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Professional Experience

Dean, College of Arts and Sciences, Kansas State University	2023-Present
Co-director, Protein and Biopolymer Analytical Core Laboratory	2023-present
Interim Dean, College of Arts and Sciences, Kansas State University	2022-2023
Associate Dean for Research and Graduate Studies, College of Arts and Sciences, Kansas State University	2019 – 2024
Co-founder, Molecular Biosensing Diagnostics	2017-2022
Professor; Department of Chemistry, Kansas State University	2018 – Present
Undergraduate advisor and scholarship chair	2007 - 2019
Associate Professor; Department of Chemistry, Kansas State University	2007 - 2018
Assistant Professor; Department of Chemistry, Kansas State University	2002 - 2007
Staff Scientist; Oak Ridge National Laboratory, Oak Ridge, TN	1998 - 2002

Education

<u>Post-doctoral Fellow, Oak Ridge National Laboratory,</u> Oak Ridge, TN; <i>Mentor:</i> Dr. J. Michael Ramsey	1996-1998
<u>Ph. D. Analytical Chemistry, University of North Carolina at Chapel Hill,</u> Chapel Hill, NC; <i>Doctoral Thesis Advisor:</i> Dr. James W. Jorgenson,	1991-1996
<u>B. S. Chemistry (High Honors), University of West Florida (UWF),</u> Pensacola, FL;	1991
<u>B. A. Biology (High Honors) Harvard College (HC),</u> Cambridge, MA;	1988

Honors

Top 2% of cited researchers in field (Stanford study – see Appendix A)	2021-2025
Stamey Award for Undergraduate Advising	2010 and 2013
Karcher Medal, University of Oklahoma	2010
Distinguished Alumnus Award, The University of West Florida	2010
ACS Division of Analytical Chemistry Award for Young Investigators in Separation Science	2007
Segebrecht Distinguished Faculty Teaching Award	2007
Masao Horiba Award	2007
NSF CAREER Award	2006
Pfizer Analytical Research and Development Fellowship	1995-6
ACS Analytical Division Fellowship	1994-5
Kenan Analytical Award	1994

Department of Education Fellow	1992-3 and 1993-4
UNC-CH Graduate School Merit Fellowship	1991-2
Reilly Fellowship	1991-2
NSF Graduate Research Fellowship Honorable Mention	1991-2 and 1992-3
The American Chemical Society Undergraduate Award in Analytical Chemistry (UWF)	1991
The Monsanto Award (UWF)	1991
Chemistry Department Scholarship (UWF)	1990-1
Hugh Bancroft Scholar	1987-8
Harvard College Scholarship	1985-8
National Merit Scholarship	1984-5
Florida PRIDE Scholarship	1984-5

Administrative Positions

Dean/Interim Dean (2022-present)

Major Responsibilities

- Chief academic officer for the college, leading 20 departments, two schools, two centers, 450 faculty, 175 staff, 3600 undergraduates, and 700 graduate students.
- Provide strategic planning and vision for the college.
- Manage \$105,000,000 total annual budget (RCM-activated tuition, student fees, grants, and sponsored research overhead).
- Support faculty and staff professional development, student success initiatives, and community engagement.
- Engage alumni and supporters of the college to increase engagement and philanthropy.
- Support the research and commercial engagement enterprises of the college and university.

Key initiatives Accomplished or Underway

- Created a new advanced water quality lab as part of the Kansas Water Institute.
 - Led the creation of an advanced analytical lab focused on the analysis of PFAS (“forever chemicals”) in water, biosolids, soil, and animal tissue.
- Led the college in the successful development of **new general education requirements** (1st time in >30 years), a new college **strategic plan**, and **workload policy**.
- Developed **engagement**, teaching excellence, and workload policies to be included in departmental documents.
- Created a **teaching quality and effectiveness** task force to develop great teachers through more professional development opportunities for faculty and GTAs, and to recognize outstanding teaching through more awards.
- Created a freshman seminar for all first-year and transfer students
- Appointed a faculty fellow to create an applied learning experience that will be required of all students to graduate, starting with the class of 2026
- Developed and implemented an **enrollment growth plan** that includes an updated webpage design, a better student visit experience, a new college scholarship model, shadow (experience) days for admitted students, and new personalized communication plans for admitted and accepted students.
 - Results:

- First-time freshmen enrollment increased by 45% over the last 3 years
- Developed a 3-year budget with revenue growth and cost reduction plans to close an \$8M deficit. We are on schedule to become budget-neutral by FY27.
- Created a **new recruiting office** and meeting area to give prospective students a better college visit experience and increased number of recruiting personnel.
- Restructured the Dean's Office staff and Deans to provide better and more effective support for department heads, faculty, staff, and students
 - Hired the College's first Director of Communications and Marketing to develop better marketing, branding, social media, and communication for the college and its departments.
 - Created director positions for recruiting, advising, and interdisciplinary programs, and an assistant dean for faculty support.
- Created a **professional advising and faculty mentoring model** to improve student retention and reduce time to graduation.
 - Created monthly information and training sessions for advisors
 - Increased 4-year graduation rates by 13.5+%.
- Implemented a marketing and recruiting plan to leverage the widespread interactions that MTD faculty and staff have with 20,000 high school students every year.
 - Result: 25% increase in freshmen music majors and 40+% increase in student credit hours
- Created new communication flows and transparency to improve faculty and staff morale.
- Developed better documentation for college processes and procedures through the creation of college and new department heads' handbooks.
 - Created centralized onboarding procedures and policies for new hires, including safety training (e.g., Alice and inclement weather)
 - Created a new uniform hiring request document for more transparency in faculty hiring decisions.
- Created a GTA stipend committee to investigate ways to increase and allocate GTA stipends.
 - Increased graduate teaching assistant stipends
- Created a professional development task force to improve leadership development pathways for faculty and staff.
- Led multiple initiatives to address deferred maintenance in the college, including new hood and ventilation systems for several buildings (e.g., the J.R. MacDonald AMO Physics Lab and NIH COBRE CNAP Center in Psychological Sciences).
- **Raised 24.7 million dollars total in FY25 in collaboration with the KSU Foundation development officer team.** We successfully closed two \$5M gifts – one to Music and one to Biology, a \$2.5M gift to band, and a \$1.1M gift to chemistry
- Created and co-direct a new Proteomics core facility to address college and university needs efficiently and to support an external customer base.
 - Currently have contracts with both industry users and federal agencies
- Advocated for and worked to create a director of core facilities at K-State with OVPR to better and more efficiently support advanced research instrumentation.
- Advocated for and worked to support the development of the interdisciplinary Kansas Water Institute (KWI) – serving on the KWI working group.

- The state legislature is now supporting the KWI for 5 years, with \$5M in funding per year.
 - The College received six new faculty lines focused on water research
- Served on the Biomanufacturing and Bioprocessing Constellation Hiring Committee that led to the hiring of 12 new faculty
- Creating a School of Earth and Environmental Sciences by merging Geography, Geology, and Environmental Sciences
- Leading a space consolidation and migration plan to reduce the college space footprint, moving some departments to better spaces, and addressing deferred maintenance across the college.
 - Consolidated the School of Media and Communication into fewer buildings
 - Acquired funding to move Geology to a better space in the college
- Overseeing the updating and streamlining of curricula across the college to serve our students better, attract new students to the college, and reduce the number of low-enrollment courses.

Associate Dean of Research and Graduate Studies (2019-2024)

As Associate Dean, I worked closely with the other Deans, 22 department/school heads, and 2 center directors across 24 buildings to support the College's tripartite mission in teaching, research, and outreach.

Major Responsibilities

- Strategic planning and data analysis.
- Managed the college instructional fee programs (\$4M/year). This fee supports professional advisors, supplements GTA stipends, awards undergraduate research and travel scholarships, and provides classroom and laboratory equipment and supplies.
- Managed the sponsored research overhead revenue(\$600k/year). These funds provide matching funds or support for proposals, small exploratory research projects, deferred maintenance, and emergency repairs.
- Coordinated research compliance and safety. Chair of the College safety committee.
- Oversaw facility construction, maintenance, and repair projects.
- Oversaw and coordinated space migration projects.
- Led a new faculty development program for the College and participated in training activities offered by the Office of Research and Development.
- Served on the Associate Deans for Research Council.
- Served as College Liaison to the Graduate School; identified and nominated students for awards.
- Served on the Office of Undergraduate Research and Creative Inquiry (OURCI) Advisory Committee, which guides our Developing Scholars Program, McNair Scholars Program, and Kansas Louis Stokes Alliance for Minority Participation programs
- Chaired tenure and promotion committees in various departments when conflicts arose.
- Mentored/supervised multiple faculty and department heads due to conflict issues, including overseeing annual reviews and P&T.
- Managed two staff positions, including Environmental Sciences coordinator.
- Co-Chaired the College budget planning committee.

- Served on the University Budget Steering Committee, which develops the budget for the university.
- Led new faculty development program and faculty enhancement program

Key initiatives Accomplished

- Established a monthly coffee collaborative to bring faculty together around potential interdisciplinary projects.
- Provided seed money through foundation funds to encourage and support interdisciplinary research projects.
- Oversaw several building projects, including bathroom renovations, classroom renovations, black mold remediation, and ventilation projects.
- Initiated and oversaw a 2.5-million-dollar renovation of the fume hood and ventilation systems in Chemistry and Biology.
- Developed and implemented a space reduction plan for the College to reduce space by 75,000 square feet.
- Led successful review and renewal of the current college fee.
- Successfully led proposal to increase student fees to address classroom supply and GTA stipend needs.
- Successfully advocated for and hired a NAGPRA administrator and Collections Curator; created a webpage to update the community on repatriation progress.
 - **80% of the collection repatriated as of December 2025**
- Formed a standing Dean's Student Advisory Council of undergraduate and graduate students to advise the Dean on issues deemed important by students.
- Proposed and co-developed a new secondary major – Integrated Health Sciences - to improve pre-health students' success in professional school admission and to give students a tangible acknowledgment for the extra work they do as part of their pre-health plans.
- Participated in the development of and helped navigate approval of a new interdisciplinary Environmental Science degree program for the College. Currently, oversee the environmental science program coordinator for the College.
- Led fundraising campaign for new environmental science major that will support undergraduate scholarships and marketing, including matching contributions.
- Developed marketing plan for new Environmental Science major with the Division of Communication and Marketing and the Environmental Science coordinator (direct report).
- Oversaw and coordinated the shutdown and safe re-opening of the research enterprise across all departments and schools in the College due to the COVID pandemic.

Other professional Activities at Kansas State University (current and past)

University Level

- Chairing the search for the College of Agriculture Dean (2025-present)
- Member of the **Kansas State University Research Foundation Board** (2025-present)
- Chaired search for College of Health and Human Sciences Dean (2024-present)
- Served on the **Strategic Enrollment Executive Committee** (2024-present)

- Served on **Campus Master Planning Executive Committee** (2023-2025)
- Serving on **RCM Budget Review Committee** (2023-present)
- Serving on the **KWI working group** (2023-present)
- Served on Bioengineering and Biomanufacturing initiative constellation hire review committee (2023-2024)
- Masters of Public Health Board of Directors (2022-present)
- Serving on Dean's and Academic Leadership Councils (2022-present)
- Students for Environmental Action co-advisor (2023-present)
- Rotaract Club faculty advisor (2021 - present)
- Conflict of Interest and Conflict of Time Commitment Disclosure and Management Plan Review Committee (2019 – present)
- Faculty Exchange for Teaching Excellence (FETE) Board (2016-2020)
- Faculty representative to the Kansas Board of Regents Transfer and Articulation Committee (2013-2019)
- **Faculty Senate** (2018– 2019)
 - College of Arts and Sciences Representative to Academic Affairs Committee (2018-2019)
- Member of Campus Planning and Development Advisory Committee (2018-2022).
- Kansas State Book Network committee member (2011-2019) – recommends a common freshman book each year
- American Red Cross Club Advisor (2014-2019)
- College of Education – Chemistry Teacher Education Advisor (2012-2019)
- SPOTLIGHT on innovative teaching presenter (2018)
- College of Education – Chemistry Standards Review Member (2015)
- Next Generation Science Standards Committee for the State of Kansas
- Kansas Department of Education Licensure Standards Committee for College Chemistry Education Programs (2015-2017)
- NSF Career Workshop Presenter (2010, 2012)
- Segebrecht Award Committee (2007-2010)
- University Library Committee (2007)

College of Arts and Sciences

- Physical Sciences Committee Chair (2013-2023)
- Academic Standards Committee (2013-2021)
- Life Sciences Committee Member (2010-2023)
- Student Fees Responsible Use Committee (2015-2016)
- Dual Degree Committee (2012-2013)

Department of Chemistry

- Safety Committee (2018-2019)
- Undergraduate Program Committee (2007-2019)
- Alumni Affairs and Outreach Committee (2017-2019)
- Freshman Chemistry Readiness Committee (2009-2019)
- Departmental Awards Committee (2017-2019)

Society Affiliations

- American Chemical Society (1991-present)
- Sigma Xi Member (2007 – 2010, 2023-present)
- Alpha Chi Sigma Member (2006 – present)
- Phi Lambda Upsilon Member (2006 – present)
- AWWA (2023-present)

Community Activities

- **Manhattan Rotary Club #335, President** (2025-2026); Member (2017 – present); President-elect (2024-2025), Vice President (2023-2024); Board of Directors (2019 – present); Protecting the Environmental Chair (2021-present); Rotarian of the Year 2021, Liaison to high school Interact club and college Rotaract club (2019-present)
- Middle School Volleyball Coach, Manhattan Catholic Schools (2017)
- Manhattan High School Site Council (Member, 2012- present; Chair, 2018-2019)
- Manhattan High School Career and Technical Education committee member (2018-2022)
- BSA Troop 223 Parent Volunteer (2014-2018)
- USD383 – Yes Committee for School Bond (2018)
- 4-H College Hill Club (Community Leader, 2004-2007)

Professional Activities

- External Advisory Committee Member for NIH COBRE Leveraging Big Data to Improve Women's Health at University of Kansas (2024-present)
- Steering Committee Member for Microfabrication and Microfluidics Core in the University of Kansas' NIH COBRE Center for Molecular Analysis of Disease Pathways. (2013-present)
- Advisory Committee Member for Consolidated Biomedical Core-Facility at Veterinary Medical School, Kansas State University (2022-present)
- ACS/Analytical Division/ Education Committee Member; Kolthoff Award Committee Member (2013-2022)
- Affiliate of the Terry Johnson Cancer Center (2005-present)
- Chemistry NSF REU Leadership Group Member (2018-2022)
- Organized Microfluidics Symposium at MWACS, Manhattan, KS (October 2016)
- Co-organized Analytical Chemistry Education Full-day session at Fall Boston ACS meeting “Beyond Quant.” Boston, MA (15-17 August 2015)
- Organized the Chaired session honoring James W. Jorgenson at the ACS National Conference, Boston, MA (23-28 August 2007)
- Analytical Chemistry A-page Advisory Board (2007-2010)
- Chair of Local ACS Section, Kansas State University (2004-2005)
- Chair-Elect of Local ACS Section, Kansas State University (2003-2004)
- NIH Panel Reviewer completed service for IMST, participated in 33+ NIH review panels, including R15 Area, EBIT, and SBIR/STTR proposals (2002-Present)
- NSF Panels (8+) and Mail Reviewer (ad hoc) (2002-Present)
- NSERC Reviewer (2003-Present)

- Reviewer for over 20 journals, including Analytical Chemistry, Bioanalytical Chemistry, Electrophoresis, Journal of Chromatography, Langmuir, Lab-on-a-Chip, JACS, Analytical and Bioanalytical Chemistry, Nanomedicine, Nanomaterials, Sensors and Actuators B, Biofabrication, Sensors, Journal of Micromechanics and Microengineering, Applied Sciences, Analyst, Talanta, Micromachines, etc.
- Organized and co-chaired a session on “Biochips and Nanorobotics” at the 7th Annual Conference for the Society for Biomolecular Screening, Baltimore, MD (9-14 September 2001)
- Organized and chaired a session on “Miniaturized Separations: Smaller is Better” at FACSS: 2002, Providence, RI (October 13-17, 2002)

Teaching Experience

Online General Chemistry and Lab (CHM110ZA and CHM111ZA) – summer 2013 and 2014, and Fall 2014, spring and summer 2015, Summers 2016-2019

Online Chemistry 1 and 2 (CHM210ZA and CHM230ZA) Fall 2015, Spring and Fall semesters 2016-2019

Frontiers in Chemistry (CHM 200) – 2012-19

Honors Chem II (CHM250) – Spring odd years 2009-19

Chemical Analysis (CHM 371) – Spring 2008, Fall 2009-2018

Chemical Separations (CHM 920) – Spring 2004, 2005, Spring even years 2006-18

CAT Community “What’s the Matter with Matter?” 2013-2017

Forensic Chemistry (CHM372) – Summer 2010, 2011, and 2012

Instrumental Methods of Analysis (CHM 566) - Fall 2003-2008 Kansas State University

Separations (CHM 545) – Spring 2003, Kansas State University

Chemistry II Recitation (CHM 231) - Spring 2003 Kansas State University

Chemistry I Recitation (CHM 211) - Fall 2002 Kansas State University

Guest Lecturer, Pharmacy 191 Pharmaceutical Analysis, Pharmacy Department, UNC-CH (Fall 1993 and Fall 1995). Invited to give a guest lecture on electrophoresis and capillary electrophoresis to first-year graduate students in the Department of Pharmaceutics.

Teaching Assistant, UNC-CH (Fall 1992). Responsible for instructing and evaluating first-year graduate students in an electronics laboratory.

Adjunct Instructor, UWF (Spring 1991). Responsible for instructing and grading students in a first-semester organic chemistry laboratory.

Teaching Assistant, UWF (Fall 1990). Responsible for assisting the laboratory instructor with introductory chemistry students.

Undergraduate Research

1990 - NSF Summer Undergraduate Research Program. Research Advisor: Dr. Leon Zalkow, The Georgia Institute of Technology, Atlanta, GA. Synthesized four derivatives of aryl 1,4-dialkylpiperazines related to GBR-12783 for use as possible cocaine antagonists (See publication list below).

1987 - NSF Summer Undergraduate Research Program and 1987-1988 Undergraduate Honors Thesis. Research Advisor: Dr. Rodney L. Honeycutt, Harvard College, Cambridge, MA. Explored the possibility of using the mitochondrial DNA variation within and among pilot whale (*Globicephala melaena*) pods along the northeastern coast of North America as a

method for determining the social structure and the population ecology of these marine mammals. Developed a technique to isolate DNA from skin plugs taken from live animals.

Other Research Experience

June - August 1991. Summer Research Student. Research Advisor: Dr. Thomas Meyer, UNC-CH. Synthesized trans-bis(trifluoroacetic acid) terpyridine (triphenylphosphine) Ruthenium II and trans-bis(4-ethyl pyridine) terpyridine (triphenylphosphine) Ruthenium II complexes as precursors to asymmetric trans pyridine complexes (see publication list below).

August 1988 - August 1990. Laboratory technician. The Wetlands Research Laboratory, UWF. Responsible for analysis of estuarine water, sediment cores, and landfill leachate samples using various wet chemical and instrumental methods.

July 1986 - July 1988. Curatorial Laboratory Assistant. New England Aquarium (Boston, MA). Responsible for ensuring exhibit water quality, assisting with and performing marine mammal necropsies, and preparing histology samples.

Publications (orcid.org/0000-0002-6833-3237)



Journal Articles (Web of Science (1 December 2025) 5716 citations, average number of citations/item = 68.05, H-index = 34)

65. 🐾 Kompalage, K.; Tucker, R.J.; Coetzee, J.F. and Culbertson, C.T. Simultaneous Quantification of Azaperone, Trazodone, and Gabapentin in Porcine Plasma Using UHPLC-MS/MS. *Analytical Letters*. (submitted 9 Dec 2025)
64. 🐾 Kreznor, A.; Bossmann, S.B., and Culbertson, C.T. Low-cost, tape-sealed, PDMS-molded devices using 3D printing for cell studies. *Analytical Bioanalytical Chemistry*. (submitted 9 Dec 2025)
63. 🐾 Weeder, M.M.; Kleinhenz, M.D.; Culbertson, C.T.; Reppert, E.J.; Kompalage, Kushan; Tucker, Ryan; Bear, M.; Curtis, A.K.; Nelson, A.A.; Fritz, B.R.; Dahmer, P.; Coetzee, J.F. Pharmacokinetic parameters of oral firocoxib, oral meloxicam, and transdermal flunixin in meat-type goats. *Journal of Veterinary Pharmacology and Therapeutics*. **2025**. DOI: 10.1111/jvp.70035
62. 🐾 Miranda-Muñoz, K.; Midkiff, K.; Woessner, A.; Afshar-Mohajer, M.; Zou, M. ; Pollock, E.; Gonzalez-Nino, D.; Prinz, G.; Hutchinson, L.; Li, R.; Kompalage, K.; Culbertson, C.T.; Tucker, R. J.; Coetzee, J.F.; Tsai, T. ; Powell, J. ; and Almodovar, J. A Multicomponent Microneedle Patch for the Delivery of Meloxicam for Veterinary Applications. *ACS NANO* **2024** DOI: <https://doi.org/10.1021/acsnano.4c08072>
61. 🐾 Zhang, X.; Zhang, S.; Kuang, J.; Sellens, K.A.; Morejon, B.; Saab, S.A.; Li, M.; Metto, E.C.; An, C.; Culbertson, C.T.; Osta, M.A.; Scoglio, C.; Michel, K. CLIPB4 is a central node

- in the protease network that regulates humoral immunity in *Anopheles gambiae* mosquitoes. *Journal of Innate Immunity*. **2023**, 15 (1): 680–696. DOI: 10.1159/000533898.
60. 🐼 Covarrubias-Zambrano, O.; Motamedi, M.; Ameredes, B.T.; Tian, B.; Calhoun, W.J.; Zhao, Y.; Brasier, A.R.; Kalubowilage, M.; Malalasekera, A.P.; Yapa, A.S.; Wang, H.; Culbertson, C.T.; Troyer, D.L. and Bossmann, S.B. Optical Sensing of Biomarkers on Mucosal Inflammation. *Nanomedicine, Nanotechnology, Biology, and Medicine*. **2022**, 40, 102476. DOI: 10.1016/j.nano.2021.102476.
 59. 🐼 Sibbitts, J. and Culbertson, C.T. Measuring Stimulation and Inhibition of Intracellular Nitric Oxide Production in SIM-A9 Microglia using Microfluidic Single Cell Analysis Analytical Methods, **2020**, 12(38) 4665-4673 DOI: 10.1039/d0ay01578d.
 58. 🐼 Kalubowilage, M., Covarrubias-Zambrano, O., Malalasekera, A.P., Wendel, S.O., Wang, H., Yapa, A.S., Chlebanowski, L., Toledo, Y., Ortega, R., Janik, K.E., Shrestha, T.B., Culbertson, C.T., Kasi, A., Williamson, S., Troyer, D.L., Bossmann, S.H. Early Detection of Pancreatic Cancers in Liquid Biopsies by Ultrasensitive Fluorescence Nanobiosensors. *Nanomedicine*, **2018**, 14(6), 1823-1832. DOI: 10.1016/j.nano.2018.04.020.
 57. 🐼 Sibbitts, J.; Sellens, K. A.; Jia, S.; Klasner, S. A., and Culbertson, C.T. Cellular Analysis Using Microfluidics. *Anal. Chem.*, **2018**, 90(1), 65-85, DOI: 10.1021/acs.analchem.7b04519
 56. 🐼 Maroto, R.; Zhao, Y.; Jamaluddin, M.; Popov, V.L.; Wang, H.; Kalubowilage, M.; Zhang, Y.; Luisi, J. Sun, H.; Culbertson, C.T.; Bossmann, S.H. Motamedi, M. and Brasier, A.R. Effects of storage conditions on airway exosome integrity for diagnostic and functional analyses. *Journal of Extracellular Vesicles*, **2017**, 6, 1359478. DOI: 10.1080/20013078.2017.1359478.
 55. 🐼 Madayar, F.R.; Basset, S.; Farooq, O.; Rothenburg, S.; Culbertson, C.T.; Jun, L. AC Dielectrophoretic Manipulation, Impedance Monitoring and Electroporation of Vaccinia Virus Using Carbon Nanoelectrode Arrays. *Electrophoresis* **2017**, 38(11), 1515-1525. DOI: 10.1002/elps.201600436.
 54. 🐼 Sadeghi, J.; Patabadige, D.E.W.; Culbertson, A.H.; Latifi, H. and Culbertson, C.T. Out-of-plane integration of a multimode optical fiber for single particle/cell detection at multiple points on a microfluidic device with applications to particle/cell counting, velocimetry, size discrimination and the analysis of single cell lysate injections. *Lab Chip* **2017**, 17, 145-155 DOI: 10.1039/c6lc01161f.
 53. 🐼 Patabadige, D.E.W.; Sadeghi, J.; Kalubowilage, M.; Bossmann, S.B.; Culbertson, A.; Latifi, H.; and Culbertson, C.T. Integration of Optical Fibers with Multilayer Microfluidic Devices for Single Cell Analysis. *Analytical Chemistry* **2016**, 88, 9920–9925. DOI: 10.1021/acs.analchem.6b03133.
 52. 🐼 Patabadige, D.E.W.; Mickleburgh, T.; Ferris, L.; Brummer, G.; Culbertson, A. and Culbertson, C.T. High Throughput Microfluidic Device for Single Cell Analysis using Multiple Integrated Soft Lithographic Pumps. *Electrophoresis* **2016**, 37(10), 1337-1344 DOI: 10.1002/elps.201500557.
 51. 🐼 Patabadige, D.E.W.; Jia, S.; Sibbitts, J.; Sadeghi, J.; Sellens, K.; and Culbertson, C.T. Micrototal Analysis Systems: Fundamental Advances and Applications. *Analytical Chemistry* **2016** 88(1), 320-338. DOI: 10.1021/acs.analchem.5b04310.
 50. 🐼 Madiyar, FR; Saheel, B; Swisher, LZ; Culbertson, CT; Huang, X; Li, J. Integration of a nanostructured dielectrophoretic device and a surface-enhanced Raman probe for highly sensitive rapid bacteria detection. *Nanoscale* **2015**, 7(8), 3726-3736.

49.  Culbertson, CT; Mickleburgh, TG; Stewart-James, SA; Sellens, KA; Pressnall, M. Micro Total Analysis Systems: Fundamental Advances and Biological Applications. *Analytical Chemistry* **2014**, 86(1), 95–118.
48.  Metto, EC; Evans, K; Barney, P; Culbertson, AH; Gunasekara, DB; Caruso, G; Hulvey, MK; Fracassi da Silva, JA; Lunte, SM; Culbertson, CT. An Integrated Microfluidic Device for Monitoring Changes in Nitric Oxide Production in Single T-Lymphocyte (Jurkat) Cells. *Analytical Chemistry* **2013**, 85(21), 10188-10195.
47.  Madiyar, FR; Syed, LU; Culbertson, CT, and Li, J. Manipulation of bacteriophages with dielectrophoresis on carbon nanofiber nanoelectrode arrays. *Electrophoresis* **2013**, 34(7), 1123-1130.
46.  Mainz, ER; Gunasekara, DB; Caruso, G; Jensen, DT; Hulvey, MK; Fracassi da Silva, JA; Metto, EC; Culbertson, AH; Culbertson, CT; Lunte, SM. Monitoring intracellular nitric oxide production using microchip electrophoresis and laser-induced fluorescence detection. *Analytical Methods* **2012**, 4(2), 414-420.
45.  Syed, LU, Liu, J, Price AK, Li, Y-F, Culbertson, CT, and Li, J. “Dielectrophoretic Capture of E. coli Cells at Nanoelectrode Arrays.” *Electrophoresis*, **2011**, 32(17), 2358-2365.
44.  Bani-Yaseem, AD, Kawaguchi, T., Price, AK. Culbertson, CT, and Jankowiak, R. Integrated microfluidic device for the separation and electrochemical detection of catechol estrogen-derived DNA adducts. *Anal Bioanal Chem*, **2011**, 399 519-524 (PMID 21058011)
43.  Klasner, SA, Metto, EC, Roman GT, and Culbertson*, CT. “Correction to Synthesis and Characterization of a Poly(dimethylsiloxane)-Poly(ethylene oxide) Block Copolymer for Fabrication of Amphiphilic Surfaces on Microfluidic Devices.” *Langmuir*, **2010**, 26(8) 6078 (DOI: 10.1021/la100097v).
42.  Klasner SA, Price AK, Hoeman KW, Wilson, RS, Bell, KJ, and Culbertson, CT. “Paper-based microfluidic devices for analysis of clinically relevant analytes present in urine and saliva.” *Analytical and Bioanalytical Chemistry* **2010** 397(5), 1821-1829. (PMID 20425107)
41.  Price AK, and Culbertson*, CT. “Generation of Non-Biased Hydrodynamic Injections on Microfluidic Devices Using Integrated Dielectric Elastomer Actuators.” *Anal. Chem.* **2009** 81(21), 8942-8948 (DOI: 10.1021/ac9015837). (PMID 19817486)
40.  Lange, JJ, Collinson, MM, Culbertson, CT, and Higgins, DA. “Single Molecule Studies of Oligomer Extraction and Uptake of Dyes in Poly(dimethylsiloxane) Films.” *Anal. Chem.* **2009** 81(24), 10089-10096 (DOI: 10.1021/ac902250p) (PMID 19928808).
39.  Klasner, SA, Metto, EC, Roman GT, and Culbertson*, CT. “Synthesis and Characterization of a Poly(dimethylsiloxane)-Poly(ethylene oxide) Block Copolymer for Fabrication of Amphiphilic Surfaces on Microfluidic Devices.” *Langmuir*, **2009**, 25(17) 10390-10396 (DOI: 10.1021/la900920q). (PMID 19572528)
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Book Chapters

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2.  Culbertson, C. T. "Single Cell Analysis on Microfluidic Devices" in Methods in Molecular Biology, vol. 339: Microchip Capillary Electrophoresis: Methods and Protocols. ed. Charles Henry. The Humana Press, Totowa, NJ **2006** pp. 203-216. ISSN:1064-3745.
1.  Jacobson*, S.C. and Culbertson*, C.T. "Microfluidics: Some Basics" in Separation Methods in Microanalytical Systems eds. Jörg P. Kutter and Yolanda Fintschenko, Marcel CRC Press, New York, **2006** pp. 19-64. ISBN 0-8247-2530-1.

Conference Proceedings

1.  Culbertson*, C.T. and Roman, G.T. "Surface Modification of PDMS Microfluidic Devices Using Transition Metal Sol-Gel Chemistry." In Proceedings of μ TAS 2005 Conference. Eds. Jensen, K. F., Han, J., Harrison, D. J., and Voldman, J. Transducer Research Foundation, San Diego, CA, **2005**. ISBN 0-9743611-1-9.

Patents

10. Motamedi, M.; Bossmann, S.H.; Culbertson, C.T. and Troyer, D. "Nanosensors and Methods for Detection of Biological Markers" U.S. Patent Number 11,965,881; issued 23 April 2024.
9. Culbertson, C.T., Bossmann, S.H. "Microfluidics-based Nanobiosensors and Devices" U.S. Patent Number 11,318,470 issued May 3, 2022.
8. Gonda, SR; von Gustedt-Gonda, I; Chang, RC; Starly, B; Culbertson, C; Holtorf, HL; Sun, W; Leslie, J. "Microorgan Device." U.S. Patent No. 8,580,546.
7. Gonda, SR; von Gustedt-Gonda, I; Chang, RC; Starly, B; Culbertson, C; Holtorf, HL; Sun, W; Leslie, J. "Microorgan Device." U.S. Patent No. 8,343,740.

6. Jacobson, S. C., Ramsey, J. M., Culbertson, C. T., Whitten, W. B., and Foote, R. S. "Methods for Forming Small-Volume Electrical Contacts and Material Manipulations with Fluidic Microchannels," U.S. Patent No. 8,083,915.
5. Jacobson, S. C., Ramsey, J. M., Culbertson, C. T., Whitten, W. B., and Foote, R. S. "Methods for Forming Small-Volume Electrical Contacts and Material Manipulations with Fluidic Microchannels," U.S. Patent No. 7,931,790.
4. Jacobson, S. C., Ramsey, J. M., Culbertson, C. T., Whitten, W. B., and Foote, R. S. "Methods for Forming Small-Volume Electrical Contacts and Material Manipulations with Fluidic Microchannels," U.S. Patent No. 7,909,973.
3. Culbertson, C. T.; Jacobson, S. C.; McClain, M. A.; Ramsey, J. M. "Microfluidic Systems and Methods of Transport and Lysis of Cells and Analysis of Cell Lysate" U.S. Patent No. 7,419,575.
2. Culbertson, C. T.; Jacobson, S. C.; McClain, M. A.; Ramsey, J. M. "Microfluidic Systems and Methods of Transport and Lysis of Cells and Analysis of Cell Lysate" U.S. Patent No. 6,783,647.
1. Jacobson, S. C., Ramsey, J. M., Culbertson, C. T., Whitten, W. B., and Foote, R. S. "Methods for Forming Small-Volume Electrical Contacts and Material Manipulations with Fluidic Microchannels," U.S. Patent No. 6,685,809 (Issued 3 February 2004).

Presentations (>120)

Proposals, Grants and Contracts 2007-present (>\$6.7M total)

- | | |
|--|------------------|
| 1. NSF-1933321 | 1/1/20-12/31/25 |
| NSF | \$2,000,000 |
| Title: EFRI CEE: Opening the Gates of Apoptosis in Cancer | |
| Role: Current K-State Contractor PI (KUMC Bossmann Lead-PI) | |
| 2. Cancer Center – Summer Graduate Student Support | 6/1/22-8/15/22 |
| Johnson Cancer Research Center | \$7500 |
| Title: Summer Graduate Student Support for Abigail Kreznor | |
| Role: PI | |
| 3. NSF-1852182 | 05/01/19-4/30/23 |
| NSF | \$344,225 |
| Title: REU Site Research Experiences for Undergraduates in Chemistry at Kansas State University | |
| Role: lead PI (transferred to Ryan Rafferty in 2021) | |
| 4. NSF-1842670 | 09/01/18-5/31/22 |
| NSF | \$300,000 |
| Title: EAGER: Design and Validation of a Point-of-Care Device to Detect Biomarkers of Pain | |
| Role: PI (KUMC Bossmann Lead-PI) | |
| 5. NSF-CBET1940790 | 11/15/19-5/31/23 |
| NSF | \$300,000 |
| Title: EAGER: A Microfluidic Device for Studying the Environment Triggered Migration of Glioblastoma Cells | |
| Role: Co-PI (KUMC Bossmann Lead-PI) | |
| 6. NSF-1804416 | 05/1/18-4/30/21 |

- NSF \$325,000
Title: A Point-of-Care Device for Diagnosis and Management of Pulmonary Disease
Role: PI (KUMC Bossmann Lead-PI)
7. Cancer Center – Pancreatic Center of Excellence Award 6/1/20-5/31/21
Johnson Cancer Research Center \$5000
Title: Pancreatic Cancer Center of Excellence
Role: PI
8. **NSF-CHE1460898** 05/01/15-04/30/18
NSF \$345,000
Title: REU Site: Research Experience for Undergraduates in chemistry at KSU
Role: PI
9. Cancer Center – Summer Graduate Student Support 6/1/17-8/15/17
Johnson Cancer Research Center \$5400
Title: Summer Graduate Student Support for Kathleen Sellens
Role: PI
10. **NSF-CHE1310460** 08/01/14-07/31/17
NSF \$180,000 (KSU)
Title: Microanalytical Methods for Investigation of the Inflammatory Response
Role: Co-PI (PI: Susan M. Lunte KU)
11. **NIH R01 1R01AI095842-01** 5/1/11-4/30/16
NIH \$1,503,216
Title: The function of SRPN2 in mosquito immunity and physiology
Role: Co-PI (PI: Kristin Michel KSU Biology)
12. **NSF-CBET1656968** 10/01/16-9/30/18
NSF-CBET \$185,541
Title: Integrating Optical Fiber Bridges in Microfluidic Devices for Ultrasensitive Analyses of Biomarkers in Single Cells
Role: Co-PI (PI: Stefan Bossmann)
13. Cancer Center – Innovative Research Award 4/1/2016-open
\$22,245
Title: Development of a Prototype Paper Microfluidic Device for Monitoring Critical Biomarkers of Breast Cancer
Role: PI
14. Cancer Center – Summer Graduate Student Support 6/1/16-8/15/16
Johnson Cancer Research Center \$4800
Title: Summer Graduate Student Support for Shu Jia
Role: PI
15. Cancer Center – Special Gift from Eric Stonestreet 9/1/16-8/31/2018
Johnson Cancer Research Center \$50,000
Title: Towards Clinical Detection of Biomarkers for Breast Cancer and Other Solid Tumors
Role: PI
16. **NSF-DUE0934905** 7/1/09-6/30/15
NSF \$849,765
Title: K-State Robert Noyce Scholarship Program
Role: PI

17. DCE – Online Course Proposal Division of Continuing Education Role: PI	05/31/14-04/30/15 \$10,100
18. Terry C. Johnson Cancer Research Center Graduate student summer award Role: PI	05/31/15-08/31/15 \$4500
19. NSF-CHE1004991: NSF Title: NSF-REU Site: Research Experiences for Undergraduates in Chemistry at Kansas State University Role: PI	6/1/10-5/31/14 \$261,702
20. Alternative Textbook Proposal KSU Student Government Association Role: PI	05/31/13-04/30/14 \$5,000
21. DCE – Online Course Proposal Division of Continuing Education Role: PI	05/31/13-04/30/14 \$10,100
22. Terry C. Johnson Cancer Research Center Graduate student summer award Role: PI	05/31/14-08/31/14 \$4500
23. NSF-CHE0548046 NSF CAREER: Development of a Sensitive, 'Universal' Surface Plasmon Resonance Detector for Protein Separations on Microfluidic Devices Role: PI	2/1/06-1/31/12 \$530,000
24. Department of Homeland Security DHS Center of Excellence for Emerging and Zoonotic Animal Diseases Role: Investigator with Higgins and Li	7/1/10-6/30/12 \$30,000
25. Terry C. Johnson Cancer Research Center Undergraduate Research Award for Samantha Talley Role: PI	11/9/12-5/15/13 \$2,000
26. NIH NS061202-01 NIH Microanalytical Methods for the Detection of Reactive Nitrogen Species Role: Consultant (PI: Susan Lunte at KU)	6/1/09-5/31/11 \$275,000
27. Annual Wheat Quality Proposal Call Kansas Wheat Commission Development and Use of 'Lab on a Chip' Technology to provide Varietal Identification of Wheat for Quality Prediction in less than 90 Seconds Role: PI	7/1/09 – 6/30/11 \$29,040
28. Terry C. Johnson Cancer Research Center Undergraduate Research Award for Karsten Evans Role: PI	11/9/09-5/15/11 \$2,000
29. K-INBRE Award 2010 Summer Scholars Program Undergraduate scholar award for Karsten Evans	5/1/10-4/30/11 \$4,700

- | | |
|--|------------------|
| 30. Arthropod Genomics | 2/1/07-1/31/09 |
| Center – KSU Center of Excellence | \$58,000 |
| The Aphid Salivary Secretome: A Genomics-Based Approach | |
| Role: PI | |
| 31. Terry C. Johnson Cancer Research Center | 11/9/09-5/15/10 |
| Undergraduate Research Award | \$2,000 |
| Role: PI | |
| 32. Annual Wheat Quality Proposal Call | 7/1/09 – 6/30/10 |
| Kansas Wheat Commission | \$29,040 |
| Development and Use of ‘Lab on a Chip’ Technology to provide Varietal Identification of Wheat for Quality Prediction in less than 90 Seconds | |
| Role: PI | |
| 33. Division of Continuing Education | 6/1/09-8/31/09 |
| KSU-DCE | \$4500 |
| Development of a distance education course covering forensic analytical chemistry | |
| Role: PI | |

Appendix A



Culbertson, Christopher T.
Kansas State University 

Rank: 252566

- **Main Field:** Chemistry
- **Sub Field:** Analytical Chemistry
- **Rank in the SubField:** 2329.0
- **H-index:** 33, **Hm-index:** 12

Top 2% Listed Year(s): 2025, 2024, 2023, 2022, 2021, 2020
"Career Long" Data

 **TOP 2% SCIENTISTS**
LEADING MINDS IN SCIENCE

The data is verified and sourced from **ELSEVIER** and **Stanford University's** Top 2% Scientists list.



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