectrometry and Multispectral Imaging Applied to University Collections of Art and History at Washington and Lee University” (CHE-1337481) Uffelman Project Director, Awarded September, 2013---\$87,630

Teagle Foundation---“The Global Classroom: Integration of Spring Term Abroad Courses with Winter and Fall Term Student Learning.” Funding for collaborative pedagogical development and assessment involving Union College, Gettysburg College, and Washington and Lee University [Dr. Marc Conner, Project Director; Uffelman, faculty participant] Awarded May, 2012---\$230,000

Lenfest Foundation---Funding for collaborative research between Winterthur Museum, University of Delaware, the Barnes Foundation, and Washington and Lee University on CdS photodegradation in works by Matisse and his contemporaries [Dr. Jennifer Mass, Project Director; Bob Opila, Jonathan Church, Barbara Buckley, Uffelman Co-PIs] Awarded February, 2012---\$113,000

Howard Hughes Medical Institute---Funding for teaching innovation in quantitative science [Dr. Helen I’Anson, Project Director; Carrie Finch, Fred LaRiviere, Simon Levy, Robert Humston, Bob Stewart, and Chris Connors, HHMI Committee; Uffelman faculty contributor] \$1,000,000

National Science Foundation---“MRI: Acquisition of a Variable Pressure Scanning Electron Microscope at Washington and Lee University” (EAR-1126360) [Dr. Jeffrey Rahl, Project Director; Dr. Ken Van Ness, Co-PI; Uffelman, Senior Investigator] Awarded September, 2011---\$355,319

National Science Foundation---“Portable X-Ray Fluorescence, Digital IR Photography, and Stereomicroscopy Applied to University Collections of Art and History at Washington and Lee University” (CHE-0959625) Uffelman Project Director, Awarded January, 2010---\$119,678

National Science Foundation---"MRI: Acquisition of a Liquid Chromatograph Time of Flight Mass Spectrometer to Enhance Research at Washington and Lee University and Virginia Military Institute" (CHE-0922599) Awarded September, 2009---\$282,226 [Dr. Lisa Alty Project Director; Uffelman one of two other Co-PI's]

Washington and Lee University---Class of '65 Excellence in Teaching, “Broadening the Impact of Art Conservation and Art Conservation Science at W&L, Nationally, and Internationally” Awarded April, 2008---\$6,000

Associated Colleges of the South Mellon Faculty Renewal Grant---“Whose Art Should be Conserved?” Awarded April, 2008---\$5,000

Jeffress Research Grant Renewal---“ ^1H - ^{15}N HMBC Spectroscopy of Complexes Relevant to Green Chemistry” Awarded July, 2007---\$10,000

Washington and Lee University---Class of '63 Lecture Series, “Recent Developments in Art Conservation and Conservation Science: Considering the Works of Rembrandt and Other Master Painters.” A symposium featuring Jaap Boon (AMOLF-FOM, Amsterdam), Melanie Gifford (National Gallery of Art, Washington, DC), Petria Noble (The Mauritshuis, The Hague) October 30, 2006---\$10,000

Jeffress Research Grant Renewal---“ ^1H - ^{15}N HMBC Spectroscopy of Complexes Relevant to Green Chemistry” Awarded July, 2005---\$10,000

Washington and Lee University---Class of '65 Excellence in Teaching, "Codifying Materials for the Presentation of Scientific Investigations into 17th Century Dutch Art" Awarded May, 2004---\$6,000

Associated Colleges of the South Mini-Keck Grant---“Codifying Materials for the Presentation of Scientific Investigations into 17th Century Dutch Art” Awarded May, 2004---\$7,500

Global Stewardship Course Development Grant---“Science in Art” Awarded March, 2004---\$2,500

National Science Foundation---Major Research Instrumentation, "Multinuclear Gradient Inverse Probe, Amplifier, and Overnight Low Temperature Dewar for High-field NMR Spectroscopy in the Chemistry Department at Washington and Lee University" Uffelman Project Director, Awarded August, 2003---\$70,830

Jeffress Research Grant---“ ^1H - ^{15}N HMBC Spectroscopy of Complexes Relevant to Green Chemistry” Awarded July, 2003---\$25,000

Hewlett-Packard Company---University Donation, "Gel Permeation Chromatography in Undergraduate Education at Washington and Lee University" Awarded August, 1999---\$25,646

Washington and Lee University---Class of '65 Excellence in Teaching, "Development of New Cross Disciplinary Experiments for Chem 112 and Chem 252" Awarded April 1999---\$5,044

Hewlett-Packard Company---University Grants, "UV-Vis Spectroscopy in Undergraduate Education at Washington and Lee University" Awarded November, 1997---\$15,788

National Science Foundation---Instrumentation and Laboratory Improvement, "High Field Multinuclear NMR in Undergraduate Education at Washington and Lee University" Uffelman Project Director, Awarded May, 1996---\$99,500

American Chemical Society---Petroleum Research Fund Type G, "Novel Ligands for Transition Metal and Lanthanide Complexes" Awarded April, 1995---\$20,000

Research Corporation---Cottrell College Science Award, "Novel Macrocyclic Polyamide Ligands for Lanthanide Chemistry" Awarded May, 1995---\$27,000

Selected, not comprehensive, list of external talks, presentations, and collaborative research trips, between 2005 and August 2023 (Note Covid-19 travel stop 2020). [Note---numerous internal talks and internal presentations are not listed; talks and presentations prior to 2005 can be obtained on request.]:

Participated in three days of research at the National Gallery of Art 8/9-8/11/23

Conducted a week of research at the North Carolina Museum of Art 7/31-8/4/23

Conducted two days of research at Redivivus in Den Haag, The Netherlands 6/28-6/29/23

Conducted two days of research at the Dordrechts Museum in Dordrecht, The Netherlands 6/26-6/27/23

Conducted a week of research at the Frans Hals Museum in Haarlem, The Netherlands 6/19-6/23/23

Conducted a week of research at The Mauritshuis in Den Haag, The Netherlands 6/12-6/16/23

Conducted a week of research at Stichting Restauratie Atelier Limburg in Maastricht, The Netherlands 6/5-6/9/23

Gave two talks and performed research at Wake Forest University and Reynolda House 4/19-4/20/23

Gave two talks and performed research at Williams College 2/21-2/25/23

Gave a Zoom research talk to a Beloit College analytical chemistry class. 12/8/22

Conducted four days of research with National Gallery of Art and Buffalo State colleagues at the National Gallery of Art November 29-December 2, 2022

Gave two research talks to the Buffalo State art conservation graduate students and also conducted two days of research with them. 10/12-10/15/22

Presented a poster on research done at the Chrysler Museum, Mount Vernon, and the North Carolina Museum of Art at the MA-XRF Scanning in Conservation, Art, and Archaeology Workshop in Delft, The Netherlands. 9/26-9/27/22

Served as Session Chair for the last session of the MA-XRF Scanning in Conservation, Art, and Archaeology Workshop in Delft (The Netherlands). 9/26-9/27/22

Performed a day of research at the Frans Hals Museum with our new Quantum Dot Camera. 9/30/22

Conducted one day of research with the National Gallery of Art in Washington, DC July 8, 2022.

Conducted three days of research with Science for Art in New York, NY June 27-29, 2022.

Conducted three days of research with Mount Vernon in Washington, DC June 20-22, 2022.

Conducted four days of research with the Chrysler Museum of Art in Raleigh, NC June 13-16, 2022.

Recorded an invited research talk for Aaron Shugar and Alison Murray's international symposium on cultural heritage science pedagogy. And I answered questions in the virtual session. 6/14/-6/15/22

https://www.queensu.ca/art/sites/artwww/files/uploaded_files/Preliminary%20Program%20%20-%20CSEO%20Conference.pdf

Conducted four days of research with the North Carolina Museum of Art in Raleigh, NC June 6-9, 2022.

Conducted one day of research with the Frans Hals Museum, Haarlem, The Netherlands May 20, 2022.

Conducted two days of research with Stichting Restauratie Atelier Limburg, Maastricht, The Netherlands May 11-12, 2022.

Conducted four days of research with The Mauritshuis, Den Haag, The Netherlands April 19-22, 2022.

Conducted a day of research in Amsterdam, The Netherlands for Kasteel de Haar April 18, 2022.

Gave a talk on hyperspectral and multispectral imaging at the famous Buffalo graduate program in art conservation (2/25/22).

Conducted two days of research with the North Carolina Museum of Art in Raleigh, NC December 20-21, 2021.

Conducted three days of research with the Chrysler Museum in Norfolk, VA July 26-28, 2021.

Conducted three weeks of work with the Bard Graduate Center and the Guggenheim Museum doing teaching and research in their *Art Detectives* program July 3-22, 2021.

Conducted three days of research for an ongoing project with the Freer-Sackler Gallery June 28-30, 2021.

Gave a "Zoom" lecture to Dr. Jennifer Mass's graduate students at the Bard Graduate Center April 17, 2020.

Assisted with the examination of several paintings at The Walters Museum of Art in Baltimore February 23-25, 2020.

Gave two talks and a workshop on hyperspectral and multispectral imaging at the famous Buffalo graduate program in art conservation (11/24-26/19).

Interviewed by local news WDBJ7 regarding an analysis of an important chair in the collection of the Rockbridge Historical Society---facilitated by Eric Wilson. A short video clip of the interview was shown on the local news on November 12, 2019

Assisted with researching an important chair in the Rockbridge Historical Society's collection. My research students and I did non-invasive spectroscopy and imaging. (11/8/19)

Assisted VMFA with research and trouble-shooting their new instruments November 9-12, 2019.

Presented a poster at the MA-XRF Scanning in Conservation, Art and Archeology in Catania, Italy "Multiple Imaging Modalities Applied to a Robert Henri Painting at the Virginia Museum of Fine Arts: Key XRF Element Maps from a Bruker Crono" (10/15-16/19).

Assisted with research at the Barnes Foundation (8/25-30/19).

Assisted with research at VMFA (8/8/19).

Assisted with research at NCMA (7/22-25/19) along with my students, Lindsey Hewitt and Darcy Olmstead.

Assisted with research at the Freer-Sackler Museum (7/16-18-17/19). Expenses covered by Freer-Sackler.

Assisted with a demonstration on hyperspectral imaging at Winterthur (7/11/19).

Presented a talk at a workshop on hyperspectral imaging at the Smithsonian MCI (7/10/19).

Assisted with research at the Frans Hals Museum in Haarlem (6/13-17/19) along with my students, Lindsey Hewitt and Darcy Olmstead.

Assisted with research at The Mauritshuis in Den Haag (6/10-12/19) along with my students, Lindsey Hewitt and Darcy Olmstead.

Assisted with research at Musee National d'Histoire and d'Art in Luxembourg (6/6-6/8/19) along with my students, Lindsey Hewitt and Darcy Olmstead.

Assisted with research at Stichting Restauratie Atelier Limburg in Maastricht (6/3-6/6/19) along with my students, Lindsey Hewitt and Darcy Olmstead.

Assisted with research at the Dordrechts Museum in Dordrecht (5/27-31/19) along with my students, Lindsey Hewitt and Darcy Olmstead .

Gave a talk to the Nashville W&L Alumni Chapter on technical art history. (5/14-16/19)

Assisted with research at VMFA 5/7-9/19.

Gave two talks and assisted with research on technical art history with portable instrumentation at Beloit College (4/27-5/2/19).

Assisted with research at VMFA 4/23-26/19.

Gave two talks and a workshop on technical art history with portable instrumentation at William and Mary (4/17-19/19).

Gave two talks and a workshop on technical art history with portable instrumentation at Davidson University (4/10-13/19).

Guest lectured to Dr. Catherine Ingersoll's Art History class at VMI 3/27/19

Gave a seminar to the prestigious Buffalo State Art Conservation Program on Cultural Heritage Analysis and also helped lead a workshop on fiber optic reflectance spectroscopy (11/29-12/1/18).

Assisted Dr. Jennifer Mass and Dr. Adam Finnefrock with imaging research in preparation for New York TEFAF (10/19-10/22/18).

Assisted Dr. George Bent, Dr. John Delaney, and researchers at the Metropolitan Museum of Art and the Morgan Library with image analysis and fiber optic reflectance spectroscopy of art objects (10/12-10/14/18).

Assisted curators, conservators, and conservation scientists with image analysis and research at the Freer-Sackler Galleries in Washington, DC (9/28-9/30/18)).

Attended a research planning meeting at the National Gallery of Art (Washington, DC) with Michelle Facini and Drs. George Bent, John Delaney, and Kate Dooley regarding studies of medieval Italian manuscripts (8/29/18).

Assisted Barbara Buckley, Dr. Jennifer Mass, Dr. Adam Finnefrock, Madison Whitesell, and Sydney Collins with imaging research at the Barnes Foundation in Philadelphia (8/26-8/28/18).

Hosted Berea College Studio Art and Art History faculty members Prof. Lisa Kriner and Dr. Eileen McKiernan González in their consultation with me at W&L (8/23-8/24/18).

Presented a poster at the Gordon Research Conference on Cultural Heritage Analysis in Barcelona, Spain "Investigation of a Robert Henri painting at the Virginia Museum of Fine Arts using Macro-XRF, Multispectral Imaging and RTI (7/22-7/27/18).

My students and I assisted the conservators at the North Carolina Museum of Art in their research (7/9-7/13/18).

My students and I assisted the conservators at the Virginia Museum of Fine Arts in their research (6/18-6/20/18).

My students and I assisted the conservators at the Virginia Museum of Fine Arts in evaluating a \$200K macro-XRF scanning instrument and in their research (6/11-6/15/18).

Assisted conservator Lidwien Speleers with research at the Dordrechts Museum in Dordrecht (5/21-5/22/18).

Assisted the graduate students and staff at Stichting Restauratie Atelier Limburg with research in Maastricht 4/18-4/20/18).

Assisted a private conservator (Femke van der Knaap) with research in Haarlem 4/16-4/17/18).

Assisted the conservators at the Virginia Museum of Fine Arts in evaluating a \$200K hyperspectral reflectance imaging spectroscopy system.

Gave a seminar to the Chemistry Department of Geneva College on Cultural Heritage Analysis (2/23/18). Travel funded by Geneva College.

Gave a seminar to the Chemistry Department of Carnegie Mellon University on Cultural Heritage Analysis (2/22/18). Travel funded by CMU.

Visited the Virginia Museum of Fine Art with the full set of equipment to assist VMFA with X-ray fluorescence spectroscopy, multispectral imaging, UV-induced visible

fluorescence imaging and IR imaging on several paintings in their collection. November 13-14, 2017.

Presented the invited keynote talk at South East Regional American Chemical Society Meeting's symposium on cultural heritage analysis . 11/9/17

Presented a poster and was asked at the last minute to give a talk for a colleague who could not attend at the ICXOM24 Macro-X-ray Fluorescence workshop and conference in Trieste, Italy. September 23-29, 2017.

Visited the Virginia Museum of Fine Art with the full set of equipment to assist VMFA with X-ray fluorescence spectroscopy, multispectral imaging, UV-induced visible fluorescence imaging and IR imaging on several paintings in their collection. August 31-September 1, 2017.

Presented an invited talk at the 254th National American Chemicals Society Meeting in Washington, DC in the Chemistry and Cultural Heritage symposium. 8/23/17

Gave a seminar to the Bridge Program art history and chemistry class at Berea College (8/7/17).

Visited the North Carolina Museum of Art with my research students, and Dr. Jelena Samonina-Kosicka, and the full set of equipment to assist NCMA with X-ray fluorescence spectroscopy, multispectral imaging, UV-induced visible fluorescence imaging and IR imaging on several paintings in their collection, and also to assist with the X-radiography of W&L's Lansdowne Portrait. July 25-26, 2017.

Visited the North Carolina Museum of Art with my research students, and Dr. Jelena Samonina-Kosicka, and alumna Juliette O'Quinn, and the full set of equipment to assist NCMA with X-ray fluorescence spectroscopy, multispectral imaging, UV-induced visible fluorescence imaging and IR imaging on several paintings in their collection. July 5-7, 2017.

Visited the Virginia Museum of Fine Art with my research students, and the full set of equipment to assist VMFA with X-ray fluorescence spectroscopy, multispectral imaging, UV-induced visible fluorescence imaging and IR imaging on several paintings in their collection. June 26-30, 2017.

Visited the Virginia Museum of Fine Art with my research students, and the full set of equipment to assist VMFA with X-ray fluorescence spectroscopy, multispectral imaging,

UV-induced visible fluorescence imaging and IR imaging on several paintings in their collection. June 26-28, 2017.

Worked with Emerita Emory University Art Historian Dorinda Evans and my two research students on W&L's Lansdowne Portrait. (June 1-2, 2017)

Gave a seminar and workshop to the art conservation graduate students of Winterthur (4/27/17). In addition, took my research student, Harris Billings, and my JMU student, Madison Whitesell, and my colleague, Dr. Jelena Samonina-Kosicka.

Assisted with various Cultural Heritage projects at Berea College (April 16-19, 2017)

Gave a seminar to an advanced art history class at Berea College (4/17/17).

Visited the Virginia Museum of Fine Art with my JMU student, Madison Whitesell, and the full set of equipment to assist VMFA with X-ray fluorescence spectroscopy, multispectral imaging, UV-induced visible fluorescence imaging and IR imaging of a painting in their collection. February 21, 2017. Funded by VMFA.

Part of a special Kress Foundation Grant meeting on technical art history in New York City (February 18, 2017).

Gave an invited talk at the 50th Annual Asilomar Conference on Signal Processing on our work with the Huntington Museum and NGA on a Golden Age Dutch painting at The Huntington. November 6-9, 2016. Asilomar, CA.

Visited the Queen Anne's Revenge Project at the North Carolina Department of Natural and Cultural Resources in order to assist them with IR imaging and multispectral imaging of important materials discovered in their work. October 22, 2016.

Traveled to Wake Tech community college outside Raleigh, NC to give a talk "Adventures in Conservation Science" and to demonstrate portable equipment. October 21, 2016.

Visited the North Carolina Museum of Art in Raleigh, NC to use pXRF spectrometer to help clarify the composition of an important bronze object in their collection. October 21, 2016.

Visited the Chrysler Museum in Norfolk, VA, again to use our full set of portable equipment to study several paintings in their collection, especially a 19th century French painting. October 14, 2016.

Traveled to Old Dominion University in Norfolk, VA to give a talk "Adventures in Conservation Science" and to consult with a member of their chemistry department on his chemistry in art course. October 13, 2016.

Gave an invited talk at the symposium "Gifts & Prayers: the Romanovs and Their Subjects"---my talk was on the technical examination performed by Mallory Stephenson (my student) and myself on a controversial painting in the collection of the Georgia Museum of Art at the University of Georgia. September 22-25, 2016. Athens, GA.

Visited Balboa Art Conservation Center in San Diego, CA with equipment to assist them with X-ray fluorescence spectroscopy and multispectral imaging of materials in museums that they serve. August 19-22, 2016.

Visited The Huntington Library, Art Collection, and Botanical Gardens in San Marino, CA with equipment to assist them with X-ray fluorescence spectroscopy and multispectral imaging of materials in their collection. August 13-19, 2016.

Travelled to Berea College and helped teach for a day in their bridge program for first year students transitioning to college and demonstrated portable instrumentation. (August 8-10).

Gave a poster at the Gordon Research Conference on Scientific Analysis in Cultural Heritage in Newry, Maine. August 1-5, 2016.

I served as a mentor in the Gordon Research Seminar on Scientific Analysis in Cultural Heritage in Newry, Maine. July 30-31, 2016.

Presented a paper at the Kress Foundation Technical Art History symposium in Newry, Maine and was de facto secretary for the workshop summary. July 28-29, 2016.

Visited the North Carolina Museum of Art in Raleigh, NC, with my two research students (Mallory Stephenson and Daniel Monteagudo) to use our full set of portable equipment to study several objects in their collection. July 17-20, 2016.

Hosted a visit to W&L by Dr. Priscilla Gannicott and one of her students so that they could examine a painting in the Lynchburg College collection using our equipment and so that we could give them research experience with multiple nondestructive techniques. July 14, 2016.

Visited the Chrysler Museum in Norfolk, VA, with my two research students (Mallory Stephenson and Daniel Monteagudo) to use our full set of portable equipment to study

several paintings in their collection, especially a Lucas van Leyden painting of great interest to our colleagues at the Rijksmuseum in Amsterdam. June 27-28, 2016.

Hosted a visit to W&L by Dr. Priscilla Gannicott and four of her students so that they could examine a painting in the Lynchburg College collection using our equipment and so that we could give them research experience with multiple nondestructive techniques. June 21, 2016.

Visited Catholic University in Washington, DC, with my two research students (Mallory Stephenson and Daniel Monteagudo) and with Emory Emerita art historian Dorinda Evans to use IR imaging and UV-induced visible fluorescence to study a possible Gilbert Stuart Lansdowne Portrait. June 16, 2016.

Visited the White House in Washington, DC, with my two research students (Mallory Stephenson and Daniel Monteagudo) and with Emory Emerita art historian Dorinda Evans to use IR imaging and UV-induced visible fluorescence to study their Gilbert Stuart Lansdowne Portrait. June 16, 2016.

Visited the US House of Representatives in Washington, DC, with my two research students (Mallory Stephenson and Daniel Monteagudo) and with Emory Emerita art historian Dorinda Evans to use IR imaging and UV-induced visible fluorescence to study their possible Gilbert Stuart Lansdowne Portrait. June 16, 2016. Funded by W&L Lenfest Grant.

Travelled to Bismarck, ND to help teach the National Science Foundation cCWCS Chemistry in Art Workshop. I gave MANY presentations and helped with lab setup and take down. One week intense workshop. June 5-12, 2016.

Travelled to Randolph College to give a talk to the SpheX Club of Lynchburg at their annual meeting---was hosted by W&L alumnus Theodore (Ted) Craddock. "Scientific Adventures with Cultural Heritage Objects". June 1, 2016

Visited a paintings conservation atelier in Antwerp, Belgium and gave a day long tutorial/workshop on X-ray Fluorescence spectroscopy to over a dozen conservation trainees. May 20-22, 2016.

Travelled with University Development/Alumni Office Staff to the Midland, TX W&L Alumni Chapter to give a talk to the Texas alumni "Scientific Adventures with Cultural Heritage Objects". April 1-3, 2016.

Presented a poster at the 251st National American Chemicals Society Meeting in San Diego “Fiber optic reflectance spectroscopy and multispectral imaging used to access cadmium sulfide degradation in cadmium yellow paint in paintings by Louise Herreshoff” Mallory Stephenson, Brett Becker, Eleni Timas, Erich S. Uffelman, Patricia Hobbs, Jennifer L. Mass, John Delaney, Kathryn A. Dooley; San Diego, CA. March 13-17, 2016. INOR-899. Funded by W&L and by myself.

Travelled to Piedmont Valley Community College and gave the keynote lecture for their 2YC3 Conference (the 212th national conference on chemical education at US community colleges) using the portable X-ray fluorescence spectrometer (November 5-6, 2015). Funded by PVCC and the American Chemical Society.

Travelled to Berea College and helped teach two days of activities with Dr. Lisa Kriner’s colleagues in Art History, Archaeology, and the Berea College Museum using the portable X-ray fluorescence spectrometer, the fiber optic reflectance spectrometer, the InGaAs IR camera, and the multispectral imaging system (November 1-4, 2015). Guest lectured in Art History and in Archaeology. Performed research on three of Berea’s important old master paintings. Funded by Berea College.

Travelled to San Angelo, TX and helped teach one day of activities at San Angelo State University using the portable X-ray fluorescence spectrometer, the fiber optic reflectance spectrometer, the InGaAs IR camera, and the multispectral imaging system and also performed research at the San Angelo Museum of Art (October 21-23, 2015). Gave a university-wide lecture entitled “Technical Analysis of Fakes and Forgeries in Art” at San Angelo State, and a public talk entitled “Scientific Adventures with Cultural Heritage Analysis” at the San Angelo Museum of Art. Funded by the San Angelo Museum of Art.

Travelled to Rhodes College and helped teach two days of activities with Dr. John Ross’s Analytical Chemistry Class using the portable X-ray fluorescence spectrometer, the fiber optic reflectance spectrometer, the InGaAs IR camera, and the multispectral imaging system (October 14-16, 2015). Gave a Department entitled “Scientific Adventures with Cultural Heritage Analysis”. Funded by Rhodes College.

Visited the Winterthur Museum Scientific Research and Analysis Laboratory to help train the Winterthur/UD conservation students how to perform analyses with fiber optic reflectance spectroscopy and multispectral imaging. Also consulted there with Dr. Jennifer Mass and Dr. Adam Finnefrock. October, 2015.

One of the instructors and mentors at the National Science Foundation cCWCS Chemistry in Art Workshop held in Bismarck, ND. Helped with the setup, running of the workshop, and the take down. July 11-18, 2015.

Presented an invited conference/workshop talk and demonstrated pXRF, FORS, and multispectral imaging for two days at an XRF symposium at Stichting Restauratie Atelier Limburg in July, 2015.

Presented a poster at the Technart 2015 Meeting “Initial Multispectral Imaging and FORS Analyses of Louise Herreshoff’s Paintings: Bringing Imaging Methodologies to Undergraduate Research and Teaching” Kathryn A. Dooley, John Delaney, Erich S. Uffelman, Patricia Hobbs, Jennifer L. Mass, Adam Finnefrock, Samuel Florescu, Alexandria Garcia, Mallory Stephenson, Brett Becker, Eleni Timas; Catania, Sicily.

Travelled to Marshall University and gave the local American Chemical Society Awards Banquet talk with live instrument demonstrations. “Scientific Adventures with Cultural Heritage Analysis”. April 23-24, 2015. Funded by Marshall University.

Travelled with University Development/Alumni Office Staff to the Dallas, TX W&L Alumni Chapter to give a President’s Day talk to the Texas alumni “Scientific Examination of Materials Related to W&L’s Collection of Washington Materials”. February 24-25, 2015.

Presented a public talk and assisted with a pXRF workshop at Sewanee, February, 2015.

Presented a public talk and assisted a class with technical art historical research using portable instrumentation at Hamline University, January, 2015.

Presented two public talks and assisted a class with technical art historical research using portable instrumentation at Centre College, January, 2015.

Presented a talk and mini-workshop on portable instrumentation at the College of William and Mary, October, 2014.

Presented a talk at the ICOM-CC Triennial Meeting in Melbourne, Australia September, 2014

Presented a poster at the Gordon Research Conference, August 2014.

I presented a poster at the American Institute of Conservators (AIC) national meeting in San Francisco, CA. May 28-31, 2014.

Presented a seminar on the technical examination of cultural heritage objects to the collected undergraduate science division at Maastricht University in May 2014.

Two seminars on the technical examination of cultural heritage objects presented at Hamline College in Minneapolis, March 2014.

I presented an invited paper, was an invited panelist, and was a coauthor on two other papers at the ICOM-CC Meeting at the Lunder Conservation Center February 20-21, 2014.

Traveled to the US Naval Academy on February 19, 2014 and gave a talk and did preliminary research with the Naval Museum. Funded by the US Naval Academy

Two seminars on the technical examination of cultural heritage objects presented at Buena Vista College in Iowa, February 2014.

One of the instructors and mentors at the National Science Foundation cCWCS Chemistry in Art Workshop held in Bismarck, ND. Helped with the setup, running of the workshop, and the take down. July 12-20, 2013.

Invited speaker on an education panel at the American Institute of Conservators National Meeting in Indianapolis, IN. Also presented a poster at the meeting. May 30-June 1, 2013.

Attended the Munch 150 Conference in Oslo, Norway on June 28 and 29, 2013. Was part of the talk given by Dr. Jennifer Mass on CdS degradation in paintings.

Attended the Rijksmuseum Conference on Painting Technique (was a poster co-author) September 18-20, 2013.

Traveled to Yuma, AZ on February 14 and 15, 2013 to give an invited plenary speaker talk at the annual institution-wide teaching symposium at Arizona Western Community College (Dr. Scott J. Donnelly was the institution-wide coordinator). Also gave a specialist talk on XRF spectroscopy during the two days there.

Traveled to Minneapolis, MN on October 17-19, 2013 to visit Hamline University to give a public talk, a classroom lecture, and to assist a colleague with pXRF research.

Interviewed for 90 minutes by Channel 7 news at the Reeves Center and was featured in a two minute clip on their local news broadcast. August 19, 2013.

“Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings” a guest lecture for Otterbein University Analytical Chemistry class 3/23/12

“Some Organic Chemistry of 17th-Century Dutch Paintings” a guest lecture for Otterbein University Organic Chemistry class 3/23/12

“Great Dutch Coverups: The Technical Examination of Golden Age Paintings from The Netherlands” a public lecture at Otterbein University 3/23/12

“Scientific Adventures with Rembrandt, Vermeer, Veronese, Peale, Ghissi, and Others” a public lecture at W&L as the inaugural Cincinnati Professor of Chemistry 10/5/12

“Great Dutch Coverups: The Technical Examination of Golden Age Paintings from The Netherlands” a public lecture at University of South Alabama 10/18/12

“Types of Science in Art Courses” a lecture to the Department of Chemistry faculty and students at the University of South Alabama 10/19/12

Attended the Pittcon Meeting in Orlando, FL and presented an invited talk 3/11-3/14/12

Attended the Synchrotron Radiation in Art and Archaeology Conference (SR2A) at the Metropolitan Museum of Art in New York and presented a poster 6/5-6/8-12

Gave a lecture at the cCWCS NSF-sponsored Advanced Chemistry in Art Workshop at Villanova University on IR imaging and demonstrated our InGaAs IR camera 6/10/12

Attended the Gordon Conference on Scientific Methods in Cultural Heritage Research at West Dover, VT and presented a poster 7/29-8/3/12

Gave two academic seminars at Drake University in Iowa on March 2 and 3, 2011:
“The Analytical Chemistry of XRF”---given to a senior analytical chemistry class
“The Unvarnished Truth”---given to a studio art/art history class.

Gave a public evening lecture at Drake University in Iowa on March 3, 2011 “Great Dutch Coverups”

Gave two academic seminars at the University of Maryland to the Art History graduate students on April 18, 2011:
“Types of Science in Art Courses”
“Great Dutch Coverups”

Gave an academic seminar at Davidson University to a physical chemistry class on April 22, 2011:
“Physical Chemistry of XRF”

Attended the National American Chemical Society Meeting in San Diego, CA and presented two research posters 3/27-3/30/11

“[Iron complexes of macrocyclic tetradentate triamide ligands as activators of hydrogen peroxide for the catalytic bleaching of Orange II dye](#) Full Text” By Uffelman, Erich S.; Lemon, Allison M.; Malachosky, Edward W. From Abstracts of Papers, 241st ACS National Meeting & Exposition, Anaheim, CA, United States, March 27-31, 2011 (2011), INOR-765.

“[Examination of significant cultural heritage objects using GCMS, LCMS, and portable XRF: Identification of inorganic pigments and organic binding media](#)” By Uffelman, Erich S.; Alty, Lisa T.; Fuchs, Ronald W.; Sturdy, Lauren F.; Bowman, Danielle S.; Lemon, Allison M.; Malachosky, Edward W. From Abstracts of Papers, 241st ACS National Meeting & Exposition, Anaheim, CA, United States, March 27-31, 2011 (2011), CHED-98.

Attended the AIC National Meeting in Philadelphia, PA and presented a research poster with Lauren Sturdy 6/1-6/3/11 “George Washington’s Chinese Export Porcelain: Using XRF Analyses to Distinguish between an Original and a Fake” Lauren F. Sturdy, Danielle S. Bowman, Ronald W. Fuchs II, Erich S. Uffelman

Attended the ICOM-CC international Triennial Meeting in Lisbon, Portugal and presented a paper *The Emergence and Spread of "Chemistry in Art" Undergraduate Courses in United States Universities* 9/19-9/23/11

Helped train Dr. Ruth Beeston of Davidson University in the use of handheld XRF spectroscopy so that she could use the technique in her research and her teaching at Davidson. 4/21-4/22/11

Helped teach the week-long NSF CWCS Chemistry in Art Workshop---gave several lectures and

helped with instrument demonstrations. This year it was held at Whitman College in Walla Walla, WA 6/19-6/24/11 (but because I help run it, I was there from 6/16-6/25/11).

Gave a talk on “Great Dutch Cover Ups” to the Kendal Retirement Community 8/10/10

Helped teach the week-long NSF CWCS Chemistry in Art Workshop---gave several lectures and helped with instrument demonstrations.. This year it was held at Whitman College in Walla Walla, WA 6/21-6/25/10 (but because I help run it, I was there from 6/17-6/27/10).

Invited speaker in two different sessions of the Biennial Conference on Chemical Education in Denton, TX from 7/31-8/4/10.

Was the invited inaugural speaker at Emory University kicking off their Mellon Foundation Grant to enhance collaborations between the Arts and Sciences at Emory, specifically in their quest to create more courses on the technical examination of art and cultural objects. Gave a public lecture to faculty and Emory Museum Board members on 3/15/10 (“Types of Science in Art Courses”) and gave talks to two different Art History classes on 3/16/10 (“The Unvarnished Truth” to a senior seminar class and “Great Dutch Cover-Ups! Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings” to a survey class)

Helped teach the week-long NSF CWCS Chemistry in Art Workshop---gave several lectures and helped with instrument demonstrations.. This year it was held at Millersville University 6/9-6/12/09.

Presented invited talk “Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings” at the Salt Lake City, Utah National American Chemical Society Meeting.

Presented invited talk “Great Dutch Cover-Ups! Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings” to a general evening audience at Davidson College 4/15/09

Presented a guest lecture on the technical examination of 17th century Dutch Paintings to Dr. Ruth Beeston’s chemistry in art class at Davidson College 4/16/09

Presented an invited talk (part of the Virginia Tech Highlands Seminar series) at Virginia Tech entitled “Macrocyclic Polyamide Ligands & High-Field Multinuclear NMR at Washington and Lee University”

Gave three lectures at the NSF CWCS Chemistry in Art Workshop at Colorado College (travel funded by the NSF) 6/15-6/20/08

“Examining Paintings” 6/16/08

“Paintings Conservation” 6/17/08

“Course Structure” 6/19/08

Attended the BCCE conference at Indiana University and gave an invited seminar “Science in Art: Technical Examination of 17th Century Dutch Paintings” and had travel expenses covered by NSF 7/27-7/30-08

Attended the National American Chemical Society Meeting in Philadelphia and gave one poster 8/17-8/20/08 “Catalytic studies of an Fe(III) macrocyclic tetradentate triamide complex with hydrogen peroxide” poster 8/19/08

Gave invited seminar “Science in Art: Technical Examination of 17th Century Dutch Paintings” at Ferrum College. 10/31/08

Gave two invited seminars “Macrocyclic Polyamide Ligands & High-Field Multinuclear NMR at Washington and Lee University” and “Science in Art: Technical Examination of 17th Century Dutch Paintings” at Ursinus College. 11/10/08

Gave three lectures at the NSF CWCS Chemistry in Art Workshop at Colorado College (travel funded by the NSF) 7/22-7/27/07

“Examining Paintings” 7/24/07

“Paintings Conservation” 7/25/07

“Course Structure” 7/26/07

Attended the National American Chemical Society Meeting in Boston. gave one talk and gave one poster 8/19-8/22/07

“Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings” talk on 8/19/07

“Catalytic studies of an Fe(III) macrocyclic tetradentate triamide complex with hydrogen peroxide” poster 8/21/07

Uffelman, E. S. “An Intense Study-Aboard Course for Science and Non-Science Students on the Technical Examination of 17th Century Dutch Painting”, 15th Annual Kathleen Ridder Conference (Art of the Matter: Doing Technical Art History), Smith College, October 26-27, 2007

Uffelman, Erich S.; Diebold, Christopher M.; Binns, Emily A.; Levin, Carly S.; Pittman, Scot B.; Webb, Elizabeth G.; Clark, Kehvon M. **Catalytic studies of an Fe(III) macrocyclic tetradentate triamide complex with hydrogen peroxide.** Abstracts of Papers, 234th ACS National Meeting, Boston, MA, United States, August 19-23, 2007 (2007), INOR-659. CODEN: 69JNR2 AN 2007:883025 CAPLUS

Uffelman, Erich S.. **Chemistry in art: Technical examination of 17th century Dutch painting as interdisciplinary course work for nonscience and science majors.** Abstracts of Papers, 234th ACS National Meeting, Boston, MA, United States, August 19-23, 2007 (2007), CHED-007. CODEN: 69JNR2 AN 2007:879715 CAPLUS

Uffelman, Erich S.; Coleman, Johnathan T.; Lloyd, Jessica C.; Meyer, Jared J.; Reilley, Matthew J. **Synthesis, electrochemistry, and catalytic behavior of the Fe(III) complex of a tetradentate macrocyclic triamide ligand.** Abstracts of Papers, 232nd ACS National Meeting, San Francisco, CA, United States, Sept. 10-14, 2006 (2006), INOR-191. CODEN: 69IHRD AN 2006:860585 CAPLUS

Uffelman, Erich S.; Coleman, Johnathan T.; Lloyd, Jessica C.; Meyer, Jared J.; Reilley, Matthew J. **Preparation of iron(III) complexes of macrocyclic pentadentate tetraamide ligands.** Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005), INOR-246. CODEN: 69GQMP AN 2005:190636 CAPLUS

Uffelman, Erich S.; Doherty, Jonathan R.; Schulze, Carl; Burke, Amy L.; Bonnema, Kristen R.; Watson, Tanya T.; Lee, Daniel W. **Microscale syntheses, reactions, and ^1H NMR spectroscopic investigations of macrocyclic tetraamido-N complexes relevant to green chemistry.** Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004 (2004), CHED-235. CODEN: 69FTZ8 AN 2004:656387 CAPLUS

Uffelman, Erich S.; Meyer, Marisa E.; Coleman, Johnathan T. **Iron complexes of a novel tetradentate macrocyclic triamide ligand.** Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, United States, March 28-April 1, 2004 (2004), INOR-606. CODEN: 69FGKM AN 2004:225942 CAPLUS

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", National Science Foundation Workshop, Colorado College, July 24, 25, and 26, 2007.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", National Science Foundation Workshop, Millersville University, May 28, 2006.

The Associated Colleges of the South asked me to present my Dutch technical art history course to a national NSF PKAL meeting: Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", National Project Kaleidoscope National Science Foundation Meeting, Trinity University, February 25, 2006.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", Davidson College, November 16, 2006.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", University of West Georgia, November 17, 2006.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", St. John's University, October 11, 2006.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", Hofstra University, October 12, 2006.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", Queensborough Community College, October 13, 2006.

Uffelman, E. S. "Science in Art: A Chemical Analysis of 17th Century Dutch Paintings", The Scripps Research Institute Society of Fellows Lecture Series, The Scripps Research Institute, March 23, 2006.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", Sewanee, February 18, 2005.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", Davidson College, November 17, 2005.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", National Science Foundation Workshop, Millersville University, June 9, 2005.

Uffelman, E. S. "Science in Art: Technical Analyses of 17th Century Dutch Golden Age Paintings", Associated Colleges of the South Science Education Reform W. M. Keck Foundation Workshop, Furman University, September 17, 2005.