Robyn E. Hannigan, Ph.D.

EDUCATION AND TRAINING

PhD	University of Rochester	Earth & Environmental Science	1997
MS	University of Rochester	Earth & Environmental Science	1994
MA	SUNY at Buffalo	Geology	1993
BS	College of New Jersey	Biology	1988

Post-doctoral Appointments

Marine Chemistry, Woods Hole Oceanographic Institution	1997-1999
Fisheries Ecology, Old Dominion University	1999-2000

Administrative Appointments

Clarkson University, Potsdam, NY

Profile: Clarkson University is a private institution founded in 1896. A national research university, Clarkson is a leader in technical education and research through integrated curricular and co-curricular learning and focused research on solving challenges across disciplinary boundaries. Clarkson's main campus is located on 640 wooded acres in Potsdam, New York, adjacent to the 6-million-acre Adirondack Park, with other campuses in the Capital Region of New York (Schenectady) and Beacon New York. Its 4,300 undergraduate and graduate students hail from 44 states and 65 countries. Clarkson prepares effective and entrepreneurial engineers, scientists, educators, health professionals, business people, and creative leaders through exceptionally demanding and rewarding, boundary-spanning educational experiences.

Provost (Aug 2019 to present)

Reporting directly to the President as a key member of the President's Cabinet, lead and manage strategic planning, academic policy formulation, academic budgetary decision-making, learning assessment and operational continuous improvement, student achievement and success, and faculty recruitment and professional development. Key responsibilities include administrative leadership to faculty and staff at all levels to promote student achievement, intellectual growth and scholarly research through strategic planning, direction and assessment of key components; Assure budget planning and decisions align with the University's mission and goals; Coordinate and oversee federal lobbying efforts; Foster and support faculty governance and shared governance; Actively collaborate with University leadership to support equity, access, diversity and inclusion initiatives; Strengthen Clarkson's financial position and elevate the quality of research, scholarship, teaching and service at Clarkson; Promote Clarkson's academic vision across and beyond its physical locations/campuses and build its national reputation through each of the Schools, Institutes, and Centers; Support fundraising including visioning and briefings under direction of President; Facilitate effective board of trustee and external constituent relationships.

Selected Administrative Accomplishments – Provost (Clarkson)

Academic Vision & Leadership

- Led Golden Knights Rise strategic planning effort including design and implementation of continuous cycle of 'big idea' review creating a framework for decision-making that is nimble and adaptive to the realities of the higher education landscape.
- Established the Directed Faculty Enrichment search process to increase diversity of faculty through opportunity hiring.
- Aligned administration goals and purpose of academic affairs creating a more visible and engaged shared governance system.

- Shifted culture to more data-informed decision making through acquisition of key software systems and development of the Department Snapshot dashboard, a diversity and equity data dashboard, and other tool designed to facilitate faculty and staff decision-making and strategic investments.
- Established unit annual reporting process to support chairs in evaluating and sharing the successes and challenges within a unit.
- Reorganized student administrative services (registrar, financial aid, bursar, student services representatives), university advising, student success, and student opportunities to provide concierge level services to students and provide holistic support for students throughout their undergraduate and graduate career.
- Diversified revenue and co-curricular learning programs through implementation of micro-credentialling in partnership with industry, alumni, and faculty.
- Increased summer revenues through strategic online offerings.
- Established licensing agreements and partnerships with non-university course providers to increase enrollment of non-degree students, students enrolled in degree completion program, and dual enrollment high school students.
- Established, with alumni office, life-long learning programs engaging alumni in non-credit, micro-credentialled learning and continuing education programs.
- Launched the Academic Anti-Racism Taskforce who evaluated and recommended improvements in search processes, on-boarding, student support, decolonization of the curriculum, etc. This team is now a working group on the proposal for an Anti-Racism Institute.
- Established the Presidential Lecture Series on the 21st Century University bringing academic leaders to a public forum (in-person and asynchronous online) to discuss emerging issues in higher education from addressing systemic racism in the academy to innovations in curricula.

Fundraising and Community/Economic Development

- Established Academic Giving Day with launch in Spring 2021 which provides unrestricted gifts to support key academic priorities each year. The first Academic Giving Day yielded $167,363.
- With a naming gift of $8M and associated founding of the Lewis School of Health Sciences; support donor vision through hiring of Founding Dean. Worked with faculty and dean to set the vision to build reputation and opportunity in rural healthcare.
- Initiated and developed strategy and necessary spaces for entrepreneurial science providing University Development with compelling narrative to share with prospective donors in support of renovation of 50+ year science center. Worked with President to cultivate signature donors leading to gifts of $13M. Support president and new dean of Arts & Sciences in continued fundraising efforts for renovation.
- Worked with dean of engineering to develop vision for advanced manufacturing and supported fundraising efforts resulting in potential challenge gift of $32M to the university to fund renovation of engineering labs and building of advanced manufacturing training facility.
- Currently co-leading, under the auspices of the presidents of Association of Independent Technical Universities (AITU), efforts to secure $100M in funding to double the number of black and indigenous PhDs in Engineering over the next 10 years.
- Supervised federal lobbyist to build funding capacities to broaden applications of faculty research leading to additional infusion of research funding (FY21 $3M new, FY22 $20M pending) including strategic partnerships with Army division of research. Developed proposal to federal legislative representatives to secure $10M for renovation of the science center.
- Established and funded partnership programs with the Akwesasne Mohawk (U.S. and Canada) to support collaborative research, employment pathways, health services linkages to our graduate health science programs, scholarships for undergraduate and graduate students, Traditional Ecological Knowledge programs, and more.
- Secured start-up ICHOR Life Science Inc. as anchor tenant in Clarkson's incubator in Potsdam NY which brings new biotechnology jobs to the region as well as relocated current employees to Potsdam. Uniquely, the scientific principles are appointed as research faculty at Clarkson allowing PhD students to work directly with ICHOR scientists, and both ICHOR and University core facilities are shared between the two entities providing

Clarkson faculty and students full access to the company's analytical core facility and non-human primate animal testing facility in Syracuse NY.

Faculty Leadership & Professional Development

- Serve as Principal Investigator of the NSF-funded Advance program "STEM Leaf" designed to foster leadership in STEM for STEM women and other diverse communities.
- Partnered with faculty senate to evaluate shared governance and strengthen and increase visibility of faculty senate.
- Established conference committee on Budget and Long-Range Planning to ensure faculty level input and review of university budget, budget processes, and decision-making.
- Established process and requirement for pre-tenure review.
- Worked with dean of health sciences to transition clinical faculty to 11-month faculty appointments and clarify requirements for promotion of clinical faculty.
- Acquired license to Interfolio and Faculty 180 to better support faculty performance reviews and improve transparency and clarity of expectations.
- Established the Office of Faculty Achievement and appointed an Associate Provost who oversees programming ranging from chairs training to decolonizing the curriculum seminars. As a new office we are building out programming to align with expressed needs of faculty.
- Initiated participation of Clarkson University in the Harvard Job Satisfaction Survey COACHE with the goal to act upon results of the survey to directly address concerns and reinforce strengths. Results were released July 2020, work is on-going with planned participation in survey in Spring 2023.
- Established, with IT, a faculty development program which provides training to faculty in best practices in online and technology supported pedagogies. This program, RISE, won the 2021 Excellence in Teaching/Training Award from the US Distance Learning Association.
- Worked with faculty and academic leaders to establish unit-based workload equity policies to support transparent and equitable assignments and review processes.
- Established chair and dean review and appointment processes that provide clarity and transparency.
- Established the Provost Fellows program, which supports the release and summer salary of three-five faculty for 12-months to work with members of the leadership on a project providing them with professional development towards building capacity for future administrative needs.

Undergraduate Student Success

- Established the Student Learning Outcomes Assessment Committee whose role is to help build a culture of continuous improvement and ensure learning outcomes are established for courses, programs, etc. and assessed on a regular basis outside of mandated accreditation by AACSB and/or ABET.
- Reconstituted the Clarkson Common Experience (general education program at Clarkson) to integrate curricular and co-curricular learning and develop purposeful partnerships and collaborations to support student learning across disciplines and geographies in and out of the classroom.
- Established the Office of Student Achievement, which is the hub for student support services including advising, tutoring and learning support, financial aid, administrative services, coordination across high impact practices on campus, and associated programming at the undergraduate and graduate level.
- Worked with faculty senate and student government to develop formal incomplete policies, expectations for syllabus content, and other processes and procedures impacting student retention and persistence.
- Improved retention and persistence through early alert process implementation, holistic advising and coaching, and deeper coordination across academic and non-academic units.
- Decoupled the early college Clarkson School program from the Honors Program. With new leader of Clarkson School expanded reach of early college educational experience and created space for specialized and distinct honors and Clarkson School residential experiences. Expanded early college experiences from residential to 'super commuter' through partnerships with school systems in Schenectady and Beacon NY.

Graduate Education

- Aligned the academic calendars (quarter, trimester, and semester) to optimize graduate enrollments and success while optimizing efficiencies in administrative services and financial aid staff.
- Initiated comprehensive assessment of professional and continuing studies growth potential with goal to implement best practices in program development and management and extension of offerings and services to diversify graduate revenue streams.
- Working towards structural solutions to supporting and advancing enrollments in research programs that directly engage faculty in accountability for program success and provide equitable resource allocations to accelerate research.
- Worked with President and VP for Marketing and External Relations to advance a new model for graduate student recruitment and marketing.
- Working with new dean of graduate school to reconfigure research graduate program management and support and the associated recruitment models for research graduate programs.
- Realigned and strategically investment in Business-to-Business recruiting and corporate relations to increase the number of professional students and industry partners engaged with our online and hybrid master's programs.

Academic Programming

- Established program proposal development and review process including pro-forma and financial assessment.
- Established annual unit reporting processes that leads to comprehensive program evaluation every 5 years to ensure alignment of investments, growth, and sustainability of the academic enterprise.
- Supported development of new academic programs at the undergraduate and graduate level including BS in Health Care (residential), MS in Cybersecurity (online), MS in Artificial Intelligence (online), MAT (Master of Arts in teaching) in instructional design (online), MS in Biomedical Engineering (residential), and rebranding of humanities major to Literature and Aeronautical Engineering to Aerospace Engineering.
- Transitioned the North Country's (3 northern NY counties) Emergency Medical Technician training program from SUNY Canton into Clarkson's Lewis School of Health Sciences to support North Country emergency services training and delivery of services. Currently adding Paramedic training programs with support of regional medical center.
- Supported new graduate programs that are business-to-business strategic offerings in the fields of electric grid management and systems engineering.
- Expanded partnership with Albany College of Pharmacy to establish a 3-3 BS-PharmD, and several 4+1 degrees.
- Established 4+1 in biomedical engineering and dual enrollment degrees in the MS in biomedical engineering – DPT in Physical Therapy, MS-MS Occupational Therapy, and MS-PA in Physician Assistant Studies.
- Established direct admission for first year undergraduates into graduate programs in the health sciences.
- Established micro-credentialing program support revenue generating stackable micro-credentialing for current students in key employer-demand skills as well as support upskilling of alumni to ensure life-long learning support to our alumni network.

Research Leadership

- Served as Director, in the first year of operation, of the New York State Center of Excellence in Health Waters, a joint research center between Clarkson University and SUNY-Environmental Science and Forestry established in 2019. Transitioned leadership to a senior faculty expert in 2020.
- Established formal buy-out process for faculty with external funding during the academic year.
- Increased research expenditures over past 3 years despite disruption of COVID-19 through strategic faculty hires, right-sized start-up investments, and development of pre-arrival space renovation planning process with facilities.
- Serve as Chair of the Clarkson University Science and Innovation Advisory Board. Board membership includes research leaders across the public and private sector who, through annual evaluation of Clarkson's portfolio, provide recommendation to the Board and President about future directions, investments, and opportunities as well as guidance on current systems, policies, and approaches.

- Created internal funding competition for rapid response research and innovation which resulted in additional funding from NSF and New York State and advancement funding for investments in research instrumentation and research fellowships.
- Supported membership of Clarkson University in the Medical Technology Enterprise Consortium to broaden access and opportunity for biomedical and health science researchers.
- Facilitated and advocated for federal pass-through proposal submissions from key research faculty.
- Developed and implemented undergraduate research opportunities aligned with Clarkson IGNITE centered on undergraduate entrepreneurial science and translational research.
- Realigned research and commercialization offices and combined them to better support research development, venture development, and talent development. Currently examining spin-off of for-profit commercialization enterprise.
- Established core facility budget and cashflow models and supported expansion of university research cores to include 2 new core facilities.
- Established the research faculty career track to support progression from assistant to associate to full research professor and incentives for business relocation to our incubator to support R&D in partnership with faculty and research graduate programs.

Fiscal Management

- Working with human resources and budget office to implement more streamlined and financially transparent process to support position management and budgeting
- Established, with the Board, a process for continuous, proactive evaluation and planning for mergers, acquisitions, and partnerships.
- Partnered with CFO to establish a data-informed, transparent, and collaborative 'modified zero-based' budgeting process. Currently working with CFO and Board liaison to implement new budget process centered on data enabled decision-making.
- Partnered with Faculty Senate and CFO to establish budget and long-range planning conference committee to engage faculty in budget development process oversight and serve as advisory to decision-making.
- With the goal to improve access to data to support academic planning and the budget planning and long-range planning, acquired EAB Academic Performance Solutions and joined EAB as a Global Research Partner enabling the CFO and Provost's offices to expand support for changes in budget process (modified zero-based budgeting and initiation of a faculty senate conference committee on budget and long-range planning), program evaluation, chair training, and professional studies.
- Established a revenue return model that rewards entrepreneurial units and seeds curricular and programmatic innovation.
- Managed a 15% budget reduction in FY 21 while maintaining operational excellence and core student support services. Through strategic allocation of resources in FY21, returned projected FY22 funding to full FY20 levels.
- Worked with budget office to more effectively and efficiently manage faculty start-up accounts and academic endowments and eliminate non-essential fund accounts to protect the integrity of these investments during times of financial constraint.

COVID-19 and Academic Leadership

Led academics through the transition to online instruction in Spring 2020. Implemented interim policies to support student success, ensure retention and persistence of graduate and undergraduate students, and supported faculty and academic staff. With human resources established process for work from home for staff and implementation of "family hours" for staff (5 hours a week that are in addition to personal and sick time). Coordinated and supported a program for faculty skill development in online and technology enhanced instruction, invested in infrastructure to support wastewater testing. Managed budgets and cashflows through COVID-19 while also improving student achievement and faculty growth and development.

Led return to residential instruction in Fall 2020 including establishing two new true hybrid classrooms, upgrading all classroom technologies. Supported COVID-19 quarantine and testing measures. Worked with faculty senate to identify lessons learned from COVID-19 leading to new opportunities to support student achievement through technology.

Established, with faculty, summer 2021 programming to support new students and their success upon their Fall 2021 start including numerous online synchronous and asynchronous models in college success including math, biology, chemistry, and physics basics, Calculus refresher, engineering thinking, and writing skills. Added new micro-credentialling options for incoming and continuing students in design thinking, entrepreneurship, and mathematical modelling and programming.

University of Massachusetts Boston (UMB) Boston, MA

Profile: UMB is an urban public research university in Boston, MA. Founded in 1964 as a comprehensive urban University with the explicit mission to ensure access and opportunity to all students, today the University offers more than 204 undergraduate and graduate programs across 11 colleges and schools. UMB is a diverse campus of more than 17,000 students, 46% ethnic/racial minority and 56% first generation, from over 149 countries. Points of distinction in educational and research opportunities include UMB's partnership with the Dana Farber Cancer Institute, the Massachusetts Life Sciences Center, New England Aquarium, and Tiradentes University of Brazil. As home to the John F. Kennedy Presidential Library, the Edward M. Kennedy Institute for the Study of the Senate, and the Massachusetts State Archives, UMB students, faculty, and staff are actively engaged in public service both locally and globally. UMB operates a branch in Nantucket MA as well as local, regional, and global satellite programs. UMB is a member of the Association of Public and Land-Grant Universities (APLU) and is the second largest campus in the University of Massachusetts system.

Founding Dean, School for the Environment (Sept 2013 to Aug 2019)

Reporting to the Provost and Vice Chancellor for Academic Affairs, provide leadership in academic program quality and enhancement, faculty development and relations, research collaborations and scholarship, student engagement initiatives, and special projects for School for the Environment and associated cross-unit programs and faculty. Responsible for all academic, administrative, and fiscal activities related to delivery of undergraduate and graduate programs including coordination across Colleges and Schools. Responsible for enhancement of externally funded research, active and robust student success programs, growth of graduate programming, and oversight of faculty and staff performance.

Selected Administrative Accomplishments – Founding Dean (UMB)

Academic Vision & Leadership

- Steered development, full approval, and implementation of School for the Environment.
- Coordinated development, approval and implementation of new cross-college MS in Urban Planning and Community Development and BA in Environmental Studies and Sustainability.
- Shepherded merger of ½ of College of Community and Public Service with School including academic programs and associated faculty lines.
- Enhanced academic program quality through approval of new curriculum models & program revisions, program specializations, and new and revised academic policies.
- Led development and implementation of renovations of our Nantucket campus assets.
- Led design and move into new academic research laboratory space.
- Led design and planning for renovation of existing educational and administrative spaces.
- Led and steered affiliation agreements with non-profits to establish joint research and educational programs – The New England Aquarium, Center for Coastal Studies at Provincetown.
- Established public-private partnerships to advance on-line course and program delivery and associated revenue generation.

- Established partnership with industry to provide cooperative education, 2-year full tuition and full-time pay/benefits to students in the program.
- Established 4+1 programs within and outside of School to ensure student opportunities across breadth of disciplines while also ensuring robust graduate course enrollments and higher undergraduate retention and graduation rates.
- Established environmental stewardship programming for K-12 teachers.
- Established linked programs with local community college campuses.
- Established and led the Gloucester Higher Education Ocean Cluster leading to new economic models and employment opportunities for community.
- Increased staff support to School to ensure support for student success programming, Nantucket campus operations, graduate education and research growth.
- Established, with 3 other Deans, the Sustainable Solutions Lab which provides research support to faculty across colleges working towards solutions to combined issues of climate change and social justice.
- Established academic and co-curricular programming connecting all students to our coastal environments through recreational boating, diving, and a Green Living Community for residential students.

Faculty Leadership & Professional Development

- Managed 35+ full & part-time faculty, 12 research faculty, co-managed 2 joint appointed faculty, and 8 affiliate full-time faculty, performance evaluations, renewal/non-renewal decisions, promotion/tenure recommendations, sabbatical leaves, and grievances.
- Worked towards and successfully implemented procedures and expectations of faculty nominations to internal and external award competitions.
- Established research faculty positions in the School and hybrid tenure-research appointments enabling and rewarding faculty entrepreneurship.
- Established partnerships and opportunities to expand faculty research in support of industry needs, broadening funding opportunities and access for faculty.
- Enabled governance of School that fostered collaborative, cross-unit administration of academic programs, research programs, and off-campus programs.
- Led academic revision of workload allocation to support and reward team teaching
- Designed and implemented merit systems responsive to collective and individualized areas of excellence thereby strengthening the role of undergraduate teaching and learning outcomes assessment.
- Invested in target of opportunities hires to advance critical knowledge areas within the School.
- Established Chancellor's Sustainability Task Force that includes representation of faculty, students and staff across academic and non-academic units to support implementation of activities to meet state climate action plans and University commitments to sustainability.
- Developed roles for non-tenure track instructors in governance and leadership within the School and established closer linkages between these critical members of our teaching faculty and our School's research, graduate education, and service programs.

Student Success

- Established the Academic Achievement Student Center (AASC@SFE) to achieve the University's highest priorities and performance targets for transfer students and student persistence (freshmen to 4th year retention), utilizing an implementation approach called "delivery" coupled with data-driven leading indicators of progress toward degree completion.
- Established linked programs with community colleges to ensure students transfer to University as full juniors with courses designed and delivered in collaboration with School faculty.
- Established a bridge program for immersive summer preparation in mathematics to better support student success in first year of study
- Established focused seminars for undergraduate students on career preparation and work/life balance providing holistic support to students in collaboration with Student Affairs office.

- Strengthened student engagement initiatives – Annual Environmental Research Colloquium, Science Cafe program, Dean's Green Team --- high impact practices (HIPs) for college completion and closing achievement gaps for our students.
- Established the residential spring semester program on our Nantucket campus providing students with hands-on applied experiences across the environmental and marine disciplines.
- Established undergraduate mentoring program in collaboration with non-profit partner providing peer, alumni, and employer network support to students from first year to completion targeting the retention and persistence of students of transfer students and at-risk students transitioning to and from their sophomore year.
- Funded the biannual Urban Planning Seminar Series held in the City of Boston connecting our planning program faculty and students to professionals while providing practitioners with networking and professional development programming.
- Designed School's *Fall Town Hall and Spring Welcome*, with a focus on student success
- Sponsored participation of undergraduate and graduate students in national and international professional meetings providing necessary opportunities to advance their professional goals.
- Maintained and advanced UMB's presence and active participation in national University consortia.
- Reinvigorated the Marine Studies Consortium which leverages School courses to support student learning and engagement at 13 local small private colleges.
- Established the Battle Scholarship program, through donor support, to enable low-income students to pursue summer and academic year study and/or research at our Nantucket campus.
- Established funded student internship programs with MA Audubon, Zoo New England, National Park Service, National Oceanic and Atmospheric Administration, Environmental Protection Agency Region 1.
- Developed and implemented pathways programs with local tribes and Native American community organizations to enhance enrollment and success outcomes of Native and Pacific Islander students leading to significant increases in overall student diversity and significant gains in retention and graduation of these students.

Research Leadership

- Established and seed funded, with 3 other Deans, the Sustainable Solutions Lab which provides research support to faculty across colleges working towards solutions to combined issues of climate change and social justice. After 3 years the Lab is fully funded through external grants and philanthropic support with an annual operating budget of $350,000 and active external funding of $1.3M.
- Established the HubWeek Harbor Cruise program connecting the University to the innovation hub event of the year in the City. The cruise highlights faculty expertise and research generating significant press coverage and, through this, additional funding from local and regional stakeholders seeking research-based environmental solutions.
- Collaborated with stakeholders at UMB on multiple externally-funded grants to revise programmatic and funding models to improve efficiencies and project outcomes.
- Established the Environmental Analytical Facility which serves as a core research facility for UMass and external researchers. Facilities includes over $5M in instrumentation and newly built laboratory space.
- Increased, by 600% over 5 years, the external funding of the School to an average of $3.5M annual expenditures and $17M in active awards.
- Secured external funding for new instrumentation to support faculty research.
- Worked with internal leaders to establish new incentives and mechanisms for revenue capture associated with research and intellectual property development.
- Expanded representation and role of research faculty from none in 2009 to 12 in 2016
- Established and funded, from internal and external sources, undergraduate research programming and associated faculty incentives and reward systems.
- Advocated to internal and external constituents for strengths of research on campus and garnered additional press coverage and new opportunities for faculty to engage as experts with legislators at state and federal level.

- Established strategic partnership with UMass Medical School on intersection of immigrant and indigenous community and ocean health.

Graduate Education

- Secured external funding to support graduate fellowships across University studying environmental issues thereby providing stable support for faculty researchers.
- Established Professional Science MS track enhancing graduate enrollment and opportunities for part-time graduate study.
- Increased the number of externally funded graduate students in the School's three MS and two PhD programs to over 70% while maintaining enrollments of more than 90 graduate students and under flat internal funding rates.
- Implemented graduate student success practices mirroring undergraduate efforts including focus on mentoring, networking, and professional development.
- Established programming in ethics across the graduate curriculum including responsible conduct of research course and modules on conservation ethics, community-based research ethics, social and racial justice, and environmental justice.
- Increased MS-level enrollments through strategic investments in professional programs and coordination across University for development of 4+1 programming.
- Established and sustained, through philanthropic support, the Environmental Innovation Clinic which provides pro-bono services to communities, non-profits, and for-profits in the development and implementation of sustainable solutions to environmental challenges.
- Developed and implemented strategic recruitment strategies and partnerships to advance opportunities for under-represented students with special focus on Native American/Pacific Islander students thereby more than doubling graduate student diversity in 3 years.

Fiscal Management

- Managed the School through a $30M budget deficit crisis at the University by growing revenues and making strategic partnerships with business and non-profit partnerships ensuring minimal financial impact, realizing revenue increases, and maintaining full operational functions.
- Established new revenue generation opportunities and strategic realignment strategies to optimize opportunity and resource use and allocation while mitigating impacts of external reductions in support and/or services.
- Over past 3 years grew tenure stream faculty by 173%, aligned non-tenure track teaching needs to enrollment demand, increased staff to include dedicated student success support staff (undergraduate and graduate), research support staff, and industry-innovation staff.
- Increased cross-campus programming at our Nantucket Campus increasing revenue return to units.
- Established revenue generating programs, academic and recreational, increasing tuition/fee based revenues by 200% in past 3 years.
- Increased advancement funding and research-derived revenues by 350% over three years.

Community Relations & Economic Development

- Developed and implemented partnership with "Living on Earth" national radio program. "Living on Earth" staff and studio who relocated to UMass Boston in Spring 2015. The show is recorded on campus and distributed with the underwriting support of the School for the Environment. We established, with Living on Earth, courses and fellowship programs for faculty and students who work as "interns" with the program and develop new content aired weekly.
- Sponsored community arts and science programs in collaboration non-profits organizations (Jose Matteo Ballet, Central Square Theater, Commercial Fisherman's Association, Center for Coastal Student Research, and Woods Hole Film Festival).

- Established and led University system-wide Sustainable Seafood Collaboratory engaging industry, non-profit, and policy stakeholders in the development of science-based policies and regulations in support of the marine aquaculture industry as well as on-line training programs and industry sponsored research projects.
- Facilitated and managed community engagement and economic development education and research partnerships with City of Boston, City of Gloucester, Nantucket island, City of New Bedford, City of Fall River, and public/private partners (Federal Highways Commission, NOAA, Army Corps, AIG Insurance, MA Audubon, New England Realtors Association, and others in support of community-based climate adaptation planning, vulnerability assessments (infrastructure and human resources), and restoration of coupled human-natural systems.
- Organized and led briefings at state and federal legislatures on areas of focus within School and University
- Organized and led workshops and seminars for communities, policy-makers around issues of climate justice, indigenous knowledge in the 21st century, entrepreneurship in the Blue Economy, and more.
- Established partnership with local and regional tribes and Native American non-profits to establish pathways to undergraduate success, integration of indigenous knowledge into research practices and curricular-co-curricular programming.
- Established partnership with Native Youth programs to provide camp experiences to New England native youth.

Department Chair, Environmental, Earth and Ocean Sciences (Jan 2009 to Sept 2013)
Reporting to the Dean of the College of Sciences and Mathematics, provided leadership in undergraduate and graduate environmental and marine program quality and enhancement, faculty recruitment and retention, research infrastructure investments and support of collaborations and scholarship, student-community engagement initiatives, and special projects for Department. Responsible for all academic, administrative, and fiscal activities.

Selected Administrative Accomplishments – Environmental, Earth and Ocean Sciences Chair (UMB)
Academic Vision & Leadership

- Assumed leadership of a merged unit (undergraduate only Department of Earth and Geographic Sciences and graduate only inter-disciplinary Environmental, Coastal, and Ocean Sciences) and supported the faculty in developing and implementing new mission and vision, new undergraduate curriculum and new policies and procedures to support their new identity.
- Led development and adoption by the faculty of an integrated set of policies for assessing different aspects of faculty work and for aligning reward structures with assessment results.
- Tackled head-on some of the most contentious issues facing faculty in the unit: salary inequity, tenure and post-tenure review, and the explosion in part-time instructors to name but a few.
- Led and implemented strategic partnerships with minority- and first-generation, low-income community colleges to enable transfer from environmental associate's programs to UMass Boston environmental BS and BA programs with all courses taken at the community college meeting requirements for UMass Boston. This included working with leaders on these campuses in re-aligning their curriculum and developing and offering UMass Boston environmental courses on these campuses as well as developing on-line offerings to meet their programmatic needs.

Graduate Education

- Led establishment of revenue generating Professional Science MS program and certificate in clean energy and sustainability in collaboration with the Department of Marketing and Management (College of Management) (undergraduate minor and certificate programs also established).
- Worked with faculty to increase enrollments and timely completion rates of PhD and MS programs and to align degree programs from undergraduate to graduate to more fully with research centers and institutes.

Research Leadership

- Strengthened research efforts in the environmental disciplines by providing strong support for successful efforts that led to the external funding for training and student fellowship programs.
- Recruited senior and junior faculty and associated staff researchers to support cluster in remote sensing and climate adaptation.
- Invested in research infrastructure to support advanced applications in coastal ocean-based research (vessels), environmental genomics and analytical chemistry as well as ocean-based sensors.
- Strengthened faculty and student entrepreneurship through start-up and technology transfer programming in collaboration with University Venture Development Center.

Economic Development and Globalization

- Developed and implemented research and educational collaborations with University of Cadíz, Ocean University of China.
- Initiated partnership with National Park Service and established Science Internship program to fund under-represented students, graduate and undergraduate, to work within the park system in support of NPS' goals of developing a diverse workforce.
- Established partnerships with UMass Boston Department of Performance Art and the Boston Central Square Theater company to support integration of environmental education with performances of environmentally-themed plays and musicals.

National Science Foundation Arlington, VA

Profile: The National Science Foundation (NSF) is an independent federal agency created by Congress in 1950 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense…" With an annual budget of $7.5 billion (FY 2016), we are the funding source for approximately 24 percent of all federally supported basic research conducted by America's colleges and universities. In many fields such as mathematics, computer science and the social sciences, NSF is the major source of federal backing (www.nsf.gov/about). The Division of Biological Infrastructure, in the Biological Sciences Directorate, empowers biological discovery by supporting the development and enhancement of biological resources, human capital, and centers. Research resource support includes development of new instrumentation and management of biologically relevant Major Research Instrumentation (MRI program) acquisition and development.

Program Officer, Division of Biological Infrastructure (Nov 2007 – Dec 2008)

Reporting to the Division Director, provided leadership and management for instrumentation programs in the Division including the Instrument Development for Biological Research and NSF-wide Major Research Instrumentation programs. Managed program staff (5). Balanced award portfolios, communicated with PIs and prospective PIs, coordinated with National Institutes of Health Major
Research Instrumentation program officers, presented reports to Director of Biological Sciences Directorate and Division Directors, produced annual report for programs including research highlights, prepared annual operating budgets and end-of-year fiscal close out.

Selected Administrative Accomplishments - Program Officer (NSF)

Portfolio Management

- Managed and balanced portfolios for Instrument Development for Biological Research (IDBR) and Major Research Instrumentation (MRI)
- Led revision of portfolio evaluation and analysis program for Division including development of statistical analysis tools for instrument type, geographic region of institution, PI type, institution type, etc.
- Established assessment rubrics to ensure breadth of biological research from field to lab was supported by both programs

- Worked across directorate on Major Research Instrumentation (MRI) working group and collaborated with key directorates and with National Institutes of Health to support biological instrumentation acquisition and development across the breadth of fields form biomedical to field-based research

Strategic Leadership

- Worked collaboratively with PIs to establish Workshop on Biological Instrumentation which provided insights and guidance to development of future portfolio for IDBR program
- Worked collaboratively with PIs to ensure excellence of research enabled by new instrumentation was highlighted internally and externally
- Re-wrote IDBT solicitation to ensure proposals for field-based research and proposals from primarily undergraduate institution and minority serving institutions were submitted
- Participated in outreach and site visits to increase visibility of IDBR program to key potential PIs
- Collaborated across directorate to enable co-funding of IDBR proposals
- Led review panels for MRI and IDBR competitions and completed review analyses and execution of awards/declines for over 300 submissions to MRI and 80 to IDBR Served on NEON foundation-wide multi-agency oversight committee

Budget & Planning

- Managed $33M MRI-Biology awards in FY08 and balanced mortgages for out-year funding ($7M)
- Managed $3M IDBR awards in FY08 and balanced mortgages for out-year funding ($2M)
- Completed close-out including revenue/expenditure balances

Arkansas State University Jonesboro, AR

Profile: Arkansas State University (ASU) is a doctoral institution located in northeast Arkansas in the agricultural hub of the Mississippi Delta. Arkansas State University developed from an agricultural school founded on April 1, 1909 by Act 100 of the 37th Arkansas General Assembly. Today, the university grants bachelor's, master's and doctoral degrees through 11 degree granting colleges. With cutting-edge research capabilities, Arkansas State is building on its first hundred years and looking to the future. With over 13,000 students enrolled the campus continues to serve first generation/low income students and to enable and support research at the intersection of agriculture and the environment.

Director, Graduate Program in Environmental Science (Sept 2005- Oct 2007)

Reporting to the Dean of the Three Colleges, provided leadership in environmental program quality and enhancement, faculty recruitment and retention, research infrastructure investments, and support of collaborations and scholarship. Responsible for all academic, administrative, and fiscal activities.

Selected Administrative Accomplishments – Graduate Program Director (ASU)

Academic Vision & Leadership

- Oversaw the only PhD program at the University, until 2007 (Molecular Biosciences PhD and MS program) which included faculty from the sciences, liberal arts, and business
- Developed an MS program in Environmental Sciences
- Developed and implemented BS in Forensic Science in collaboration with College of Science and Mathematics and College of Liberal Arts

Research Leadership

- Increased research funding across faculty through strategic investments of Judd Hill endowment funds
- Established and led analytical core facility for the Arkansas Biosciences Institute

Graduate Education
- Increased MS and PhD enrollments while maintaining admissions rigor
- Implemented MS along the way for successful PhD candidates

Fiscal Management
- Increased revenue to the program through analytical core cost center activities, buy-out funding from external grants
- Managed budget for personnel, graduate students, and operations ($0.3M) as well as endowment funds of $50k annually

Community Relations & Economic Development
- Established partnership with University of Memphis Groundwater Institute and Radiance Technologies to advance public-private partnerships in research leading to over $8M total in research funding for faculty in program
- Maintained strong collaborations and programming ties with Judd Hill Plantation and supported Judd Hill Days which serves as community engagement activity for regional farmer's associations, state and federal legislators, and community members
- Established, in collaboration with Department of Criminal Justice, CSI Summer camp for ages 15-17 which generated additional revenues for participating programs

Faculty Appointments

Professor of Chemistry and Environmental Science	Clarkson University	Aug 2019 to present
Professor of Geochemistry	UMass Boston	Jan 2009 to Aug 2019
Professor of Chemistry	Arkansas State University	Sept 2005 to Dec 2007
Associate Professor of Chemistry	Arkansas State University	Sept 2003 to Aug 2005
Assistant Professor of Chemistry	Arkansas State University	Sept 2000 to Aug 2003

Other Appointments
- Adjunct Faculty, UMass Boston, 2019 - present
- Associate Member, Dana Farber/Harvard Cancer Center Cancer Cell Biology Program, 2009- present
- Faculty, Intercampus Graduate Program in Marine Science and Technology, 2009 – 2019
- Judd Hill Chair (endowed), Arkansas State University, 2005-2008
- Affiliate Scientist, New England Aquarium, 2013 – 2019
- Adjunct Graduate Faculty, University of Memphis Dept. of Civil Engineering, 2006-2009
- Adjunct Professor, University of Arkansas Medical School, Dept. of Physiology and Biophysics, 2006-2009
- Adjunct Faculty, Old Dominion University Dept. of Chemistry, 2000-2003
- Adjunct Faculty, Rochester Institute of Technology Dept. of Liberal Arts, 1995-1997
- Adjunct Faculty, Villa Maria College Dept. of Liberal Arts, 1992-1992
- Chemist, New Jersey Department of Health, 1988-1989

Grants

Grants include over $32M in total external funding, over $29M of which is federal funding.

American Chemical Society Petroleum Research Foundation
- Principal Investigator, Remobilization of trace elements during thermal maturation (PRF 36568G2; $25,000, 2001-2003)

Arkansas Biosciences Institute

- Principal Investigator, Human hair as a biomarker of tobacco smoke exposure (Arkansas Biosciences Institute; $475,000; 2003-2005)
- Principal Investigator, Toxic metals in tobacco smoke: from production to bioaccumulation (Arkansas Biosciences Institute; $475,000; 2004-2006)
- Principal Investigator with University of Arkansas Medical School, *In situ* elemental analysis of frog eggs to elucidate the cell cycle (Arkansas Biosciences Institute; $12,200; 2005-2006)
- Principal Investigator, Determination of aerosol nitrogenous organics in tobacco smoke by gas chromatography-mass spectrometry (Arkansas Biosciences Institute; $21,800, 2005-2006)
- Principal Investigator, Purchase of solid sample digestion equipment (Arkansas Biosciences Institute; $16,000, 2002)
- Principal Investigator, Acquisition of an ICP-MS (Arkansas Biosciences Institute; $170,000, 2002)

Arkansas Division of Higher Education

- Co-Principal Investigator (with M. Huss, Arkansas State University), Evolution in the Science Classroom ($45,283; 2002 – 2004)

Arkansas Science and Technology Association

- Principal Investigator, Cost-Share for NSF REU Research Internships in Science of the Environment, RISE ($13,100; 2007-2008)

Arkansas State University

- Principal Investigator, Tracing groundwater flow paths in Sadat city, Egypt using rare earth element chemistry (Middle East Studies Committee; $12,000, 2006)
- Principal Investigator, ICP-MS consumables support (College of Science and Math Dean's Research Award; $800, 2003)
- Principal Investigator, Assessing linkages between water quality and chemical weathering of metal rich bedrock (Faculty Development Fund; $19,800, 2002)
- Principal Investigator, Assessing the distribution of metals in an impaired waterway, Little Red River, Arkansas (Faculty Development Fund; $12,720, 2001)
- Principal Investigator, Acquisition of a Teflon pump head (College of Science and Math Dean's Research Award; $400, 2000)

Arkansas Water Resources Center

- Principal Investigator (with S. Blumenshine, Arkansas State University), Linkages between watershed dynamics and habitat conservation of an endemic species in Little Red River headwaters (AWRC UA-F 01HQRG0076; $18,000, 2001-2002)

Barr Foundation

- Senior Personnel (with D. Cash) Climate Ready Boston Phase 2a (Barr Foundation, $300,000, 2016-2017)

Commonwealth of Massachusetts

- Principal Investigator (with M. Tlusty, K. Hamad-Schifferli, M. Shiaris) VAI Quick Test. (MA Commercialization and Technology Transfer Office; $12,000; Jun 1 2017 - August 31, 2017)

Department of Energy

- Lead Scientist (technical lead with Z. Xia, UMass Boston) Establishment of the Northeast Coastal Watershed Geospatial Data Network (DOE ER65982; $291,600, 2010-2012)

Ford Foundation

- Fellow, Minority Dissertation Fellowship, University of Rochester (Ford Foundation, $40,000, 1996-1997)

Innovation Network for Communities

- Principal Investigator (with P. Kirshen and E. Douglas, UMass Boston) Boston Research Advisory Group – Climate Adaptation and Risk Assessment (INC Contract; $150,000, 2015-2016)

Massachusetts Clean Energy Center

- Co-principal Investigator (with D. Levy, College of Management, UMass Boston) Business and Professional Education for the Clean Energy Economy Initiative (BPECEE) ($189,000; 2009-2011)

National Park Service

- Principal Investigator (with J. Wiggin, Urban Harbors Institute, UMass Boston) Science Internship Program (P12AC11270; $160,000; 2012 to 2017)
- Principal Investigator, Cooperative Agreement- Internships to Enhance Diversity Among Natural Resource Professionals (P17AC00972; $22,000 per year, 2018 - open ended).

National Oceanic and Atmospheric Administration College Sea Grant Program

- Principal Investigator (with M. Tlusty) 'Multiple stressors on American Lobster, *Homarus americanus*: synergistic effects of ocean acidification, temperature increase, and epizootic shell disease (MIT Sea Grant; $200,000, 2016 – 2018)
- Co-principal Investigator (with C. Sorte and R. Etter, UMass Boston) Are blue mussels declining in the Gulf of Maine? Population trajectories, connectivity, and spatiotemporal variation in reproduction (MIT Sea Grant; $71,004, 2012-2014)
- Principal Investigator (with C. Jones, Old Dominion University) Locating essential fish habitat for weakfish and speckled trout in VA (Virginia Sea Grant 5-29569; $243,409, 2001-2003)

National Science Foundation

- Principal Investigator (with J. Ball, L. Ettinger, W. Jemison, and S. Schuckers) STEM Leadership, Equity, and Advancement for Faculty (NSF-ADVANCE 1936144; $999,934; 2019 – 2024)
- Co-Principal Investigator (with N. Sa, S. Soltau, N. Flynn, and M. Foster, UMass Boston) MRI: Acquisition of a High-Resolution Scanning Electron Microscope to Enhance Research Collaborations and Educational Needs among Colleges and Universities in the New England Area (NSF-CHE-1919919; $499,000, 2019 – 2022)
- Principal Investigator (with A. Christian UMass Boston) MRI: Acquisition of an Inductively Coupled Plasma Mass Spectrometer (ICP-MS) and Laser Ablation (LA) System at the University of Massachusetts Boston (NSF-DBI 1726828; $503,356, 2017 – 2020)
- Principal Investigator (with J. Branchaw U. Wisconsin) Student and Mentor-Student travel scholarship program (NSF-OCE-1545651; $99,999, 2015 – 2016)
- Principal Investigator and Director (with M. Ivanova, UMass Boston; dropped to Co-PI 2015 assumed by R. Chen UMass Boston) IGERT: Coasts and Communities – Natural and Human Systems in Urbanizing Environments (NSF-DGE-1249946; $3,099,805m 2013 – 2018)
- Principal Investigator (with J. Branchaw, U. Wisconsin) Networking and Mentoring Travel Scholarship Program (NSF-DBI-1348649; $99,999, 2013-2014)
- Principal Investigator (with J. Branchaw, U. Wisconsin) Enhancing the REU Experience – BIO REU Travel Scholarship and Just-in-Time Review Program (NSF-DBI-1249324; $99,999, 2012-2104)
- Principal Investigator (with M. Tlusty New England Aquarium and A. Rhyne Roger Williams University) Ocean Acidification: Effects on morphology and mineralogy in otoliths of larval reef fish (NSF-CRI-OA-1220480; $204,556, 2012-2014)
- Principal Investigator (with R. Powell Avila University and A. Simcox Ohio State University) BIO REU Travel Scholarship Program (NSF-DBI-1048864; $117,998, 2010-2013)
- Principal Investigator (with A. Christian UMass Boston) MRI-R2: Acquisition of an isotope ratio mass spectrometer (NSF-DBI-0959666; $865,729, 2010-2013)
- Principal Investigator (with A. Christian, UMass Boston) 2010 Biology REU Workshop (NSF-DBI1019365; $46,316, 2010-2012)

- Principal Investigator (with R. Buchanan, Arkansas State University; relinquished award to Buchanan when joined NSF in 2007) URM: Cross-disciplinary Research at the Intersection of Biotechnology and the Environment (NSF-DBI-0731603; $829,468, 2007 – 2012)
- Principal Investigator (with J. Bouldin and K. Redeker Arkansas State University, relinquished award when joined NSF in 2007) The Accelerated Research into the Science of the Environment (RISE) Program: a phase 1 project proposal (NSF-EAR-0703701; $111,570, 2007 - 2009)
- Principal Investigator (with J. Farris and C. Dowling, relinquished award when joined NSF in 2007) REU Site: RISE – Research Internships in Science of the Environment at Arkansas State University (NSF-DBI-0552608; $479,985, 2006 – 2012)
- Principal Investigator (relinquished award when joined NSF in 2007) CRUI: Assessing environmental life histories of freshwater fish: applications of otolith microchemistry (NSF-DBI-0328832; $723,665, 2003-2007)
- Principal Investigator (with J. Farris Arkansas State University) WCR: Linkages between the chemical weathering of black shales and metal contamination in aquatic systems (NSF-EAR0233661; $80,991, 2003-2004)
- Principal Investigator (with J. Farris) REU Site: R.I.S.E. – Research Internships in Science of the Environment at Arkansas State University (NSF-DBI-0243765; $242,291; 2003 – 2007)
- Principal Investigator (with A. Grippo, J. Russ and G. Emmert Arkansas State University) Acquisition of a High-Performance Liquid Chromatography System (NSF-CHE-0091758; $79,624, 2001-2004)
- Principal Investigator (with C. Jones and G. Cutter Old Dominion University) Biogeochemistry Scholarship Program: REU Site in Biogeochemistry at Old Dominion University (NSF-OCE9912308; $205,736, 2000 – 2003)
- Co-Principal Investigator (with R. Etter UMass Boston, G. Trussell Northeastern University) Collaborative Research: Intertidal community assembly and dynamics: Integrating broad scale regional variation in environmental forcing and benthic-pelagic coupling (NSF-OCE1458154; $376,263 to UMass Boston, 2015 – 2018)
- Co-Principal Investigator and Board Member (Co-PI 2013 – 2016; Chair 2013-2014; with S. Tyler U. Nevada Reno, A. Velocchi, U. Illinois Urbana-Champaign, and R. Hooper, CUAHSI) A University Consortium for Interdisciplinary Water Science (Cooperative Agreement NSF-EAR-1338606, $11,163,575, 2014 - 2020).
- Co-Principal Investigator (with R. Etter UMass Boston, P. Yund Downeast Institute, H. Xue U. Maine) Collaborative Research: An integrated theoretical and empirical approach to across shelf mixing and connectivity of mussel populations (NSF-OCE-1334022; $353,436 to UMass Boston, 2014 – 2019)
- Co-Principal Investigator (with A. Christian UMass Boston) REU Site: Coastal Research in Environmental Science and Technology (CREST) (NSF-OCE-1359242; $239,328, 2014-2017); Supplement to REU Site (NSF-OCE-1420358; $28,508, 2014-2015)
- Co-Principal Investigator (with A. Christian, UMass Boston) 2012 Biology REU Workshop: Evaluating and Strengthening the REU Experience (NSF-DBI-1229859; $49,982, 2012-2013)
- Co-Principal Investigator (with M. Matlock, U Arkansas) Inventory, Review, and Development of REU Modules for the Ethical Conduct of Research (NSF-DBI-1139718; $97,461, 2011-2013) Principal Investigator (with A. Christian, UMass Boston) REU Site: Coastal Research in Environmental Science and Technology at UMass Boston (NSF-OCE-1062374; $217,075, 2011-2014)
- Co-Principal Investigator and Board Member (with R. Hooper CUAHSI, A. Valocchi U. Illinois Urbana-Champaign, S. Tyler (U. Nevada Reno) and others) A community-based consortium for the advancement of hydrologic science (Cooperative Agreement NSF-EAR-0753521: $6,160,876, 2009 – 2016)
- Co-Principal Investigator (with A. Christian and J. Bouldin, relinquished award when left Arkansas State University in 2008) GK-12: Environmental Sciences and Molecular Biosciences in the Natural State (NSF-DGE-0809317; $2,242,587, 2008 – 2013)
- Co-Principal Investigator (with S. Green Arkansas State University, relinquished award to S. Green and A. Christian when joined NSF in 2007) MRI: Acquisition of biogeochemical analytical instrumentation for enhanced interdisciplinary research and training at Arkansas State University (NSF-DBI-0722701; $190,835, 2007-2008)

New York State Empire State Development Corporation

- Principal Investigator, Clarkson-SUNY ESF, Center of Excellence in Healthy Water Solutions (C190175; $200,000, 2019 - present)

United States – Moldova Bilateral Grants Program

- Principal Investigator (with C. Moraru and O. Bogdevich, Moldova Geophysics Institute) Environmental Risk Assessment of Toxic Element Pollution in Agricultural Regions of Moldova and Arkansas (BGP MG1-3001; $33,750, 2001-2003)

United States Department of Agriculture

- Co-Principal Investigator (with L. Applewhite, Applied Food Technologies, Inc.) SBIR Phase I: Traceability of Shrimp Utilizing Trace Elemental Analysis (CSREES SBIR; $79,310, 2010-2011)

United States Department of Education

- Principal Investigator and Director (with A. Sustich Arkansas State University) Arkansas State University Ronald C. McNair post baccalaureate achievement program (US Department of Education; $1,000,000, 2003 – 2007)

United States Environmental Protection Agency

- Co-Principal Investigator (with B. Waldron University of Memphis) Mississippi Embayment Regional Groundwater Study (EPA EM833253; $144,000, 2006 – 2008)

United States Space and Missile Defense Command

- Principal Investigator (with B. Henderson Radiance Technologies, Inc.) Stand-off Hazardous Agent Detection and Evaluation Systems (SHADES) (ONR W9113M-06-C-001; $8,000,000, 2005 – 2008)

University of Massachusetts

- Principal Investigator (with F. Peri UMass Boston) Commercialization of a two-stage Peltier cooled laser ablation cell (University of Massachusetts Office of Technology Commercialization and Ventures; $40,000, 2016)
- Principal Investigator (with M. Shiaris and M. Lutcavage UMass Boston, C. Pilskaln and B. Howes UMass Dartmouth, E. Hamin UMass Amherst, M. Tlusty New England Aquarium) Sustainable Seafood Collaboratory (University of Massachusetts Science and Technology Fund; $150,000, 2015 – 2016)
- Principal Investigator (with F. Peri UMass Boston) Development of a two-stage Peltier cooled laser ablation cell (University of Massachusetts Intellectual Property Development Fund; $25,000, 2013 – 2014)
- Co-Principal Investigator (with R. Peach UMass Boston) Collaborative Institute for Oceans, Climate and Security (CIOCS) (University of Massachusetts Science and Technology Fund; $100,000, 2010 – 2011)

University of Massachusetts Boston

- Co-Principal Investigator (with R. Etter UMass Boston) Estimating dispersal and population connectivity of *Mytelis edulis* using geochemical signatures of shells (UMass Boston Proposal Development Fund; $10,000, 2012-2013)
- Principal Investigator (with T. Darrah UMass Boston, C. Beard Brigham Womens Hospital, L. Travis U. Rochester Medical School, S. Fosse, Radium Hospital Oslo) Quantification of platinum levels in the serum, tissues, and bone of patients treated with Pt-based chemotherapy drugs (subaward from UMass Boston NIH U54 program; $26,510, 2009 – 2010)
- Principal Investigator, Metals in medicine – the fate of *in vivo* platinum-based treatment compounds in human cancer patients (UMass Boston Healy Grant; $5,500, 2009 – 2010)

Publications (2018 to present)

A full list of over 190 published works, patents, and application notes can be found at https://orcid.org/0000-0003-4782-1124. * graduate student author, ** undergraduate student author.

Books

1. Moraru, C. and Hannigan, R. 2018. Analysis of Hydrogeochemical Vulnerability. Springer. 171 pp.

Edited Book Chapters

2. Hannigan, R.E., Genest*, D.M., and Robinson, W.E. 2018. Chapter 3.5 - Chemistry of Natural Waters. In, Green Chemistry: An Inclusive Approach (Torok and Dransfield, Eds.). Elsevier. 235-259.

Refereed Journals

3. Shuey, M., Faucon, A., Trendowski, M.R., Ratain, M.J, Dinh, P.C., Feldman, D.R., Hamilton, R.J., Vaughn, D.J., Fung, C., Kollmannsberger, C.K., Huddart, R.A., Martin, N.E., Hannigan, R., Einhorn, L.H., Travis, L.B., Dolan, E., and Cox, N. 2021. Integration of a polygenic risk score of kidney function with cumulative cisplatin dose and time variables for the prediction of serum platinum levels. Journal of Clinical Oncology 2021 39:15_suppl, 12063-12063. http:// 10.1200/JCO.2021.39.15_suppl.12063.
4. Brookfield, M.E. and Hannigan, R.E., 2021. Carbon and oxygen isotope variations in shell beds from the Upper Ordovician (mid-Cincinnatian: Maysvillian to early Richmondian) of Ontario: Evaluation of the Warm Saline Deep Ocean hypothesis, paleoceanographic changes, and Milankovitch orbital cycles in the transition to the Hirnantian glaciation. Palaeogeography, Palaeoclimatology, Palaeoecology, 577: 110528, http://doi.org/10.1016/j.palaeo.2021.110528.
5. Honig*, Aaron, Ron Etter, Kyle Pepperman, Scott Morello, and Robyn Hannigan. 2020. Site and age discrimination using trace element fingerprints in the blue mussel, *Mytilus edulis*. Journal of Experimental Marine Biology and Ecology 522 (2020): 151249. https://doi.org/10.1016/j.jembe.2019.151249.
6. Brookfield, M.E., Stebbins*, A., Williams, J., Wolbach, W., Hannigan, R., and Bhat, G.M. 2020. Paleoenvironments and elemental geochemistry across the marine Permo-Triassic boundary section, Guryul Ravine (Kashmir, India) and a comparison with other North Indian passive margin sections. The Depositional Record, 6(1): 75-116. DOI:10.1002/dep2.96.
7. Mishra, S., Jha, N., Stebbins*, A., Brookfield, M., & Hannigan, R. 2019. Palaeoenvironments, flora, and organic carbon and nitrogen isotope changes across the non-marine Permian-Triassic boundary at Wybung Head, Australia. Palaeogeography, Palaeoclimatology, Palaeoecology, 534, 109292.https://doi.org/10.1016/j.palaeo.2019.109292.
8. Matthew R Trendowski, Omar El-Charif, Mark J Ratain, Patrick Monahan, Zepeng Mu, Heather E Wheeler, Paul C Dinh, Darren R Feldman, Shirin Ardeshir-Rouhani-Fard, Robert J Hamilton, David J Vaughn, Chunkit Fung, Christian Kollmannsberger, Taisei Mushiroda, Michiaki Kubo, Robyn Hannigan, Frederick Strathmann, Lawrence H Einhorn, Sophie D Fossa, Lois B Travis, M Eileen Dolan, 2019. Clinical and genome-wide analysis of serum platinum levels after cisplatin-based chemotherapy. Clinical Cancer Research, 25(19), 5913-5924. 0.1158/1078-0432.CCR-19-0113.
9. Stebbins*, A., Algeo, T. J., Krystyn, L., Rowe, H., Brookfield, M., Williams*, J., ... & Hannigan, R. 2019. Marine sulfur cycle evidence for upwelling and eutrophic stresses during Early Triassic cooling events. Earth-Science Reviews, 195, 68-82. https://doi.org/10.1016/j.earscirev.2018.08.010.
10. Stebbins*, A., Algeo, T. J., Olsen*, C., Sano, H., Rowe, H., & Hannigan, R. 2019. Sulfur-isotope evidence for recovery of seawater sulfate concentrations from a PTB minimum by the Smithian-Spathian transition. Earth-Science Reviews, 195, 83-95. https://doi.org/10.1016/j.earscirev.2018.08.010.

11. Stebbins*, A., Williams*, J., Brookfield, M., Nye, S.W., and Hannigan, R. 2019. Frequent euxinia in southern Neo-Tethys Ocean Prior to the end-Permian biocrisis: Evidence from the Spiti region, India. Palaeogeography, Palaeoclimatology, and Palaecology, 516: 1-10.
12. Holmberg*, R., Wilcox-Freeburg*,E., Rhyne, A.L., Tlusty, M.F., Stebbins*, A., Nye*, S.W., Honig*, A., Johnson, A.E., San Antonio*, C.M., Bourque, B., and Hannigan, R. 2019. Ocean acidification alters morphology of all otolith types in Clark's anemonefish (*Amphiprion clarkii*). PeerJ 6:e6152. doi.org/10.7717/peerj6152.
13. Brookfield, M., Stebbins*, A.G., Rampino, M.R., Hannigan, R.E. 2018. Significance of carbon, nitrogen and their isotopic changes in a Permian-Triassic non-marine boundary section at Carlton Heights (Karoo Basin), South Africa. African Earth Sciences, 145: 170-177.
14. Osborne*, K.L., Hannigan, R.E. and Poynton, H.C., 2018. Differential copper toxicity in invasive and native ascidians of New England provides support for enhanced invader tolerance. Marine Ecology Progress Series, 595: 135-147.

Some Recent Popular Press and Media

Suarez, C.E., and Hannigan, R. 2021. What the 'doctor' title means for women of color with doctorates. The Conversation. https://theconversation.com/what-the-doctor-title-means-for-women-of-color-with-doctorates-150194.

Scriven, D. and Hannigan, R. 2021. How do you start your own company? The Conversation. https://theconversation.com/how-do-you-start-your-own-company-160911.

IGNITE Podcast. 2019. "Episode 18: Introducing our Prestige New Provost Robyn Hannigan". https://podcasts.apple.com/us/podcast/episode-18-introducing-our-prestige-new-provost-robyn/id1437009452?i=1000453039019.

Sourcing Matters Podcast. 2018. "Ep.20 Dr. Hannigan & Tlusty: Ocean Schools" https://www.sourcingmatters.show/index.php/2018/05/10/ep-20-hannigan-tlusty-new-school-ocean/.

Entrepreneurship

In addition to start-up and technology transfer activities through tradition establishment of business, research unassociated with the activities continue to advance the development of intellectual property in the labs of my students now in academia and industry.

GeoMed Analytical, LLC Boston, MA

Profile: Start-up company founded in collaboration with former graduate student (M. Horton) and postdoctoral associate (T. Darrah). Initially based at Venture Development Center, UMass Boston. Incorporated in 2009 and transferred to Ohio State University under T. Darrah in 2013. First business to operate in the Venture Development Center at UMass Boston, focused on development of methods and technologies to advance analytical research in the biomedical sciences.

Chief Science Officer (Sept 2009 to June 2013)

Led research and development of laser ablation and metalloprotein research. Coordinating and supporting CLIA license for laboratory. Serving as point of contact for contractors and advising on development of new analytical methods and technologies to enable laser ablation sampling of biological materials for quantification of metals in proteins and tissues. Contracts included University of Rochester Medical School (nanoparticles in brain and liver tissues), New Field, Inc. (metals in petroleum for source identification), Harvard University (laser ablation sample introduction for mapping of metals in retina material), Brigham Women's Hospital (quantification of essential metals in isolated metalloproteins), and Oslo Radium Hospital (quantification of platinum in serum).

Selected Technology Transfer Activities

- Patent 9,679,753 "Peltier-cooled cryogenic laser ablation cell" (UMass Boston, Hannigan, Darrah, and Peri, Inventors)
- Patent Disclosure 2018 "VAI Quick Test" (UMass Boston, Hamad-Schifferli, Tlusty, Shiaris, and Hannigan, Inventors)

Oral Fluid Testing (OFT) Labs, Mt. Laurel, NJ

Profile: Start-up company founded by Eugene Elwell and Ed Eckert based on research done by Hyphenated Solutions, LLLP (see below). Based in Mt. Laurel New Jersey, the company was incorporated in 2005 and continues to provide oral fluid based testing for metals as well as pharmaceuticals and is now expanding into disease diagnostics.

Consulting Researcher (Sept 2005 to May 2015)

Led research and development of oral fluid sample collection method, sample preparation method, and analytical methods for metals and drugs of abuse. Established scalable analytical processes for high-volume sample analysis. Advised commercial licensors of test on implementation of processes. No equity stake in company. Received royalties on patent licenses from 2007 to 2013. Return all future royalties to company to support internships.

Selected Technology Transfer Activities

- Patent 7,829,340 "Oral fluid assays for the detection of heavy metals" (Woodcock/Washburn, Elwell, Hannigan, and Eckert, Inventors)

Hyphenated Solutions, LLLP Jonesboro, AR

Profile: Start-up company founded in collaboration with graduate students (M. Horton and D Clarke) and colleague (R. Buchanan). Based at Arkansas Biosciences Institute. Incorporated in 2004 and assets sold to Arkansas State University in 2009. First business to spin-out of Arkansas State University. Business focused on development of analytical technologies to enable hyphenated mass spectrometric analysis of organics and metals.

Chief Science Officer (March 2004 to Feb 2009)

Led development of hyphenated technologies to allow for metal speciation in gas phase, direct analysis of bitumen and solid organics by GC-MS, analysis of volatile explosive materials by GC-FTIR, analysis of volatile explosive materials by field-luggable GC-TOF-MS, and speciation of mercury in gas phase by GC-Fluorescence. Coordinating and supporting CLIA license and EPA certifications for laboratory. Serving as point of contact for contractors and advising on development of new analytical methods and technologies. Contracts included University of Arkansas Medical School (detection of sulfate in cells, quantification calcium in cell membranes), USDA (quantification of essential metals in seafood products), Oral Fluid Testing (quantification of metals and scheduled drugs in oral fluid), Agricultural Research Station Stuttgart (quantification of essential oils in rice bran), Nature Diagnostics (quantification of metals in fish tissues), Oklahoma State University (quantification of hydrocarbons in bitumen).

Selected Technology Transfer Activities

- Patent 7,221,861 "Universal Transfer Apparatus" (Hyphenated Solutions/Arkansas State University, Clarke and Hannigan, Inventors)
- Patent 8,174,691 "Detection of a component of interest with an ultraviolet laser and method for using the same" (Arkansas State University, Horton and Hannigan, Inventors)
- Hannigan, R.E. and Harden, W.L. 2005. Elemental Analysis of Human Hair by LA-ICP-MS. Cetac Technologies, Inc. APPLICATION NOTE – 2005-05-18.
- Hannigan, R., Chai, Y., Elobeid, M., Clarke, D., Russ, J., Duffy, M., and Meaker, T. 2005. Speciation Analysis with GC-ICP-MS: Organometal Detection in Tobacco Smoke. PerkinElmer Field Application Note.

Invited Presentations (2018 to present)

(full list of contributed presentations available upon request)

Hannigan, R. Keynote Address: Paleoclimate – how we know what we know and why it matters. New York Power Authority. April 7, 2021.

Hannigan, R., Panelist and speaker. OUTSTEPS Workshop on Community-based Activities in Research, Teaching and Outreach. Outsteps.org. March 30, 2021.

Hannigan, R., Indigenous Identity and Intersectionality in STEM: A conversation with Dr. Robyn Hannigan. Tufts University. October 6, 2020.

Hannigan, R., Keynote Address: More Than The Sum. High School Marine Science Symposium. Salem State University. March 13, 2019.

Hannigan, R., Ocean Acidification in the Gulf of Maine. NOAA North Atlantic Ocean Acidification from Science to Outreach meeting. April 11, 2018.

Hannigan, R., Something Wicked This Way Comes – what the Permian-Triassic mass extinction tells us about climate change and Earth's future. Kent State University. February 16, 2018.

Research Students

In addition to the MS and PhD students listed below, over 80 undergraduate students completed summer research, independent study research, and honors theses. These include 43 female and 42 underrepresented minority students. Aside from primary mentorship of MS and PhD students, as noted below, mentorship extends to committee service to 18 MS and 23 PhD students including students at the University of Puerto Rico- Rio Piedras, Università de Palermo, and The American University in Cairo. Mentorship also includes over 70 undergraduate students, 22 high school research interns, 3 community college faculty, and 2 high school science teachers.

Post-Graduate Mentees

Post-doctoral Scholars

- Dr. Christian Krahforst (2014 – 2016, currently Conservation Manager, Town of Hull, MA)
- Dr. Cascade Sorte (2010-2013, currently assistant professor, UC Irvine)
- Dr. Thomas Darrah (2009 – 2011, currently associate professor, Ohio State University)
- Dr. Vipin Nair (2008 – 2009, currently manager of clinical development and medical affairs, Boehringer Ingelheim)
- Dr. Stephen Coglan, Jr. (2004 – 2006, currently associate professor, University of Maine)
- Dr. Yingtao Chai (2004 – 2006, currently Chemist, US EPA)

Fulbright Scholars

- Dr. Constantin Moraru (2006 – 2008; 2013 – 2104, Director Moldova Academy of Sciences)

Visiting Scientists

- Dr. Klaus Neumann (2007 – 2008, sabbatical research, currently professor, Ball State University)
- Dr. Fred Hilgeman (2003 – 2004, sabbatical research, deceased, Southwestern University)

Graduate Student Mentees

Doctoral Mentees

Environmental Sciences, University of Massachusetts Boston

- Alan Stebbins (PhD 2018, currently Process Engineer, Ultra-Clean)
- Amy Johnston (PhD 2019, currently Assistant Professor, Framingham State University)
- Bryanna Broadaway (PhD 2012, currently Senior Chemist United States Food and Drug Administration)
- Eric Wilcox-Freeburg (PhD 2014, currently Research Scientist, Minnesota Pollution Control Board)
- Jeremy Williams (PhD 2014, currently Assistant Professor Kent State University)

Marine Science and Technology, University of Massachusetts Boston
- Robert Holmberg (PhD 2020, currently Postdoctoral Associate, Downeast Institute)
- Steven Nye (PhD 2021, currently Director of Operations at Agriprise Oregon)
- Christine San Antonio (PhD 2021, currently Co-Founder and lead instructor, Science from Scientists)

Environmental Biology, University of Massachusetts Boston
- Aaron Honig (PhD 2021, currently Postdoctoral Fellow, Downeast Institute)

Green Chemistry, University of Massachusetts Boston
- Katherine Flanders (PhD 2017, currently Environmental Scientist, New Fields)
- Alex Eisen-Cuadra (PhD 2013, currently Co-Founder and Senior Scientist at Proactive Environmental Solutions)

Environmental Sciences, Arkansas State University
- David Clarke (PhD 2011, currently Business Unit Manager at Paul Mueller Company)
- Leonette Cox-Grenade (PhD 2008, currently Associate Professor University of West Indies)
- Bindu Kaimal (PhD 2008, Water Quality specialist, City of Toronto)
- Mai Elobeid (PhD 2006, currently Associate Professor King Saud University)
- George Ogendi (PhD 2006, currently Director Chemeron Dryland Research Training and Ecotourism Centre Egerton University)
- Peter Azah Abanda (PhD 2005, currently Professor Houston Community College)
- Nate Bickford (PhD 2004, currently Professor, Colorado State University-Pueblo)

Masters Mentees

Environmental Sciences, University of Massachusetts Boston
- Soma Basek (MS 2011, currently Research Associate Genzyme)
- Jeremy Williams (MS 2011, completed PhD 2014)

Marine Science and Technology, University of Massachusetts Boston
- Robert Holmberg (MS 2018, complete PhD 2020)

Environmental Sciences, Arkansas State University
- Jaimie Conrad (MS 2008, currently Toxicologist 1 Arcadis)
- Elizabeth Compton (né Medlin) (MS 2007, currently PhD student Arkansas State University)
- Matthew Horton (MS 2006, currently Chemist Future Fuel)

Biology, Arkansas State University
- Wat Harden (MS 2004, currently Assistant Principal Crowley Independent School District)

Chemistry, Arkansas State University
- Bret Yount (MS 2009, currently Lieutenant, US Navy Nuclear Program)
- Jerome Stegall (MS 2008, currently President CORE Consulting)
- Felicia Person (né Jackson) (MS 2007, currently Chemist, NuPac)
- Lynn Stone (né Heard) (MS 2007, currently Lead Chemist Mid-West Research Institute)
- Leonette Cox (MS 2006, completed PhD 2008)
- Tiffany Lonidier (né Moss) (MS 2006, currently Senior Process Engineer Unilever)
- David Clarke (MS 2005, completed PhD 2011)
- Rajini Murthy (MS 2002, currently Business Development Manager Wacker Chemical Corp)

Courses Taught

Graduate Courses

University of Massachusetts Boston
- ENVSCI 641/642, Geochemistry of a Habitable Planet (Fall 2018)
- ENVSCI 640, Chemistry of Natural Waters (Alt. Spring 2010, 2013, 2016)
- ENVSCI 600, Responsible Conduct of Research (every Fall 2012 - 2015)
- ENVSCI/CHEM 662, Chemometrics (Fall 2010, Fall 2017)
- ENVSCI 691, Biomineralization & Ocean Acidification Sem. (every semester, 2011 – present)

- ENVSCI 691, Mass Extinctions and Ocean Chemistry Seminar (every semester, 2010 – present)
- ENVSCI 607, Environmental Innovation Clinic (Spring odd)
- Short Course in ICP-MS (2011, 2015, 2018)

Arkansas State University

- CHEM 5224, Instrumentation (Alt. Spring 2003 – 2006)
- GEOL 5333, Hydrogeology (Alt. Spring 2001 – 2004)
- CHEM 6353, Advanced Analytical Chemistry (Alt. Fall 2002 – 2007)
- CHEM 5053, Geochemistry (Alt. Fall 2001 – 2007)
- EVS 6073, Biogeochemistry (Fall 2005)
- CHEM 5254, Fundamentals of Mass Spectrometry (Spring 2007)
- EVS/MBS 7151, Responsible Conduct of Research (Every Fall 2005 – 2007)
- EVS 7121, Metal Fate and Transport Seminar (Spring 2006)
- EVS 7121, Phytoremediation Seminar (Fall 2005)
- EVS 7121, Medical Geology Seminar (Spring 2007)
- Short Course in ICP-MS (2007, 2008)

Undergraduate Courses

Clarkson University

- HON 490, Honors Thesis Seminar (Spring 2020)

University of Massachusetts Boston

- ENVSCI 104, Natural History of Dinosaurs (Summer 2019)
- ENVSCI 104, Natural History of Dinosaurs (Spring 2019)
- ENVSCI 115, Environmental Geology (Spring 2009)
- ENVSCI 203, Field Trips in Environmental Science (Fall 2013, Spring 2014)
- ENVSCI 210, Earth's Dynamic Systems (Spring 2012, Spring 2016)
- CDVCTR 303, Quantitative Methods in Community Development (Spring 2018)
- ENVSCI 347, Mineralogy and Petrology (Spring 2013)

Arkansas State University

- CHEM 1013, General Chemistry I (Fall 2004)
- CHEM 3054, Quantitative Analysis (Spring 2004)
- CHEM 4053, Geochemistry (Alt. Fall 2001 – 2007)
- CHEM 4224, Instrumentation (Alt. Spring 2003 – 2006)
- CHEM 4254, Fundamentals of Mass Spectrometry (Spring 2007)
- CHEM 4353, Advanced Analytical Chemistry (Alt. Fall 2002-2007)
- GEOL 4333, Hydrogeology (Alt. Spring 2001 – 2004)
- GEOL 1003, Environmental Geology (Spring 2009)
- FOSC 2113, Forensic Science Professional Practice (Fall 2006)

Selected Service

National/International

American Association for the Advancement of Science

- Member, Science and Human Rights Coalition, 2010 – present

Association of Public and Land-Grant Universities

- Member, Board on Oceans, Atmosphere, and Climate, 2015 to 2019

Blue Institute
- Member, Board of Directors, 2019 - present

Centers for Ocean Science Education Excellence (COSEE)
- Member, COSEE OCEAN Advisory Board, 2011-2015

COMPASS
- Selected Participant, Ocean Acidification Communication Workshop, 2013

Consortium of Universities for the Advancement of Hydrologic Sciences, Inc. (CUAHSI)
- Member, Board of Directors, 2010 – 2016
- Member, Executive Committee, 2011-2015
- Chair-elect, Chair, Past-Chair, Board of Directors 2013 – 2015
- Chair, Education and Outreach Standing Committee, 2002 – 2005

Department of State
- Organizer and Sponsor, Fishhackathon, 2013, 2014, 2016
- Invited attendee, Our Oceans, 2014, 2016

Faculty of 1000
- Member, Biology-Marine and Freshwater Biology, 2004 – 2020

Food-Energy-Water Systems Transdisciplinary Environmental Research Network
- Member, Advisory board, FEWSTERN UT Knoxville-Oak Ridge National Lab Research Coordination Network, 2021 - present

National Academy of Sciences
- Member, Continued Analysis of Supplemental Treatment of Low- Activity Waste at the Hanford Nuclear Reservation, 2021 - present
- Member, Board on Earth Sciences and Resources, 2003-2006

National Council for Science and the Environment
- Member, Annual meeting advisory committee, 2012
- Member, Executive Committee, Council of Environmental Deans and Directors, 2011-2013

National Oceanic and Atmospheric Administration
- Member, North Atlantic Region Ocean Acidification Steering Committee, 2015 - 2020

National Science Foundation
- Member, Biological Sciences Research Experiences for Undergraduates Leadership Council, 2004– 2014
- Chair, Biological Sciences Research Experiences for Undergraduates Leadership Council, 20092013
- Committee of Visitors, Division of Biological Infrastructure, 2013

United States Department of State
- Invited Attendee, Our Ocean One Future, Washington DC, 2014
- Invited Attendee, Our Ocean One Future, Washington DC, 2016

World Media Foundation, Inc.
- Board Member, Living on Earth, 2018 - present

Regional/State

Bunker Hill Community College
- Member, Environmental Management Program Advisory Council, 2013 - 2019

City of Boston

- Lead, Boston Research Advisory Group (Green Ribbon Commission), 2015 – 2019

City of Gloucester

- Member, Gloucester Chamber of Commerce Entrepreneurship Steering Committee
- Lead, Gloucester Higher Education Ocean Cluster, 2015 - 2019

Cape Cod

- Board Member, Blue Institute, 2015 - present
- Science Advisory, Massachusetts Shellfish Initiative, 2017 – 2019

Commonwealth of Massachusetts

- Beach Commissioner, South Boston/Quincy, 2018-2019
- Member, STEM Advisory Board, 2013 – 2019

Massachusetts Marine Fisheries Institute

- Member, Advisory Council, 2013 – 2019

New Jersey Department of Higher Education

- External Evaluator, MS and BS in Sustainability Science at Montclair State University, 2013
- External Evaluator, PhD in Environmental Management at Montclair State University, 2010

North Country Economic Development Commission

- Member, 2019- present

Passaic River Institute

- External Evaluator, NSF-Research Experiences for Undergraduates Site, 2011-2013

Towson University

- External Evaluator, Geology BS/BA program, 2014

University of North Florida

- External Evaluator, Center for Environmental Sciences, 2012

Discipline

- External reviewer of 2-3 tenure and promotion dossiers for external institutions annually.
- Serve periodically as a reviewer of articles for Journal of Shellfish Research, Chemical Geology, Mineralium Deposita, Journal of Chemistry Education, Geochemical Journal, Geochimica et Cosmochimica Acta, Journal of Environmental Quality4, TAFS, Fisheries Management, Geology, and Journal of Sedimentary Research. This includes a minimum of six manuscripts per year covering topics of fisheries ecology, geochemistry, and aqueous geochemistry.
- Serve periodically as a reviewer and panelist for National Science Foundation, National Institutes of Health, NASA, American Chemical Society-Petroleum Research, SeaGrant. This includes a minimum of ten per year covering topics of environmental science, hydrochemistry, isotope geochemistry and aqueous geochemistry. Panel service to NSF and NIH (2-3 panels/study sections per year). Referee - Italian Ministry of Education, University, and Research (MIUR).
- Co-Convener, Solving Medical Questions with Geochemistry: Disease Inception, Diagnosis, and Treatment (with P. Censi). GEOMED 2011. Bari, Italy, Sept 20-25, 2011.
- Member, Technical Committee, Global Conference on Oceans, Climate and Security. Boston, MA, May 21-23, 2012
- Member, GEOMED 2011 Scientific Committee, 2010-2011
- Member, BIO REU PI Meeting planning group, 2007

- Organizer and Session Chair, Current Trends in explosive and chemical weapon detection and remediation. International Conference on Bio and Pharmaceutical Science and Technology, San Diego, CA Dec. 18-21, 2006.
- Organizer and Session Chair, Recent developments in hyphenated mass spectrometric techniques for forensic and anti-terrorism applications, Pittcon, Orlando FL, March 12-17, 2006.
- Participant, Biography Project, Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), 2005.
- Co-organizer and Session Co-Chair, Advances in otolith chemistry and applications in freshwater systems. American Society of Limnology and Oceanography, Salt Lake City, UT, Feb 20-25, 2005.
- Delegate, 11th Conference on Water-Rock Interactions, Saratoga Springs, NY, 2011.
- Member, Environmental Geology Advisory Board, American Geophysical Institute, 2003 – 2008.
- Convener and Symposium Chair, Does all water flow uphill towards money in the West? American Association for the Advancement of Science National Meeting, 2003.
- Representative, Geochemical Society to American Association for the Advancement of Science
- Chair, Exhibits and Sponsors, Southeast Section, Geological Society of America, 2001-2003
- Convener and Session Chair, Continental weathering and ocean chemistry, American Geophysical Union Spring meeting, 2001
- Delegate, 10th Conference on Water-Rock Interactions, Cagliari, Italy, 2001
- Delegate, 35th International Geological Conference, Rio de Janeiro, 2000
- Delegate, 9th Conference on Water-Rock Interactions, Taupo, New Zealand, 1998

University

Clarkson University

- Member, President's Cabinet, 2019 - present
- Member, Bias Response Team, 2019 – present
- Member, DI5 (Diversity and Inclusion steering committee), 2019 – present
- Liaison, Board of Trustees Academic Mission Committee, 2019 – present
- Co-Chair, External Research and Innovation Advisory Board, 2019 – present
- Co-Chair, Student Diversity and Inclusion in Recruitment, Retention, and Persistence Committee, 2021 – present
- Member, External Advisory Committee, Chief Inclusion Office, 2021 – present
- Member, Climate & Engagement Committee, 2019 – present
- Advisor, American Indian Science and Engineering Society Student Chapter, 2019 – present

University of Massachusetts Boston

- Member, Student Success Task Force, 2017 – 2019
- Ex-officio, Chancellor's Committee on Sustainability, 2017 – 2019
- Member, Diversity and Inclusion Task Force, 2016 – 2019
- Member, Senior Administrative Review Committee (Dean R. Srikanth), 2016
- Member, Alumni and Community Engagement Committee, 2016 – 2019
- Co-Chair, Sustainable Solutions Lab leadership committee, 2015 - 2019
- Member, Provost's Advisory Committee on Entrepreneurship and Revenue-Based Budgeting, 2014 – 2016
- Member, Chancellor's Executive Leadership Council, 2013 - 2019
- Member, Provost's Dean's Council, 2013 - 2019
- Chair, Environmental Health and Safety Committee, 2013 - 2019
- Member, University Communications committee, 2013 - 2019
- Member, University Web Re-Design committee, 2017 – 2019
- Member, Rehabilitation of Existing Academic Space Planning and Advisory Committee, 2014 - 2019
- Chair, Laboratory Safety Committee, 2013 – 2019
- Member, Assistant Dean College of Science and Mathematics search committee, 2013

- Member, University Graduate Mentoring Awards selection committee, 2012
- Member, Green Chemistry Senior Faculty search committee, 2011-2012
- Member, Contract Selection Committee, Collins Center, McCormack School of Public Policy and Global Studies, 2011
- Member, Strategic Programs Manager search committee, College of Sciences and Mathematics, 2011
- Member, Seminars Assessment Sub-Committee, General Education Committee, 2010 - present
- Co-advisor, Native American Student Association, 2010 - present
- Member, Advisory Council, Center for Sustainable Enterprise and Regional Competitiveness, 2010-present
- Member, Advisory Board, Institute of New England Native American Studies, 2010-2014
- Member, Academic Dishonesty Review Board, 2010 - 2013
- Member, Provost's Advisory Committee, Nantucket Environmental Institute, 2010 - 2012
- Member, Steering and Executive Committee, Collaborative Institute for Oceans, Climate, and Security, 2010 - 2013
- Member, Academic Matters Subcommittee, Chancellor's Strategic Planning Task Force, 2010 - 2013
- Member, Research sub-committee, Chancellor's Strategic Planning Task Force, 2010 - 2013
- Member, University of Massachusetts President's Search Committee, 2010 - 2011
- Member, Global Change Ecologist search committee, 2010
- Member, Responsible Conduct of Research Board, 2009 - 2014
- Member, Chair's Council, 2009 - 2013
- Member, Search Committee, Coordinator – Student Success Center, 2009
- Member, Internal Advisory Committee, NIH U54 program, 2009 - 2011

Arkansas State University

- Member, Honorary Degree Committee, 2007
- Member, Dean of Sciences and Mathematics search committee, 2007
- Member, Mascot Retirement Committee, 2007-2008
- Convener, Girls of Promise, 2007, 2006
- Coordinator, CSI Teacher Training Workshop, 2006
- Chair, Environmental/Forensic Chemistry Assistant Professor Search Committee, 2005 Director, Forensic Science Program, 2005-2007
- Member, Joint Executive Council, 2005-2007
- Co-Chair, Molecular Biosciences Program Director search committee, 2005
- Member, Arkansas Biosciences Institute building manager search committee, 2005
- Graduate Program Coordinator, Chemistry, 2004-2007
- Chemical Safety Officer, Arkansas Biosciences Institute, 2004-2007
- Chair, Faculty Research Committee, 2004-2006
- Member, Arkansas Biosciences Institute Director search committee, 2004
- Member, Molecular Biosciences PhD Program committee, 2003-2007
- Member, Pre-tenure review committee and Promotion, Retention and Tenure committee, 2003-2007
- Member, Department Chair – Chemistry and Physics search committee, 2003-2004
- Member, Strategic Planning Initiative Diversity Taskforce, 2003-2004
- Member, Strategic Planning Initiative Graduate Education and Research Taskforce, 2003-2004
- Member, Molecular Biosciences PhD and MS Development Committee, 2003
- Member, Campus curriculum and diversity committee, 2003
- Member University Diversity Committee, 2003-2007
- Coordinator, Scout University, 2002-2003
- Chair, Environmental Chemistry Assistant Professor Search Committee, 2002
- Member, Arkansas Biosciences Institute Building Committee, 2002
- Member, Academic Warning Committee, 2002
- Member, Environmental Sciences Graduate Program Committee, 2001-2005

- Chair, Department of Chemistry and Physics Information Technology Committee, 2001-2003
- Member, Diversity taskforce, 2000-2001
- Member, Faculty with Disabilities panel, 2000-2001
- Member, Women in Science planning committee, 2000-2001
- Member, University Museum planning committee, 2000-2001
- Webmaster, Department of Chemistry and Physics, 2000-2006
- Undergraduate Program Coordinator, Chemistry and Environmental Chemistry, 2000-2007

Honors & Distinctions

Fellowships and Awards

- Phalanx, Distinguished Leadership Award (2021)
- Fellow, American Association for the Advancement of Science (2010)
- Fellow, Geological Society of America (2008)
- Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences, American Chemical Society (2007)
- National Science Foundation Highlighted Research Discoveries (2005)
- Fellow, Aldo Leopold Leadership Program (2001)