

UNIVERSITY OF WYOMING
Endowed Faculty Report
From the Office of the Vice President for Academic Affairs
1 OCTOBER 2018

To the Joint Appropriations and Joint Education Interim Committees

The University of Wyoming has benefited greatly from the Excellence in Higher Education Endowment, which allows the university to establish state-funded endowed faculty positions to advance teaching and scholarship in the areas of distinction defined in the university's strategic plan. It has also benefited from state appropriations targeted toward faculty positions in legislatively identified areas of priority, in particular, the School of Energy Resources positions and the Sustainable Business Practices positions. Furthermore, faculty positions supported (partially or fully) by private endowment gifts through the University of Wyoming Foundation enhance UW's teaching and research programs in areas of mutual interest to the institution and its donors. This report covers all such positions. Part A covers the Excellence in Higher Education Endowment (a continuation of legislative reports prepared annually); Part B covers other faculty positions identified in legislative appropriations; and Part C covers privately endowed faculty positions.

Part A. Excellence in Higher Education Endowment Report
[Pursuant to W.S. 21-16-1204]

1. Background

Created in 2006, the Excellence in Higher Education Endowment was funded at \$105 million, the earnings from two-thirds of which, or \$70 million, was designated to the University of Wyoming. Earnings on the state-managed endowment, which are distributed by the state treasurer to the university, allow the university to establish endowed faculty positions (known as Wyoming Excellence Chairs) and to acquire instructional and scholarly materials, classroom equipment, and other resources necessary to support the work of endowed chairs. Distributions to the university are based on a spending policy of 5% of the average of the market value of the corpus for each of the preceding five (5) fiscal years or the fiscal years up to five for which there was a balance.

The statute imposes some constraints on the uses of the endowment earnings. Not less than 2/3 of the amounts must be used to expand university instruction and research in disciplines related to economic and social challenges facing Wyoming. No fewer than four Wyoming Excellence chairs must be in the College of Education. The remaining endowed faculty members must have established reputations in other areas of distinction as identified in the university academic plan, including business, arts and humanities, mathematics, cultural studies, healthcare, economics and law.

To jump-start the program while the endowment corpus was filling, and pursuant to Senate Enrolled Act 54 Section 1 (c) (ii), the Legislature appropriated \$2.8 million in one-time funds, subsequently reduced to \$1.8 million, to be distributed to the University of Wyoming and expended exclusively for the purposes specified in W.S. 21-16-1202 (b). The one-time appropriation allowed the university to begin filling positions in fiscal years 2007 and 2008. Those initial positions were then funded permanently with earnings from the Excellence in Higher Education Endowment.

2. Summary, history, and accomplishments of authorized positions

Under W.S. 21-16-1204, UW must report annually on faculty positions partially or fully funded through the endowment program, including the name of each faculty member filling a Wyoming Excellence chair, their education and experience, their research and instructional activities, and the benefits of their research and instruction.

The jump-start appropriation became effective July 1, 2006. The provost developed a planning budget for the allocation of positions to be supported with these funds during the 2007-2008 biennium, while the \$70M endowment account began to fill. Based on the planning budget, three searches were authorized with jump-start funds: two in the College of Education (fulfilling one-half of the legislative mandate requiring four positions in the College of Education) and one in the College of Arts and Sciences Creative Writing MFA program (aligned with UW's area of distinction Cultural Assets, Arts, and Humanities).

During the second year of that biennium, as more information became available about anticipated payouts to the university from the state-managed endowment account, the provost's office authorized more searches, in two phases. Seven additional Wyoming Excellence endowed positions were authorized during fiscal year (FY) 2008, and five more were authorized in July 2008 for a total of fifteen authorized endowed faculty positions. Four of these 15 positions were to be funded with earnings combined from both the state account and private endowment gifts to the university, allowing for a greater number of search authorizations and establishing a unique private-public partnership in endowing distinguished professorships.

The decision to authorize the 15 fully or partially funded positions was based on a budget for salary, benefits, and other position-related costs consistent with the projected payout estimates provided by the state treasurer's office prior to the financial market declines realized later in FY2009. Subsequent financial market events mandated the need to reevaluate the size of the budget and number of permanent positions that could be supported by the endowment earnings. Given the need for exceptional prudence in filling permanent faculty positions, and consistent with representations to the Joint Appropriations Committee, the university placed a number of the previously authorized searches on hold through FY2010. At the beginning of FY2011, following careful evaluation of the anticipated earnings stream and the accumulated reserves held in the university account, the provost authorized searches to fill a number of the on-hold positions, including some for a bridging period only in order to ensure that permanent funding commitments would remain in line with the anticipated funding stream. Then, at the beginning of FY2013, based on having received a significantly larger payout during FY2012 and as well as enhanced projected payout estimates from the state, and a substantial private gift, the provost was able to complete the originally planned position allocations, and augment the program with additional allocations to Nursing, Law, the Haub School (in collaboration with the College of Business), Global and Area Studies, and American Indian Studies.

In FY2018, fourteen (14) positions were funded and several additional positions were supported with endowment funds for a bridging through the end of the fiscal year. Although all positions are subject to available funding in any year, the ongoing annual expenses associated with filling the 14 permanently funded positions were in line with the state projections for annual earnings. The expenses associated with the additional bridge-funded (or temporarily) supported positions are funded with accumulated reserves beyond those needed to cover the risks of another period of earnings declines. Individual plans are in place to support each of the bridge-funded positions after the period of support by the Endowment has ended.

The 14 permanently authorized positions conform to the legislative mandate. Four positions in Education, as prescribed by the legislation, have been created and all are important to the future of K-12 education in the state: literacy education (2 positions), science education, and mathematics education. The strategy for allocation of the other positions was to coordinate a set of positions in the life sciences, an institutional area of distinction identified in the university’s strategic plan, and to build greater depth in other areas of distinction, including the arts and humanities, and professions critical to the state such as business, law, and health professions. In addition, positions were selected for allocation based on their potential to address economic and social challenges in the state, such as community economic development, livestock and wildlife disease, managing natural resource conflicts, water management, and preparing for a global economy. Endowment for Excellence position allocations complement a group of faculty positions focused on energy resource sciences that are funded by the School of Energy Resources. The allocation strategy is reflected in the following table, and the accomplishments of the currently filled positions and the benefits of their research or instruction to students, businesses, industries or other Wyoming residents are described in detail below.

Allocation strategy	# Permanent Positions	College/Academic Unit	Names
Education	4	Education	Dr. Cynthia Brock Dr. Tim Slater, Dr. Rick Kitchen, Dr. Leigh Hall
Cultural Assets, Arts & Humanities	0	Arts & Sciences	
Life Sciences, Environmental and Natural Resource Sciences, Earth and Energy Sciences	4	Arts & Sciences; Agriculture & Natural Resources; Engineering & Applied Science; Haub School	Dr. Melinda Benson, Dr. Holly Ernest, Dr. Xiaohong Liu, Dr. Amy Navratil
Professions Critical to Wyoming (other than education)	4	Law/Haub School Health Sciences (Nursing, Kinesiology & Health Promotion)	Dr. Temple Stoellinger, Dr. Diane Boyle, Dr. Christine Porter; Danielle Cover
History and Culture of the Rocky Mountain Region*	0	Arts & Sciences	
Other Economic and Social Challenges	2	Agriculture & Natural Resources; Arts & Sciences; Haub School	Dr. Steven Smutko, Dr. Heidi Jo Albers

FY 2018 Accomplishments of Wyoming Excellence Chairs

COLLEGE OF EDUCATION

Four of the permanent positions reside in the College of Education, with focuses on literacy, science education, and mathematics education. The individuals who hold these positions are developing and leading nationally recognized programs in these fields and are expected to be magnets for attracting the best and brightest junior faculty and students into these critical areas of teaching need in Wyoming. These positions represent the four Wyoming Excellence chairs that must, by law, be in the College of Education.

Dr. Cynthia Brock, Wyoming Excellence Chair in Elementary Literacy Education (B.S. Elementary Education, minor Math Education, Oregon State University; M.Ed. in Reading & Language Arts, Washington State University; Ph.D. in Educational Psychology, Focus: Literacy & English Learners, Michigan State University). Across the past year, Dr. Brock worked with Dr. Dana Robertson (Executive Director of the Literacy Research Center and Clinic) and Dr. Leigh Hall (Wyoming Excellence Chair in Adolescent Literacy Education) to develop collaborative research/professional literacy learning partnerships in schools in the following counties: Teton, Sublette, Natrona, and Albany. Dr. Brock was one of the co-chairs of the 2017 UW Literacy Research Center and Clinic Annual Literacy Conference; approximately 180 administrators and educators from Wyoming and Colorado attended this annual literacy conference. This UW LRCC Literacy Conference and professional development work has benefitted hundreds of educators and children across the state of Wyoming by providing state-of-the-art literacy instructional ideas to Wyoming educators. Drs. Brock, Gillis (retired), and Hall and Rick Fisher (Interim Director of the UW Writing Center) co-developed and successfully implemented the first year of the *College of Education Academic Writing Fellows Initiative*; this is a yearlong initiative that started in June 2017 and ended in June 2018. Year one of this initiative was so successful that Year 1 Fellows have been invited to speak to the UW Dean's Council. Dr. Brock collaborated with the CoEd Diversity Committee to finalize the implementation of a 1.5-year initiative that included professional book clubs and guest speakers to foster collegiality and an understanding of diversity in the College of Education. Dr. Brock collaborated with Dr. Mary Alice Bruce to develop and implement the College of Education Mentoring Program. The College of Education initiatives developed by Dr. Brock and her colleagues benefit the residents of Wyoming because they provide ongoing learning and development to the educators who teach the pre- and in-service teachers in the state of Wyoming. In the spring of 2018, Dr. Brock sponsored two international literacy scholars to work with College of Education faculty and doctoral students. Additionally, in conjunction with Drs. Hall and Robertson, Dr. Brock sponsored a group of UW doctoral students to attend and present research at the 2017 Literacy Research Association Conference. In July of 2018, Dr. Brock sponsored a literacy doctoral student to attend and/or present at the Australia Literacy Educators' Association Conference in Perth, Australia. Across the 2017/2018 year, Dr. Brock co-wrote two grants, published two journal articles, and co-wrote two book chapters. Dr. Brock serves as on the governing board of the Wyoming English Language Arts Council. Dr. Brock's state, national, and international scholarly work benefits the teacher educators and educators she serves in the state of Wyoming because her ongoing learning and development informs the nature of the work that she does with teacher educators, educators, and children in the state of Wyoming.

Dr. Richard Kitchen, Wyoming Excellence Chair in Mathematics Education (B.A. Mathematics, University of Colorado Denver; M.A. Mathematics, University of Montana; Ph.D. Curriculum & Instruction Mathematics Education, University of Wisconsin-Madison). Dr. Kitchen is new to the University of Wyoming, joining the UW faculty in fall of 2017. He is a Professor in the College of Education's School of Teacher Education. Dr. Kitchen is the coordinator of the Ph.D. degree program in Mathematics Education at UW. Last year, he devoted significant time recruiting new students into the program, 5 of whom are from the state of Wyoming. Dr. Kitchen is teaching courses in the Ph.D. degree program in Mathematics Education as well as mathematics courses in the Middle Level Math program, a master's degree program run through the Science and Mathematics Teaching Center. Last year, he published an article in the *Journal for Research in Mathematics Education*, the leading journal in the world in mathematics education. He also published two additional journal articles and two book chapters. Dr. Kitchen has worked nationally and internationally with numerous schools as a consultant and professional development provider in mathematical content and pedagogy. This past year, he initiated the UW Math Institute, a series of grade 6-12 professional development workshops in mathematics for teachers from Platte County School District #1, Platte County School District #2, and Goshen County School District #1. In spring 2018, Dr. Kitchen gave a featured presentation at the 3rd Annual Wyoming English as a Second Language Conference in Jackson entitled, "Introducing an Assessment Tool Designed to Support the Mathematical Learning of ELLs." He was also the co-director of the College of Education Research Symposium. Dr. Kitchen's research interests include diversity and equity in mathematics education, school reform at urban schools that serve the low-income students, and formative assessment of English language learners.

Dr. Leigh A. Hall, Wyoming Excellence Chair in Literacy Education (B.S. Elementary Education, Univ. of South Florida; M.Ed. Elementary Education, Vanderbilt University; Ph.D. Curriculum and Instruction, Michigan State University). Dr. Hall developed her research on online teacher education to help middle and high school teachers improve their literacy instruction. This work involved developing and testing a new approach for online education to determine how well it helped support teacher learning. Wyoming middle and high school teachers around the state participated. Initial results showed that teachers found the structure and feedback of the online approach useful, and data showed that it improved their overall understandings about literacy instruction. This work has received 100,000.00 to further its development and is currently reaching nearly 100 middle and high school teachers in Wyoming. Additionally, Dr. Hall, in conjunction with Dr. Cynthia Brock, developed and implemented a year long writing initiative for faculty in the College of Education. This initiative was meant to support faculty as they increased both the quality and the quantity of their academic publications. Dr. Hall also led a team for the Graduate Student Recruitment Initiative within the College of Education. Collectively, we recruited six students with three being international. At the national/international level, Dr. Hall is currently a column editor for *The ALAN Review* where she has worked to identify a diverse set of scholars to feature their work. She has published in *Literacy Research and Instruction* and been a featured speaker on two podcasts and had three invited blog posts, two of which were featured in *Inside Higher Education*. Her conference presentations were featured at numerous places including EDUCAUSE and the Word Literacy Summit in Oxford, England.

Dr. Tim Slater, Wyoming Excellence Chair in Science Education (B.S Physical Science; B.S. Ed. Secondary Science Education, Kansas State University; M.S Physics & Astronomy, Clemson University; Ph.D. Geological Sciences, University of South Carolina). Dr. Slater is a Professor in the College of Education's School of Teacher Education and Adjunct Professor in the College of Arts & Science's Department of Physics & Astronomy. Dr. Slater is a prolific author being cited thousands of times by international scholars, having published more than 100 refereed journal articles, 21 books and presented hundreds of papers at conferences, often with his graduate students as co-authors, describing his scholarly research on understanding the underlying cognitive mechanisms

related to teaching and learning in introductory science survey courses taught to undergraduates and future teachers. Winner of numerous national awards, he teaches four graduate-level courses in education research methods and cognitive science for the College of Education each year. He further impacts the state by conducting workshops for K-12 teachers and professors across Wyoming, including co-hosting the Wyoming Society of College Science Teachers Conference in Casper, and the Planetarium Education Workshop for Teachers at Northwest College in Powell. Professor Slater serves as the Editor-in-Chief for the Journal of Astronomy & Earth Sciences Education and as Co-Editor for the Science Division of the Contemporary Issues in Technology and Teacher Education for the International Association for Science Teacher Education.

LIFE SCIENCES, ENVIRONMENT AND NATURAL RESOURCES, AND EARTH AND ENERGY SCIENCES

Melinda Harm Benson, Wyoming Excellence Chair in Environment and Natural Resources (B.S., Political Science, University of Oregon, M.S. Community Counseling, University of Wyoming, J.D., University of Idaho). Professor Benson is Dean of the Haub School of Environment and Natural Resources since August 2017. Her current research focuses on the next generation of environmental governance approaches and the extent to which existing legal and institutional frameworks facilitate and constrain their theoretical development and practical application. In 2017, she co-authored *The End of Sustainability: Resilience and the Future of Environmental Governance in the Anthropocene* with University of Utah Law professor Robin Craig. In addition, she had several publications in 2017 stemming from her work with a Social Ecological Systems Network Group published in a special issue of *Ecology and Society*. This work is directly relevant to the needs of Wyoming communities for water resource management decision-making, including Wyoming's role in the Colorado River Compact, as water variability stresses uses throughout the watershed.

Dr. Holly Ernest, Professor, Wyoming Excellence Chair in Disease Ecology, Department of Veterinary Sciences, faculty member in the Program in Ecology, and Affiliate faculty member in the Haub School of Environment and Natural Resources (B.S., Biology, Cornell University; M.S. Veterinary Physiology and Pharmacology, Ohio State University; Doctor of Veterinary Medicine, Ohio State University; Ph.D. Ecology with focus in wildlife genetics, University of California, Davis). Professor Ernest joined the UW faculty in August of 2014, after serving as a faculty member at the University of California, Davis School of Veterinary Medicine. Her research, teaching, and service program involves the intersection of two exciting and emerging disciplines; Wildlife Genomics and Disease Ecology. Dr. Ernest is a wildlife biologist, population geneticist, and wildlife veterinarian who leads a team of students and researcher-trainees to answer questions vital to conservation and management of wildlife populations in Wyoming and the North American West. Wildlife include wild ungulates (bighorn sheep, mule deer and Chronic Wasting Disease, and pronghorn), carnivores (mountain lions, black bears, and otters), and birds (raptors and hummingbirds). Dr. Ernest's team studies in population genomics apply state-of-art whole genome DNA technology to examine factors that are vital for population health, genetic diversity, and adaptations to changing environments. Dr. Ernest and her students have provided over 60 outreach and public service activities in 2017 and 2018 including (just a few examples) participating in K12 Science Olympiad in Casper, UW Saturday-University talks in Jackson and Rock Springs; Women in STEM Science; advising biologists from US Fish and Wildlife Service, WY Game and Fish Dept, and other state and federal agencies; presentations for the Wyoming Wild Sheep Foundation and the National Bighorn Sheep Museum in Dubois; developing an educational video game for K12 educators to illustrate spread of disease in wildlife; and providing a senior center with an educational talk and materials about hummingbird ecology. Working with the Wyoming Department of Game and Fish, Dr. Ernest's team are determining the genetic health and population structure of bighorn sheep, mule deer – including genetic susceptibility to Chronic Wasting Disease, and pronghorn

populations state-wide; Ecology and genomic diversity of Great Gray Owls in Northwest Wyoming; and employing a combination of field ecology, bird banding, and genomic methods to evaluate population ecology of hummingbirds who live in “sky-island” habitats in the Rocky Mountains. Dr. Ernest’s NSF-funded collaboration with Colorado State University, University of Minnesota, and University of Tasmania involves testing models of landscape-level viral disease transmission as informed by host and viral genomic data in wild felids (mountain lions and bobcats). Ernest Lab members conduct statistical analysis and modeling with the Teton computing core resources to interpretation of large (terabyte) genomic data sets. Dr. Ernest teaches her undergraduate course Disease Ecology: which covers real world applications and the underlying principles that influence the spatial and temporal patterns of diseases. Dr. Ernest also leads a graduate seminar series in Conservation Genomics, a discipline that is growing rapidly in importance for conserving and managing natural wildlife and plant resources. Dr. Ernest served as Program in Ecology Curriculum Committee chair, provided service as the Graduate Program Coordinator for the Department of Veterinary Sciences, was elected to serve on the UW Graduate Council, serves on the College of Agriculture and Natural Resources Tenure and Promotion Committee, and has provided several external tenure and promotion evaluations for other universities. Extramural funding for research projects over the past 3 years totaled over \$1,000,000, with new grant funding coming in since spring 2018 totaling over \$150,000. Funding and exciting projects have allowed recruitment to Wyoming of the best and brightest students and trainees. Multi-institution collaborations include Montana State University, Colorado State University, University of California Davis, Wyoming Department of Game and Fish (WGFD), National Park Service, US Geological Survey, Smithsonian Institution, UC Santa Cruz, US Department of Agriculture, and others. Dr. Ernest serves on the federal Wildlife Forensic Science NIST panel of experts to develop and distribute DNA methods and protocols for crime labs. Nine scientific papers have been accepted, in-press or published during the past year include journals of Wildlife Diseases, Evolutionary Applications, Wildlife Management, Diversity and Distributions, and Conservation Genetics. Dr. Ernest serves as Associate Editor for the journal, *Conservation Genetics*. She expanded the Wildlife Genomics and Disease Ecology Lab’s online presence to educate the public about wildlife health issues and research: a website with over 30 informational pages, www.wildlifegenetichealth.org, and regular twitter and Facebook postings.

Dr. Xiaohong Liu, Wyoming Excellence Chair in Climate Modeling (M.S. and Ph.D., Nanjing University, P.R. China). Dr. Liu is an internationally recognized scientist in climate modeling, aerosol-cloud reactions and aerosol modeling. He has made significant contributions to the understanding of climate system related to cloud and aerosol processes through the modeling and observation analyses, and to the development of Earth System Models. He joined the University of Wyoming from the Department of Energy (DOE)’s Pacific Northwest National Laboratory, located in Richland, Washington in 2013. In FY2018, Dr. Liu and his research team have been heavily involved in the development of the next version of NCAR Community Earth System Model (CESM2) by improving the representation of atmospheric aerosols, clouds, and aerosol-cloud interactions in CESM2. Three schemes/parameterizations developed in his group were adopted by CESM2. In addition, Dr. Liu has been in the development team of DOE’s Energy Exascale Earth System Model (E3SM). In FY2018, Dr. Liu was awarded a new DOE project to evaluate and improve the representation of convective clouds in climate models by using observations. He was also awarded a new NSF project to investigate the cirrus cloud formation for the improved representation of cirrus clouds in climate models. His group has been involved in the investigation of radiative and microphysical effects of wildfire smokes from southern Africa on the brightness of stratocumulus over southeastern Atlantic Ocean, including a high profile paper published in the Proceedings of the National Academy of Sciences of USA, with funding supports from EPA and DOE. During FY2018, Dr. Liu gave presentations at 20 national and international conferences including 9 invited talks and seminars, and published 12 papers in peer-reviewed journals. For the fourth consecutive year, he was named to the list “Highly Cited Researchers” in 2017 by Web of Science (approximately 3,300 researchers in the World from 21 scientific

fields earned this distinction, and he was the only one at UW). As a principal investigator on nine grants, he has brought over \$4 million external funding to UW since 2013. Dr. Liu was the Chair of seven graduate thesis committee. Dr. Liu also taught both an undergraduate and a graduate course, and served on numerous editorial boards and advisory committees, including the Co-chair of NCAR CESM Chemistry-Climate Working Group. Dr. Liu was the Chair of seven graduate thesis committee and member on seven graduate thesis committee. Three graduate students received their M.S. degrees and one received his Ph.D. in FY2018. Dr. Liu also taught both an undergraduate and a graduate course. Dr. Liu was a major user of computational resources on Cheyenne from the NCAR-Wyoming Supercomputer Center (NWSC), and was awarded ~20 Million core hours in FY2018. With the NWSC support, his group used the regional and global climate models to study the temperature, precipitation, and snow depth and snow cover changes in the Rocky Mountain region in the historical period (1850 to 2000) and in the future (until 2100). These studies are very beneficial to the water resource managements in the State of Wyoming. As a principal investigator on nine grants from NSF, DOE, NASA and EPA, Dr. Liu has brought over \$4 million external funding to UW since 2013.

Dr. Amy Navratil, Gardner/Fiske Chair in Biomedical Physiology (B.S. microbiology and Ph.D. Biomedical Sciences, Colorado State University). Dr. Navratil's research group studies reproductive endocrinology. Dr. Navratil's research is focused on *investigating the mechanisms by which endocrine cells alter their function to regulate fertility*. Dr. Navratil is hopeful that the experiments they are undertaking will provide critical insight in to pathophysiology of impaired reproductive function in women. Towards this end, the National Institutes of Health recently funded her research. She was also fortunate to get funding from the Institute for Translational Health Sciences at the University of Washington. Her laboratory has presented their research at numerous local and national meetings that included multiple poster presentations and one oral presentation. In both the Fall and Spring semesters, she teaches a five-week section of Human Systems Physiology (ZOO3115). Starting this Fall, Dr. Navratil also teaches a five week section in Integrative Physiology (ZOO4125). Combined, these classes service over 400 students who are interested in pre-health careers. She also teaches an advanced Endocrinology class dealing with Mechanisms of Hormone Action (ZOO4735). This class provides a complete mechanistic picture of the cellular and molecular events involved in endocrine signaling and what goes wrong with those pathways in disease states.

PROFESSIONS CRITICAL TO THE STATE

Temple Stoellinger, Law & Haub School (B.S. Environment and Natural Resources and Communications, University of Wyoming; J.D. with honors, University of Wyoming College of Law). Professor Stoellinger is an Assistant Professor in the Haub School of Environment and Natural Resources with a joint appointment at the College of Law where she is also the Co-Director of the Center for Law and Energy Resources in the Rockies and Faculty Director of the Energy, Environment and Natural Resources Law Clinic (EENR). Professor Stoellinger's work and engagements continue to have a direct and impactful benefit to the State of Wyoming. During the 2017/2018 academic year, Professor Stoellinger was on maternity leave during the spring semester, but during the fall semester she taught the following courses: EENR Law Clinic (Law 6930-03), Environment and Natural Resource Law and Policy (ENR 4750/5750) and co-taught a new seminar course on plan b thesis writing for the Haub School/Law School joint JD/MA students. Professor Stoellinger's scholarship continues to focus on the intersection of natural resource law and effective policy. Highlights of her scholarship this past year include and interdisciplinary paper focusing on how the NEPA process can be utilized to assist energy companies to achieve a social license to operate, co-authored with Haub School colleagues (Stoellinger, Temple; Smutko, L. Steven; Western, Jessica M., *Collaboration Through NEPA: Achieving A Social License to Operate on Federal Public Lands*, 39 Public Land & Resources Law Review 203 (2018) and a practitioners guide to commenting on

NEPA documents for the Rocky Mountain Mineral Law Foundation (*Having Your Voice Heard: How to Affectively Get the Agency's Attention in a NEPA Comment to Affect the Final Decision*, National Environmental Policy Act 9-1 (Rocky Mt. Min. L. Fdn. 2017)). As co-director of CLERR, Professor Stoellinger's main effort was the organization of the 2017 Landscape Discussion on Energy Law and Policy in the Rockies, which was attended by 200 participants and covered the following topics: The Future of Energy: Changing Energy Markets, Our Energy Future: Looking Forward While Looking Back, and Changing Laws and Policies in the Trump Administration and its Impact on Our Energy Future. Professor Stoellinger's EENR Clinic continued to do meaningful work for the Wyoming Attorney General's office this past year including the drafting of several motions to intervene in cases in federal district court.

Diane K. Boyle, Wyoming Excellence Chair in Nursing (BSN University of Maryland; MSN, University of North Carolina; Ph.D., University of Kansas). Dr. Boyle's research activities focus on improvement of the nursing work environment, nursing workforce, and patient safety through expertise in developing and evaluating standardized quality measures and sustained investigation of relationships between nursing characteristics and patient outcomes. To that end, her team completed research funded by the Competency and Credentialing Institute on the relationship between national nursing specialty certification and surgical site infections and have published the results in the *Journal of Nursing Administration*. She has started a new project funded by the Medical-Surgical Nursing Certification Board to investigate how specialty certified nurses maintain their continuing competence. Over the past year Dr. Boyle published 4 papers. Along with Dr. Ann Marie Hart, she taught NURS 5891 (fall) and 5892 (spring), which entailed working with 16 Doctor of Nursing Practice students on their final DNP projects. She was the advisor for 5 projects (8 students). She also prepared a new course in the science of quality improvement and patient safety for the School of Nursing MS and DNP students. Dr. Boyle's work contributes to improved quality and patient safety for hospitals within the State of Wyoming and cross the nation.

Christine M. Porter, Wyoming Excellence Chair in Community & Public Health (B.S. Biology, University of Maryland; M.A. Education and International Development: Health Promotion, Institute of Education/University of London, UK; Ph.D. Community Nutrition, Cornell University). Dr. Porter's research in the 2017-2018 academic year has focused mainly on three projects. One was finishing the five-year, \$5-million Food Dignity project. This included co-editing a 21-paper special issue of a journal devoted to the processes and results of that project (see <https://doi.org/10.5304/jafscd.2018.08A.020>) and authoring or co-authoring 10 of those papers. She and her team also launched a new website with their processes and results (see www.fooddignity.org). That project funded the equivalent of 2 full time jobs in Wyoming over 7 years and supported five students who graduated with masters from UW. Another project has been continuing the NIH-funded randomized controlled trial of the health impacts of gardens. That project is called Growing Resilience. With the help of several partner organizations in Wind River Indian Reservation, the recruitment of a total of 96 families is complete and the bulk of the data gathering and garden provision has been completed. That project will run until early 2021, and is supporting the equivalent of three full time jobs in Wyoming. Porter's third project area has been investing in action and in grant proposal development to increase health sciences education and research pathways between UW, CWC and Wind River Indian Reservation communities. Overall, her work has helped to raise Wyoming's national profile in community food systems, food security, Native American health equity, and participatory action research. Dr. Porter focuses on bringing those issues and topics to students in the classroom, which she does in her own courses and as a frequently invited guest to dozens of classes across campus. Dr. Porter has been able to bring her national perspective and connections to students in classrooms at UW while offering them hands-on action and research experiences locally. In turn, they have taught her about community health in Wyoming and the region, lessons she strives to bring back to guide and to integrate with her teaching, research and service.

OTHER ECONOMIC AND SOCIAL CHALLENGES

Dr. Steven Smutko, Wyoming Excellence Chair and Spicer Distinguished Chair in Environment and Natural Resources (B.S. Outdoor Recreation, Colorado State University; M.S. Community and Regional Planning, North Dakota State University; Ph.D. Economics, Auburn University). Dr. Smutko advances leadership, training, and scholarship in natural resource collaborative decision-making in Wyoming. In 2017-18, Dr. Smutko's research activities included an investigation of the perceptions of Wyoming stakeholders toward collaboration among federal land management agencies for ecosystem management in the Greater Yellowstone Area; research on the application of "social license to operate" by the energy industry to produce natural gas on Colorado's front range; and the effect of negotiation training for agricultural producers on privately negotiated sales of agricultural commodities. In addition, Dr. Smutko organized and convened the first research symposium for the University Network for Collaborative Governance, a consortium of university programs and centers that engage in service, scholarship and teaching to build the capacity for collaborative governance. Dr. Smutko taught graduate and undergraduate courses in negotiation analysis and environmental problem-solving, and provided students hands-on experience in policy development and implementation in the natural resources arena. Through his position as the Spicer Wyoming Excellence Chair, Dr. Smutko builds capacity for Wyoming citizens to collaborate and solve complex and contentious natural resource problems. He oversees the Collaboration Program in Natural Resources, a yearlong series of professional development workshops. The 19 mid-career professionals enrolled this year are gaining collaborative decision-making skills through trainings and a practicum. Through his hands-on involvement in natural resources policy issues in Wyoming, Dr. Smutko assisted stakeholders and county governments in Sublette, Teton, and Carbon counties negotiate recommendations for the Wyoming Public Lands Initiative. The Initiative is a project organized by the Wyoming County Commissioners Association to develop a Wyoming federal lands bill through place-based multi-party negotiations among representatives from agriculture, conservation, motorized and non-motorized recreation, energy development, and local government.

Dr. H. Jo Albers, Conservation Economics: Wyoming Excellence Chair (B.S. Duke University, Geology and Economics; Master of Environmental Studies, Yale School of Forestry and Environmental Studies; Ph.D. in Economics. University of California at Berkeley). In 2017-2018, Dr. Albers taught a new core PhD course in Natural Resource Economics for the Department of Economics and "Conservation Economics" for the Haub School of ENR. She advised, or served on the committees for, 9 graduate students and unofficially advised many more students to improve their job market outcomes. She also serves as a mentor to junior faculty on campus and worldwide. In that capacity, Albers co-coordinated a workshop for women in economics from low-income country settings at the request of SIDA and the Environment for Development Initiative. Dr. Albers maintains an internationally respected research agenda based around determining resource management strategies that integrate socio-economic, ecological, and institutional characteristics of the setting. In 2017-2018, Dr. Albers published 4 journal articles covering topics ranging from river management with invasive species to fragmentation of ecosystems, with all publications having a former or current student as a co-author. She gave 9 research presentations, including six at international conferences and one keynote. In addition, Dr. Albers continues to work with land managers and organizations to bring research insights into management and policy. In particular for this year, Excellence funds enabled Albers to support The Nature Conservancy and promote efficient conservation in Wyoming through conducting a webinar, advising the Northern Great Plains Conservation Plan, and discussions with local and international field offices. In addition to her ongoing co-editorship of the European journal *Environmental and Resource Economics* and position as an Advisory Board member for the journal *Ambio: A Journal of the Human Environment*, Albers' interdisciplinary research quality led to her new role as an editor at *Conservation Biology*. Her teaching benefits students by giving them strong

decision analytic tools that empower students to make well-developed arguments for their positions, make students into better decision-makers and contributors to society, and prove important for employment success. To increase student success, Albers responded to recent research about the difficulties faced by women in male dominated fields related to economics by developing a mentorship and academic community program, Wyoming Women in Economics, which creates a network of support and experience for undergraduate and graduate female students in Economics. Excellence funds enable Dr. Albers to conduct fieldwork that she then brings to the classroom as local and international case studies that cover a wide range of perspectives, tools, and issues, which further expands the UW students' horizons. To further foster students' educational growth, Dr. Albers used her Excellence funding to support 5 graduate students for summer work, conference presentation experience, and fieldwork skills development, which provides students with important learning/networking, develops marketable skills, and deepens understanding of tools and issues. The funding enriches the students' educational programs by enabling them to explore topics and develop skills differently than classroom work and by providing experience with analytical tools that employers value. Through these experiences, students become stronger contributors to Wyoming's economy and resource management debates.

Wyoming Excellence in Higher Education Endowment Fiscal Summary

The costs associated with each position include salaries commensurate with the market for top academics, employer paid benefits, ongoing budgets to support research and instructional activities, as well as one-time start-up expenses which are especially critical to recruiting distinguished scholars with large established laboratory research programs.

The balance in the Excellence in Higher Education Endowment expenditure account held at the university as of June 30, 2017 was \$3.03 million. Total expenditures for the 2018 fiscal year were currently budgeted at \$2.84 million. The planning budget was designed to maintain an adequate cash balance to cover on-going expenses for an acceptable period, in the event of diminished revenue.

The following table summarizes the uses and expenditures of the budgets for filled positions, and the total estimated initial cost of the program when all allocated positions are filled. Not shown are projected costs as the program continues.

Balance July 1, 2017	\$3,030,282.20
Accrued Interest & Dividend FY2017	\$738.13
Advertising and Recruitment	\$1,124.86
Salaries and Benefits	\$2,515,213.77
Support	\$299,027.87
Equipment/facilities	\$25,943.54
Income (distribution from state and interest)	\$3,877,483.44
Balance June 30, 2018	\$4,067,193.73

Planning for FY2019

Planning for the FY2019 budget is based on anticipated annual projected income of \$3.8M. The table below includes the estimated annual budget for 14 permanently funded positions. Unless annual distributions increase, planning for subsequent fiscal years will mirror FY2019 projected budget.

Estimated Income for FY19	\$3,800,000
Advertising and Recruitment	\$0
Salaries and Benefits (for Chairs and GAs)	\$2,684,106
Support for Chairs	\$200,000
Other support (Visiting Programs)	\$0
Equipment/facilities	\$0

Part B. Legislatively identified faculty positions

1. School of Energy Resources (SER) faculty

The Wyoming Legislature established and appropriated initial funding for the School of Energy Resources (SER) in 2006. The plan for SER stipulated the hiring of up to 12 distinguished faculty who were to be co-appointed in departments across campus. Professors in the SER are internationally recognized energy experts who are actively involved in both energy research and teaching. They work in a variety of disciplines and have formed productive collaborations across campus. The current SER professors include:

Dr. Timothy Considine, SER Professor of Economics and Finance (B.A. Loyola University, M.S. Purdue University; Ph.D., Cornell University). During academic year 2017-2018, Dr. Considine taught undergraduate courses in Oil: History, Culture, and Power, Energy Economics and Public Policy, the MBA course in energy economics. He and his colleagues in the School of Energy Resources were awarded a \$218,000 research grant from the Charles Koch & Double 4 Foundations to conduct studies in energy regulatory law and economics, including oil and gas development on federal lands, siting carbon dioxide pipelines, environmental considerations in oil and gas permitting, contracts for sustainability, the economic impacts of fracking, productivity and technical change in the fracking industry, and the economics of technological innovation in the petroleum refining industry. During 2018, Considine also worked with two uranium companies, UR Energy and Energy Fuels, estimating the market impacts of uranium import quotas. In addition, Considine worked with two coal companies, Signal Peak Energy and Western Energy Company, providing testimony concerning the economics of exporting coal to East Asia and the social cost of greenhouse gas emissions to a federal court case on the extension of coal leases.

Dr. Considine’s research is recognized by business and policy leaders in Wyoming and around the world. His research has been supported by several organizations including Peabody Energy, Cloud Peak Energy, the American Petroleum Institute, The Manhattan Institute, and The Strata Institute. His studies on the importance of Powder River Basin coal to the US economy and the economics and environmental dimensions of fracking have attracted considerable attention around the country. Since 2008, nearly 800 students, many of whom are STEM students, have taken his oil class in which he provides an historical perspective on the challenges facing the oil and gas industry. Dr. Considine’s research applies state of the art economic and industry analysis to address major policy issues directly affecting Wyoming’s coal, natural gas, and petroleum industries, providing business and policy leaders with the arguments and data to effectively engage in national energy and environmental debates whose outcomes directly affect the citizens of Wyoming.

Dr. Craig Douglas, SER Professor of Mathematics (A.B. University of Chicago; M.S., M.Phil., and Ph.D. Yale University). Dr. Douglas is an internationally recognized expert in computational sciences who leads a research group that creates sophisticated mathematical models of physical phenomena using networks of remote sensors and high performance parallel computers. He has a long term collaboration with AirLoom, LLC, a renewable energy company located in Laramie. Two of his current or former Ph.D. students have worked there, including one full time. He has published a research paper recently with AirLoom staff on optimization techniques relevant to wind energy design development. Dr. Douglas also has a project on dual porosity models relevant to both the fracking industry and aquifer modeling. Federal dollars are spent in state and the results enhance UW's reputation through high visibility internationally. One of his projects has created the first 100 Gigabit/second computer network in Wyoming, which enhances Wyoming's ability to attract large data centers to the state. He has taught a first year seminar course on Energy, the Environment, and Economics, which covers all aspects and forms of energy from the viewpoints of Wyoming and globally.

Dr. Subhashis Mallick, SER Professor of Geology and Geophysics (B.Sc. and M.Sc. Indian Institute of Technology; Ph.D. University of Hawaii). Dr. Mallick and his team continues advanced research on the development of the state-of-the-art waveform inversion, modeling, and imaging algorithms using the high-performance computing facility, both at the University of Wyoming's advanced research computing center (ARCC) and the NCAR Wyoming supercomputing center (NWSC). His team has strong research collaborations with Dr. Dario Grana, SER Associate Professor of Geology and Geophysics and Dr. Vladimir Alvarado, Professor and Head of the Chemical Engineering. Additionally, in 2017-2018, Dr. Mallick and his team initiated additional research collaborations with other Universities and Industry. Over the past year, he and his students collaborated with the University of Texas and Rock-solid Images and published three peer-reviewed research papers. In addition, three expanded abstracts have been accepted and will be presented at the Society of Exploration Geophysicists' (SEG) annual conference, October 14-18, Anaheim, CA. With Dr. Grana and Dr. Alvarado as Co-Principal Investigators, Dr. Mallick submitted a major grant proposal "Lithology and dynamic fluid property characterization using seismic, rock-physics, reservoir simulation, and machine learning" for an amount of \$2,551,995 to RDPETRO- an international organization for funding petroleum-related research (<https://rdpetro.org/>). This funding opportunity was highly competitive with over 500 proposals submitted internationally. But the proposal submitted by Dr. Mallick, Dr. Grana, and Dr. Alvarado was one among the few successful proposals that are selected and are being considered for funding. In 2017-2018, Dr. Mallick spent one semester (Fall 2017) on sabbatical appointment at the University of Houston and initiated new research collaborations, which is expected to provide additional funding opportunities in future. In the Spring 2018, Dr. Mallick taught two sections of the Petroleum Geology course for the senior undergraduate students majoring in Geology and Petroleum Engineering. In addition, Dr. Mallick was also involved in advising three graduate students as their primary research advisor. Using the research funding from RDPETRO, which is expected in early 2019, Dr. Mallick and his students will continue their research on the subsurface characterization of the Rock-Springs uplift (RSU) in Wyoming- an area being considered as a potential site for CO₂ sequestration. This research will specifically focus on the suitability of the site for carbon capture and storage (CCS) and will benefit the State. The courses taught by Dr. Mallick benefit the students as they work as professionals in the oil and gas industry. All students graduated with advanced (Masters and Ph.D.) degrees with Dr. Mallick as their primary advisor are well-respected industry professionals, which indirectly benefits the state by establishing the University of Wyoming as a reputed school. Lastly, Dr. Mallick has been selected as one of the SEG honorary lecturers (HL) for 2019. Every year, SEG selects five HL speakers who tour different regions of the World and give talks on a topic of his/her interest, and Dr. Mallick is the 2019 SEG HL speaker for East and South Asia. Because of funding issues, these physical tours have been replaced by virtual tours in 2019. But, via the talks which Dr. Mallick will

provide next year, the University of Wyoming would be further recognized as a reputable institution of higher learning and advanced research.

Dr. Bruce Parkinson, SER Professor of Chemistry and Warren Chair of Energy and Environment

(B.S. Iowa State University; Ph.D. California Institute of Technology). Dr. Parkinson is an internationally renowned scientist who leads a research group that investigates novel methods to harness solar energy and developing new materials for electrochemical and environmental applications. Dr. Parkinson's research in several areas has been well funded, with a total in the last fiscal year of about \$490k. He is working on fundamental aspects of storing solar energy in chemical bonds such as producing hydrogen from sunlight and water and charging redox flow batteries directly with sunlight. He also collaborates with Dr. Carrick Eggleston in geology in investigating photoelectrochemical processes on the surface Mars. The resulting publications have enhanced UW's reputation for research and innovation since theory research has upended previous models. In addition, he is co-inventor on a composition of matter patent with many different commercial applications that could result in significant licensing revenue for UW. He has taught the introductory course for the Energy Resource and Management and Development majors called Energy and Society. This class uses many class participation activities to present the many sides of energy related issues. He also has taught a graduate level course on solar energy. Students get exposure to a top-level researcher in the classroom with many years of experience in energy related issues and in a class where they are encouraged to discuss current energy related topics. The main expenditures from the research grants is to pay graduate students and post-doctoral researchers with the result that federal dollars are being spent in Wyoming for food, lodging and at local businesses. The reputation of UW is enhanced by the high visibility of the research activities due to the many publications in high impact journals.

Dr. Maohong Fan, SER Professor of Chemical Engineering (Ph.D. Iowa State University; Ph.D. Osaka University). As a PI and Co-PI, Dr. Fan led various research projects including those funded by NSF and DOE in the areas of advanced material development, energy production, and environmental protection. He has supervised many graduate students, postdocs, and research scientists. His last year's publications are in the areas of clean energy production and environmental protection. Dr. Fan not only instructed graduate students but also undergraduate students for conducting scientific research. A number of the undergraduate students took undergraduate research courses with Dr. Fan. In addition, Dr. Fan taught a course for the College of Engineering and Applied Science. The gained and disseminated knowledge from Dr. Fan's research or instruction considerably helped students' employment and career development opportunities. The technologies developed by Dr. Fan could help businesses and industries improved their market development opportunities, and thus could create great employment opportunities for Wyoming's residents.

Dr. John Kaszuba, SER Associate Professor of Geology and Geophysics (B.S. Beloit College; M.S. Virginia Tech; Ph.D. Colorado School of Mines). Professor Kaszuba has over 25 years of experience researching geochemical interactions between fluids and rocks; his research group of five graduate students and one undergraduate student presently focus on unconventional oil reservoirs in Wyoming. His research is well funded, including a \$1.1 million grant from the DOE and smaller grants from independent oil and gas companies operating in Wyoming. He teaches courses in the Department of Geology and Geophysics. He serves on numerous committees, including graduate student committees, and is a member of the Wyoming State Geological Survey Advisory Board.

Dr. Robson Glasscock, (Ph.D. Virginia Commonwealth University – CPA) served the state of Wyoming in the 2017-2018 academic year by serving as a board member of the Wyoming Society of Certified Public Accountants, including volunteering to serve on two subcommittees (the Legislative Task Force Committee and the

Communications Committee). He also gave two invited presentations to the Wyoming Retirement System. One presentation was about risk assessment and the other was about the utilization of internal auditors. Dr. Glasscock also gave a presentation about machine learning to the Wyoming Board of Certified Public Accountants. Teaching achievements included Dr. Glasscock being named the McGee, Hearne, & Paiz Faculty Scholar of Accounting and winning a College of Business Junior Faculty Teach Award. Research efforts included service as an editorial board member of the *Petroleum Accounting and Financial Management Journal* and submissions of manuscripts to peer reviewed academic journals.

Dr. Mohammad Piri, Wyoming Excellence Chair in Petroleum Engineering (M.Sc. and Ph.D. Imperial College London) (See WY Excellence Endowment Report)

Dr. Po Chen, SER Associate Professor of Geology and Geophysics (B.S. Beijing University, Ph.D. University of Southern California). Wyoming is a headwater state and the supply and management of water resources in Wyoming has national impacts in a wide variety of agricultural, industrial and municipal applications. Water resources in Wyoming consist of both surface water and groundwater. Since the past fiscal year, Dr. Chen and his PhD student have been working towards imaging and understanding subsurface water storage capacities in Wyoming using the full-3D seismic waveform inversion (F3DWI) technique developed and tested by Dr. Chen and his previous students at University of Wyoming. The site of his work was selected at the Blair Wallis Watershed in the Laramie Range southeastern Wyoming. It is a granitic terrain with thick and heterogeneous weathered zones and is typical in the Laramie Range. His work in applying latest seismic techniques to quantifying groundwater resources in Wyoming has resulted in 1 manuscript (currently under review) in the past fiscal year. Dr. Chen is continuing his work on natural and manmade earthquakes in the US and his research in this field has resulted in 1 peer-reviewed journal paper (published) and 2 manuscripts (currently under review) in the past fiscal year. Dr. Chen taught 6 courses, including Methods in Petroleum Geology (Spring & Fall), Introduction to Wind Energy, Geosciences and Computers, Digital Filtering, Introduction to Machine Learning, in the past fiscal year.

Dr. Dario Grana, SER Associate Professor of Geology and Geophysics (M.S. and Ph.D., Geophysics, Stanford University). Dr. Grana's research focuses on petrophysical modeling and characterization of hydrocarbon reservoirs using geophysical methods, such as seismic data. Seismic reservoir characterization studies aim to build 3D reservoir models of rock and fluid properties. Such models are used to estimate the hydrocarbon reserves in the subsurface and to predict the hydrocarbon production of the field. This research also aims to quantify the uncertainty in the predictions and assess the risks associated to exploration and production of the field. Other research projects include the geophysical monitoring of the reservoirs using repeated seismic surveys and the model updating using production data to reduce the uncertainty in the reserve evaluation and production forecast. The developed methods have also been applied to CO₂ sequestration and geothermal studies. Dr. Grana currently teaches two classes at the University of Wyoming on these topics, one at the undergraduate level on the basic concepts of exploration and production and one at the graduate level on geophysical methods for reservoir characterization. Dr. Grana's research has been applied in several case studies all over the world, including a CO₂ sequestration project in Southeast Wyoming. A more accurate reservoir characterization study allows reducing the uncertainty in the model predictions and consequently the exploration and production costs. Furthermore, the model predictions are generally used in decision making processes to maximize the production and reduce the environmental impact of the exploration and production activities. The recent research conducted by Dr. Grana and the application to CO₂ sequestration provided a valuable contribution in the development of strategies for carbon dioxide reduction. Dr. Grana's classes at the University of Wyoming contribute to the

formation of the new generation of scientists, including geologists and petroleum engineers who aim to work in the energy sector.

Tara Righetti, SER Associate Professor of Law (B.A. University of Colorado Boulder, 2005; J.D., University of Colorado Boulder, 2007). Ms. Righetti joined the University of Wyoming College of Law and SER faculty in the fall of 2014. In the past fiscal year she taught oil and gas law, advanced oil and gas law, energy deals, and the Registered Professional Land Management Exam Preparation. Ms. Righetti's teaching is housed within the colleges of Law and Business, and the school of Energy Resources. She presented at the Wyoming State Bar Conference and the University of Arkansas Law Review Symposium on Environmental Sustainability and Private Governance. She also serves as the director of the academic program in Professional Land Management at the School of Energy Resources. Professor Righetti's research in the fiscal year 2017-2018 resulted in the publication of two articles: one on subsurface legal issues related to the interaction between Wyoming's surface damage act and its pore space ownership statute and a second on siting issues associated with carbon dioxide pipelines (Oklahoma Natural Resource and Energy Journal). She served as a member of the University of Wyoming's Carbon Safe, EPSCoR, and Business Creation Factory Teams. Professor Righetti served as the faculty supervisor and coach of the College of Law's Energy Negotiations Team, which earned a second place finish at the National Energy Negotiation Competition at the South Texas College of Law in Houston last spring. Professor Righetti also served on the special institutes committee of the Rocky Mountain Mineral Law Foundation and on the executive council of the Wyoming Association of Professional Landmen.

Professor Righetti's teaching prepares students for work in business and in the landman and legal professions in the fields of energy, environment and natural resources. Professor Righetti's courses are practice and experientially oriented, and focus on development of core competencies in oil and gas leasing, title research, finance and acquisition/divestiture transactions, and entrepreneurship. These skills prepare students to making meaningful contributions in their businesses, for the clients, and within the energy industry. Her research benefits the state and its citizens through its focus on Wyoming law and subsurface property, in particular issues related to the energy industry and projects for carbon capture and sequestration. Ms. Righetti also serves both the landman and legal professions by providing instruction for continuing education.

Part C. Privately Endowed Faculty Positions

Thirty-eight¹ UW faculty positions are partially or fully supported by privately funded endowments established with gifts to the UW Foundation. A \$3 million or more endowment supports a faculty chair, which may be designated to cover all or part of the base salary of the faculty member. A \$2 million gift endows a professorship, which may be used to provide an annual salary supplement or to support teaching, research, or scholarship expenses. And a \$1 million gift endows a faculty fellowship, which supports faculty development in teaching or research. Of the 38 endowments, 19 support faculty chairs (most are partially funded from their respective endowments), 19 support faculty professorships and/or programs. A complete list of the privately endowed chairs, professorships, and faculty fellowships is available from the UW Foundation. That list describes the history of the endowment, the qualifications or purpose, the uses, and the current and past faculty recipients. Some of these endowed positions are not filled at the present time; others fund various faculty from year-to-year.

In all cases, the specific uses of the endowment earnings are specified in the gift agreements and are reflected in the focus of the teaching, research, and extension programs of the faculty member beneficiaries.

¹ One endowment supports academic centers or institutes: the Solomon D. Trujillo Center for e.Business.

As discussed in Part A of this report, the funding for some privately endowed positions is bolstered by earnings from the state-funded Excellence in Higher Education Endowment. These public-private partnerships include:

The *Roy & Caryl Cline Endowed Chair in Engineering, Environment, and Natural Resources*, held by Professor Fred Ogden (College of Engineering and Applied Science)

The *Eldon & Beverly Spicer Chair in Environment and Natural Resources*, held by Professor Steve Smutko (Haub School and College of Agriculture)

The *Clara Raab Toppan Distinguished Professorship in Accounting*, Vacant (College of Business)

The *Gardner Chair in Biomedical Physiology*, held by Professor Amy Navratil (College of Arts and Sciences)

The *Knobloch Chair in Conservation Finance*, Professor Heidi Jo Albers (Haub School for Environmental and Natural Resources).

The individuals who currently hold endowed faculty positions are as follows:

College of Agriculture and Natural Resources

Stephen Ford, Dept. of Animal Science, (B.S., Oregon State University, M.S., West Virginia University, Ph.D., Oregon State University), *Curtis and Marian Rochelle Endowed Chair in Animal Science*. Dr. Ford serves as the Director of the Center for the Study of Fetal Programming. His research emphasizes the fetal origins of adult disease, and the impact of maternal malnutrition in sheep and cattle on offspring quality. Models have been developed to investigate the impacts of early gestational undernutrition and overnutrition and obesity in the ewe and cow on fetal growth and development as well as offspring health, growth efficiency and carcass quality. These studies have both agricultural and biomedical implications.

Sadanand Dhekney, Dept. of Plant Science, (Ph.D. in Horticulture, University of Florida), *E.A. Whitney Professorship in Agriculture*, Dr. Dhekney's research program is focused on the genetic improvement of fruit crops using conventional and molecular breeding approaches. A major goal of the program is targeted towards grapevine genetic improvement and optimizing vineyard management practices for expanding the grape industry in Wyoming. The research utilizes precision breeding technology for rapid improvement of commercial table and wine grape cultivars. Precision breeding is an approach to plant genetic improvement that transfers only specific traits among sexually compatible species via the somatic cell division pathway thereby avoiding any genetic disruption that would normally occur by conventional breeding. Dr. Dhekney's research has resulted in optimizing parameters for precision breeding and rapid trait improvement of grapevine cultivars. Dr. Dhekney's research is currently extending applications of precision breeding for genome editing of grape species using techniques such as CRISPR/Cas9. Dr. Dhekney's field research has focused on the screening and identification of cold-hardy grape cultivars that will perform well under Wyoming's short growing conditions. Significant progress has been made towards identification of early red and white wine grape cultivars that will perform well in Wyoming and assist in the expansion of the grape industry. Being the only grape researcher statewide, Dr. Dhekney consults Wyoming grape growers, current and prospective, and homeowners on various aspects of grape production including site selection for vineyards, desirable cultivars and canopy management practices for the production of high quality fruit. He frequently attends grape growers' farms and extension meetings to provide consultations and make research presentations. Such activities are a necessary part of his research program and

assist him in identifying viticulture-related issues. Dr. Dhekney has written several extension articles in *Barnyard* and *Backyard* magazine and *UW AES Field Days* bulletin. He is currently collaborating with UW Extension educators for the development of a grape production manual that will assist Wyoming producers in receiving accurate and timely information on vineyard establishment and management. Dr. Dhekney is also exploring the possibility for the conversion of Wyoming-grown grapes into value-added products such as jelly, juice and wine. Efforts are ongoing to disseminate the information statewide that will assist prospective entrepreneurs in the formation of new grape-related enterprises.

Dr. Dhekney teaches courses in horticulture and plant biotechnology from the Sheridan R&E center, which are available to students statewide, through the long-distance teaching program. Dr. Dhekney has also mentored several community college, undergraduate and graduate students at the Sheridan R&E center. He actively collaborates with Sheridan College faculty to identify and train agroecology and biology students in areas of cell culture, molecular biology, genome modification, biological imaging and field practices including fruit production and vineyard management. His efforts have resulted in more than 40 students being trained in above areas in the past seven years. His students have presented their research findings at several regional and national conferences. Dr. Dhekney has served as a major advisor for 1 PhD and 1 MS student while being on several graduate student committees. He has also served as an external committee member for students from other states who are pursuing research endeavors in plant biotechnology. Dr. Dhekney's program has attracted scientists from six countries to learn advanced techniques in grapevine precision breeding and genome editing. Active interaction between visiting scientists and local students have greatly contributed to improving the diversity at Sheridan and the University of Wyoming.

College of Arts and Sciences

Amy Navratil, *Gardner Chair in Physiology*, (See WY Excellence Endowment Report). Through the philanthropic kindness of Dr. Hank Gardner and Marilyn Fiske, they established a common vision of enhancing interdisciplinary biomedical teaching and research excellence at the University of Wyoming. As a physician, Dr. Gardner was interested in improving health care through innovative biomedical research, academic leadership and teaching excellence in the field of human physiology. Additionally, Dr. Garner's intent was to attract and retain highly talented undergraduate and graduate students interested in pre-health professions. Dr. Navratil's efforts in achieving these goals include bringing biomedical science to the forefront of the department of Physiology and Zoology through her excellence in teaching of core pre-health classes and academic advising of pre-health professional students in the Physiology major. She also provides laboratory training to undergraduate students in the benefit of hypothesis driven scientific research. In support of their strong research program, Dr. Navratil's laboratory was able to enhance National Institute of Health (NIH) external funding to the University of Wyoming.

Craig Benkman, (Ph.D. Biology, State University of New York at Albany, 1985) *Wolf Creek/Bob and Carol Berry Chair*. Dr. Benkman has spent much of his career studying a group of finches called crossbills and the conifers on which they feed to elucidate general principles of ecology and evolution. During the past fiscal year, along with his graduate students, Dr. Benkman has been conducting field research in the Rocky Mountain region. One Ph.D. student (from Michigan) is examining, mostly within Wyoming, the conditions that facilitate and inhibit the origination of new bird species. One of his M.S. students (from Colorado) graduated and together with Dr. Benkman published a paper on the conservation and management on the recently (July 2017) recognized species of crossbill, the Cassia Crossbill. A second M.S. student (from Ohio) plans to defend her thesis this fall; they developed a research project on the evolutionary interactions between red squirrels and lodgepole pine in the

Medicine Bow Mountains. In addition to the one paper mentioned above, he and his students published six other articles during the past fiscal year. Students take his Herpetology course as an upper division elective, and those taking it are predominately in wildlife management, interested in working with animals especially in zoos, or have a passion for reptiles and amphibians. Dr. Benkman usually has 30-40 students in the course, and many are Wyoming residents. Dr. Benkman also taught Ornithology last spring to 30 students, which is a key course in the wildlife management curriculum. Most of his research is basic research on the ecology and evolution of birds and conifers. Because some of it is highlighted in widely used college textbooks in ecology (Cain et al. 2013, Ecology, Sinauer Associates) and evolution (e.g., Zimmer and Emlen, 2015, Evolution: Making sense of life, W. H. Freeman), the research reaches college students across the country and beyond. Perhaps the most important benefit from his research is its illustration of the importance of considering evolution in understanding the ecology of populations and communities, especially in the Rocky Mountain region. Two examples: first, their work on the influence of seed predation by red squirrels on the evolution of lodgepole pine shows how variation in squirrel density between areas has influenced the composition of the plant and animal communities that recover after fire. Given the increase in fires in the region, our research becomes more relevant to the public. Second, many citizens are interested in nature and especially birds, and Dr. Benkman's research on the evolution of the Cassia Crossbill and his successful efforts in the last year to get it recognized as a distinct species of bird will benefit the tourist economy of southern Idaho; Dr. Benkman gave a public lecture in June in Twin Falls, and then led a field trip to look for and learn further about the birds. But importantly, the fascinating biology of the Cassia Crossbill, which provides a textbook example of an evolutionary arms race between birds and pines, is reaching more broadly through various media, some of which was mentioned in the first paragraph, and thereby enriching the experiences of residents and those visiting our region. Finally, he also provides help and consultation to Robert Berry from Sheridan on his studies of a falcon in Central America.

Floyd Clarke Professorship in Zoology and Physiology – Provides support for annual lecture series, scholarships to support research in Greater Yellowstone area – Vacant.

Clarence Seibold Professorship – Provides program support in the Social Sciences, Humanities, and Fine Arts - Vacant

Milward Simpson Professorship in Political Science, Provides support for visiting lecturers – Vacant

College of Business

John S. Bugas Distinguished Professor of Economics. - Vacant

Kent R. Noble, (B.S., University of Wyoming), Department of Management and Marketing, *Bill Daniels Chair of Business Ethics*. The Daniels Fund Ethics Initiative is making an impact on current and future business leaders in Wyoming and beyond. To that end, in AY 2017-18, 226 UW students distinguished themselves by completing an Ethical Leadership Certification Program through the NASBA Center for the Public Trust. Furthermore, this fall, the College of Business has 127 students from 25 different majors enrolled in its Business Ethics courses (54% College of Business, 23% College of Engineering, 8% College of Agriculture, and 7% College of Arts & Sciences). Spring 2018, eleven UW business ethics students participated in the 33rd Annual National Conference on Ethics in America held at the United States Military Academy in West Point, NY. Moreover, UW's chapter of the Student Center for the Public Trust ethics club raised \$10,000 during the fall of 2017 for a special community project. Spring 2018, chapter members evaluated select nonprofit organizations in Wyoming to determine where to invest the funds. In the end, \$7500 went to the students' top choice, Family Promise of Albany County, with

the remaining \$2500 split equally among five other nonprofit organizations. Spring 2018, 26 UW students took part in three business ethics competitions and placed in the top three in each: Daniels Fund Ethics Consortium Case Competition, International Business Ethics Case Competition, and the SCPT Ethics in Action Video Competition. Additionally, in AY 2017-18, Mr. Noble used two primary outreach vehicles to conduct 33 presentations for business, education, and community leaders. The first, *What Do You Stand For?*, is spotlighted in a three-minute promotional video found at <https://vimeo.com/171812184>. The other primary offering is *What's Your Brand?*, a personal branding presentation that focuses on integrity, attitude, and grit. Finally, the College of Business recently launched the *Daniels Fund Ethical Leadership Award* and the *Wyoming Athletics Department Ethical Leadership Award*, two statewide recognitions honoring individuals who embody the Daniels Fund Ethics Initiative Principles.

Mark Leach, *Mendicino Chair in Sales and Salesmanship*. Dr. Leach's research is in business-to-business marketing and sales. More specifically, his research typically focuses on understanding buyer and seller relationships, leveraging the sales function to manage relationships with profitable customers, and providing effective sales training. Mark has published articles in the *Journal of Business Research*, *Journal of Personal Selling & Sales Management*, *Industrial Marketing Management*, *Journal of Applied Social Psychology*, and other leading academic journals. Mark is a member of the editorial review board of the *Journal of Marketing Theory and Practice*, the *Journal of Business and Industrial Marketing*, and the *Journal of Business-to-Business Marketing*. Prior to joining the University of Wyoming in 2017, Dr. Leach was a member of the faculty at Loyola Marymount University and Purdue University. He has also been a behavioral research scientist at the Centers for Disease Control and Prevention. During the 2017-2018 academic year, Dr. Leach has worked to develop curriculum for a new Marketing concentration in Professional Sales. This concentration was approved by Academic Affairs and is currently being offered to UW undergraduates for the first time this Fall. Mark has also established the *UW Center for Professional Selling* that joined the national accrediting body, the University Sales Center Alliance, as an Associate Member in December. In addition to teaching his classes, Mark was faculty sponsor for undergraduate students participating in the *University Team Selling Competition* at Indiana University, and the *Team Selling Invitational* hosted by the University of Toledo. Professor Leach also co-Chaired this year's *Global Sales Science Institute* conference.

Larry Weatherford, (Ph.D., University of Virginia), Department of Management and Marketing, *W. Richard Scarlett III and Margaret W. Scarlett Chair of Business Administration*. Dr. Weatherford presented research at numerous conferences and professional meetings, including PODS (a high-level research consortium sponsored by MIT, Boeing and 10 global airlines [e.g., United, Delta, Lufthansa, Air Canada, American, Scandinavian/SAS, LAN Chile, Emirates]) meetings at MIT (Cambridge, Massachusetts); Seattle, WA; Cannes, France; and Hong Kong. He taught three courses, two in decision science modeling for managers and one in revenue management for a total of 210 student-credit hours. He published several articles (total = 43) in refereed journals, including *Journal of Air Transport Management*, *Journal of Revenue and Pricing Management* (*special issue which he edited*), *Decision Sciences*, and *INFORMS Journal on Computing* (*Editor's Pick as top article of year*). UW students are benefited by having a global expert in revenue management (applied to airline, hotel, cruise line, and other service industries) in the classroom who is able to share not only his leading knowledge, but also his connections to industry (in terms of internships, jobs, data, etc.). Because of his professional connections, he was able to bring into the classroom the Senior VP of Walt Disney World to talk regarding the tools that Dr. Weatherford teaches students, and the President/CEO of a Seattle-based firm in the same industry (alternating years). The main industry that is benefited is the airline industry. As an example, WyDOT engaged him this past year to review a proposal for statewide air service that the Wyoming Legislature is reviewing. UW gets the credit and enhanced reputation when a UW endowed professor edits a special issue for the top journal in his field.

Lastly, he earned the George Duke Humphrey Distinguished Faculty award this past year, along with the Hollon Off-campus and Ellbogen teaching awards in prior years, making him the only faculty member in UW's history to earn all 3 prestigious University awards!

Jason Shogren, (Ph.D., University of Wyoming), Department of Economics, *Stroock Chair of Natural Resource Conservation and Management*. Returning to his alma mater, Dr. Shogren has been the Stroock Professor (now Chair) of Natural Resource Conservation and Management since 1995. In 2017-18, he again took over the role as Department Chair. He worked closely with interim Dean David Chicoine to develop a strategic plan for the Department, including hiring a new Bugas Chair, new assistant professor, full-time professional academic advisor, a full-time coordinator for the FYS courses, the Summer Undergraduate Research in Economics program (SURE), and the Center for Business and Economic Analysis (CBEA). He worked with the Department to revamp the undergraduate program and graduate programs, increasing the focus and providing more opportunities. Shogren taught a course on Behavioral Economics for both undergraduates and graduate students. He also taught Graduate Environmental and Natural Resource Economics. He chaired or co-chaired the Ph.D. committees for three students. He also talks a lot with recent graduates to help them with their research program. He is also on the committees of several Ph.D. and MS candidates. He published 8 peer-reviewed papers in respected journals, including *Management Science*, *Experimental Economics*, *Environmental and Resource Economics*. Dr. Shogren presented keynote addresses and seminars at several national and international conferences. He is on the editorial board of two international journals, he is a foreign member of the Royal Swedish Academy of Sciences, he is a fellow of the Association of Environmental and Resource Economics, the Association of Applied and Agricultural Economics, he is a fellow of the Beijer Institute of Ecological Economics, the Ecological Society of America, US Steering Committee for Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), and he is serving on UW Faculty Senate. Dr. Shogren also talked with numerous media outlets about economics throughout the year. Endowed professorships benefit others in three main ways: (1) These professorships/chairs help UW to attract world-class economists. Back in the mid-1970s, the UW President asked economics to focus on building a world-class program in Environmental & Natural Resource Economics (ENR Econ), with the goal to help make better policy in Wyoming and beyond. The Stroock Chair has provided a platform to attract excellent faculty that do research and teaching to understand better how to make good economic/environmental and resource policy better, and prevent bad policy from getting worse. The Department works with undergraduate and graduate students, policymakers, and the lay-public understand the power and limits of economics for policy analysis. This specific focus has allowed the Stroock Chair to provide effective and timely policy advice. (2) These professorships help UW provide strength in scholarship even though we are small in size. The Stroock Chair provides a platform into a specific focus—ENR economics and applied microeconomics with the idea that we can specialize to excel in a few specific areas. We continue to follow this strategy today in research, teaching, and outreach. (3) These professorships/chairs allow UW to find students who are “diamonds in the rough”—extremely talented students who blossom under the guidance of UW economics department. Our specific focus on ENR economics has attracted high quality students over the years. Our ENR alumni now work to keep the cycle going—UW produces good students, who become business leaders, academics, and policy makers who continue to send us their top students. The main contribution of the Stroock chair has been through the students. Dr. Shogren enjoys working with graduate students on their ideas and helping them find their own voice. Other contributions include working with government agencies at the State, Federal, and International level; working with scholars from other disciplines (e.g., ecology, biology, psychology) to understand better how they approach a problem.

Charles Mason, (Ph.D., University of California, Berkeley) Department of Economics and Finance, *H.A. (Dave) True Jr. Chair in Petroleum and Natural Gas Economics*. During the past fiscal year, Dr. Mason taught two

classes (Economics of Oil and Gas, ECON 4430; Economics of Uncertainty and Game Theory, ECON 5120). He also directed or co-directed a number of doctoral students, most of whom have not yet matriculated from UW. His research program has been active, with 10 papers accepted or published, presentations at several national or international academic conferences, and keynote speeches invited at an international conference on energy transitions (held in Oslo, Norway) and the Mid-West Electric Consumers Association's 60th annual meeting. In addition, he participated in a project focused on oil and gas infrastructure, organized by the prestigious National Bureau of Economic Research. The material Dr. Mason covers in his graduate class is critically important to modern economists: it forms the backdrop for a wide swath of contemporary research within the profession, so that the students in this class leave with a far greater facility to learn from the literature, to identify important gaps in the profession's understanding, and to formulate potential dissertation topics. Students in his undergraduate class gained new insights into the way key energy markets work; this information is beneficial in numerous ways, from enhancing the students' appreciation of energy markets, to providing key institutional knowledge that can help land a first job out of college. The material he discusses in that class is also amenable to public presentations, as with the Loveland Energy Conference, which provides visibility for the University and helps lay people better understand these markets. His research program is largely centered on studying oil and gas markets, including studies of oil and gas prices, motives to hold oil inventories, and the incentives for deployment of infrastructure, such as pipelines, and the implications of constrained infrastructure upon energy markets. These topics have clear relevance to the energy sector of the state, and policy relevance to the nation. Dr. Mason's research agenda also provides valuable input that allows me to regularly update the oil and gas class, enhancing the educational value and relevance of the class.

John A. Guthrie Distinguished Professor of Banking and Financial Services. Vacant.

Rile Chair of Leadership and Entrepreneurship. Vacant.

College of Education

Dr. Jeasik Cho (Ph.D. University of San Diego) *Everett D. and Elizabeth M. Lantz Distinguished Professorship in Education.* (Support for research and teaching support) Dr. Cho followed up the professional development workshop he and four of professors of education provided in the June of 2017, by making extensive classroom observations in person and via technology throughout the 2017/2018 academic year. In April of 2018, Dr. Cho, working with a math education professor, Dr. Chamberlin, offered a half day workshop on high quality formative assessment. In the July of 2018, Dr. Cho and his three core teacher participants, submitted two conference proposals at American Educational Research Association: 1) A culturally relevant formative assessment for metacognition: A collaborative action research in a rural elementary math classroom and 2) Poetic text, a space of unlearning life in a rural high school English class: A long journey to the cultural code of being "together-alone". Lastly, Dr. Cho has developed a Google website to provide all teachers in this local school district with outcomes of this project and further resources.

Dr. Kate Muir Welsh (Ph.D. University of California, Los Angeles) *Everett D. and Elizabeth M. Lantz Distinguished Professorship in Education.* (Support for research and teaching support) Dr. Welsh's Lantz Award funded the initial creation phase of the Wyoming Coaching Laboratory (WYCOLA), a three-dimensional education program. This project's aims are to improve teaching at all levels through improved instructional coaching in Wyoming schools, to strengthen the partnership between UW and Wyoming schools, and to develop a model program for continued partnership and professional growth. WYCOLA interviewed Wyoming K-12 instructional coaches and Community College Education Faculty in Laramie, Cheyenne, Powell, Sheridan, and

Casper to ask what the organizations need in professional development and how to best enhance existing relationships with UW's College of Education. In partnership with Albany County School District#1(ACSD#1), WYCOLA staff piloted professional development focused on instructional coaching with ACSD#1 Instructional Facilitators for use in the larger WYCOLA project. On December 1, 2017 WYCOLA staff submitted a grant proposal for funding to the Trustees Education Initiative to support two years of WYCOLA professional development for Wyoming K-12 teachers. After receiving approximately \$775,000 in funding, WYCOLA launched as a statewide program. In summer 2018, WYCOLA hosted 25 6th graders, 21 K-12 Wyoming teachers, and 18 UW and community college students for the WYCOLA summer institute. In 2018-19, the 21 K-12 Wyoming teachers will participate in additional professional development.

College of Engineering and Applied Science

E.G. Meyer Family Visiting Industry Professorship - Vacant

Roy and Caryl Cline Endowed Chair in Engineering - Vacant

Dennis Coon, (Ph.D., Pennsylvania State University), *H.T. Person Professorship of Engineering Education*. Dr. Coon coordinated HT Person Distinguished Speaker Series and Dr. B. L. Ramakrishna, Program Director for the National Academy of Engineering's Grand Challenge Scholarship Program, presented a talk entitled "Perspectives on the Grand Challenges for Engineering - Implications for Preparing the Global Engineer for the 21st Century" on October 27, 2017. Prof. Coon coordinated the CEAS Freshman Design Challenge for FY17-18 for approximately 125 freshman engineering students. Prof. Coon collaborated with the CEAS John and Sally Steadman Endowment for Educational Improvement Grants program and HT Person Endowment funding was used to implement and enhance active learning methodologies in CEAS. Several activities associated with integration of active learning methodologies into CEAS coursework were initiated in FY17-18. The focus in FY 17-18 was on the formation of a strong cohort group of engineering instructors in the foundational engineering science courses in FY 17-18. Prof. Coon assisted with the analysis of data from UW students completing the Fundamentals of Engineering Exam. He continued his focus an educational research effort to apply the quantitative analysis tools to evaluate academic success of UW-CEAS students. Dr. Coon was the instructor of record for five engineering courses during AY 17-18, and helped implement a course in entrepreneurship for engineering students. Prof. Coon also assisted with international searches for faculty to serve leadership roles in development of entrepreneurship development at UW.

Dimitri Mavriplis, (Ph.D., Princeton University), *A.J. Castagne Professorship* in UW's College of Engineering and Applied Science (CEAS). During the 2017-2018 academic year, Professor Mavriplis was on sabbatical leave. A significant portion of the sabbatical was spent at UW in Laramie, building his research program. Additionally, during the year, Professor Mavriplis spent time at NASA Langley Research Center and was involved in helping chart a course for computational fluid dynamics (CFD) for aeronautics applications at NASA.

Professor Mavriplis wrote a single investigator proposal to NASA for solver technology in CFD in March 2018, and participated in a proposal led by Boeing to NASA for aircraft certification by analysis. Both proposals were awarded in August, and the contacts for these are expected to begin in Fall 2018. During the year Professor Mavriplis organized a workshop held in January 2018 in Kissimmee FL entitled "Future CFD Technologies Workshop." The workshop featured 23 invited talks from international experts in computations fluid dynamics (CFD) and was sponsored by NASA and several industrial software vendors. Professor Mavriplis was also

invited by NASA to attend a special workshop on Quantum Computing, and was tasked with writing the report of the workshop with recommendations for investments in Quantum Computing for NASA's aeronautics mission directorate. At the start of the year Professor Mavriplis' group consisted of 3 postdoctoral researchers and 6 PhD graduate students. One PhD student graduated in May 2018 and is currently employed in the Boston area working for a start-up CFD software vendor. Finally, Professor Mavriplis and two of his former students wrote an SBIR Phase 1 proposal in March 2018, which was awarded in the summer of 2018 and currently employs 1 part time employee and 1 full time employee.

The research on wind energy undertaken by Professor Mavriplis' group is highly relevant and of interest to the various companies involved in current and future planned wind plant installations in the State of Wyoming. Dr. Mavriplis' research has also been instrumental in leveraging the NCAR-Wyoming Supercomputer (NWSC) facility and demonstrating the importance of this facility for competitive research at UW, for student and faculty recruitment, as well as for economic development and diversification within the State of Wyoming.

Jonathan Brant, (Ph.D., University of Nevada, Reno), *Vincent O. Smith Professorship in Engineering*. Dr. Brant taught three courses in the 2017 academic year. These were CE 4410 (design of wastewater treatment systems), CE 3400 (introduction to environmental engineering), and CE 3000 (Vista III). He is the academic advisor for about 20 students and he is advising 4 doctoral candidates, 2 masters students, and 1 undergraduate researcher. He has four active research grants related technology development for treating oil and gas produced waters, recovering rare earth elements (REEs) from brine mixtures and to the synthesis of nanocomposite membranes for advanced separation processes. He is currently working with a research consortium consisting of academics, national research laboratories, and industrial partners to establish a research to commercial center in Stillwater, OK. The focus of his \$25M effort is to establish a produced water treatment and reuse site, as part of the larger Innovation Pointe Campus, where advanced separation processes and reuse schemes will be demonstrated and studied using feed streams from local oil and gas producers. The goal of this effort is to take advantage of the natural synergies between researchers and industry and accelerate the deployment of produced water treatment and reuse systems in field applications. The focus of Dr. Brant's research is the development of new materials and technologies for separating materials from water. These applications range from produced water treatment to the recovery of elements of value from aqueous mixtures. The benefits of this work to Wyoming include the expansion of our ability to successfully utilize our State's resources, diversification of our water resources, and environmental protection. Dr. Brant is currently working with an Indian company (E-Spin Nanotech) to establish a new membrane manufacturing facility in Laramie, WY. On this front Dr. Brant and his Indian colleague were recently invited to defend their proposal to the Indian Embassy, and their scientific representatives, to receive seed funding for this project. This has obvious benefits related to the diversification of our local economy.

John Pierre, (Ph.D., University of Minnesota), *Nicholson Professorship in ECE*. Dr. Pierre Has received numerous honors and awards, include being named as an IEEE Fellow, 2013: for development of signal processing methods for estimation of power-system stability. The G.J. Guthrie Nicholson Chaired Professor of Power Engineering is specific to the field of electric energy. Dr. Pierre was appointed to the position effective July 2016, and he has been a faculty member at UW for over 25 years. His expertise is in the area of monitoring the reliability and stability of power grids using a newer measurement technology. This technology takes high data rate power system measurements that are time synchronized from all throughout a power grid. Dr. Pierre's research has led to application software used in control centers to detect undesired oscillations in the power flowing on the grid. He teaches both undergraduate and graduate courses that support this research. Dr. Pierre's research is important to the state and nation. The western US power system operates as

one large interconnected grid which is arguably one of the largest, most complex, and geographically dispersed man-made systems in the world. Wyoming is a major exporter of electricity; much of which travels great distances to its end use. Reliable operation of that Grid is essential to the daily lives of Wyoming citizens and to the companies producing, transmitting, and distributing the power. Dr. Pierre currently serves on an IEEE PES Task Force on Oscillation Source Localization and on the Oscillation Analysis Work Group for WECC. Over the 2017/2018 academic year, Dr. Pierre and his research team published multiple papers in journals and at conferences. One of his papers received best paper recognition at the IEEE Power and Energy Society's General Meeting. Dr. Pierre also was one of five presenters at a special workshop hosted by EPG (Electric Power Group) for their industry customers. Two recent Ph.D. students graduated taking jobs in the electric power industry where they continue the work they were performing at UW. Dr. Pierre and his colleagues also received a \$1.4 million grant from the US Department of Energy where he is the lead on Thrust 2 – Measurement and Model Based Power System Modeling.

Alchemy Sciences Petroleum Engineering Chair. Vacant

Dr. Mohammad Piri, (M.Sc. and Ph.D. Imperial College London), *Thomas and Shelley Botts Endowed Chair in Unconventional Reservoirs in the College of Engineering and Applied Sciences.* In the 2017-2018 fiscal year, Dr. Piri and members of his research group presented their research results at numerous conferences and published more than ten (10) papers in peer-reviewed journals with several more submitted and in preparation. Dr. Piri and his research team continued further development of the world's most advanced Center of Innovation for Flow through Porous Media (COIFPM) in UW's newly-built High Bay Research Facility. In this time period, he developed several research proposals with a total budget of more than \$20 million to establish partnerships with various oil and gas companies. Dr. Piri's research group currently includes twenty-three (23) PhD students, one (1) MS student, five (5) post-doctoral research associates, and three staff members. Three more PhD students will be joining the team in the next 1-4 months. Furthermore, Dr. Piri taught two classes: 1) Flow through Porous Media and 2) Unconventional Reservoirs. Dr. Piri's annual performance was evaluated as 'exceeding expectations'. Dr. Piri's specialty is multiphase flow in porous media with applications in oil and gas recovery from unconventional and conventional reservoirs, pore-scale modeling of displacement processes, two- and three-phase relative permeability (measurement and prediction), wettability, and CO₂ sequestration and leakage. He designed, installed, integrated, and commissioned three unique research facilities that have put the University of Wyoming at the forefront of research in the area of flow through porous media. These research facilities include: Encana Three-Phase Flow and Computed Tomography Research Laboratory, Hess Digital Rock Physics Laboratory, and Center of Innovation for Flow through Porous Media (COIFPM) located in UW's newly-built High Bay Research Facility. These platforms provide UW students exceptionally rich research and educational experiences that are seldom available elsewhere. Dr. Piri also used these to help attract three new faculty members to the Petroleum Engineering program at UW. Furthermore, he has been diligently working to commercialize the Intellectual Properties developed in his research group through establishment of a new company, Piri Technologies, LLC. In Fall 2017, under Dr. Piri's leadership, and in close collaboration with President Laurie Nichols and senior members of her staff, a set of comprehensive agreements were developed and formally signed between UW and Piri Technologies, LLC that provide the legal framework needed for commercialization of UW technologies that have been developed by Dr. Piri and his research group over the last thirteen (13) years. Additionally, these agreements provide excellent examples for commercialization of technologies that are developed by other scientists at UW. Through this initiative, Dr. Piri has established an avenue for diversification of the economy in the State of Wyoming as well as providing job opportunities for UW graduates. Furthermore, Dr. Piri's research findings have direct implications for enhancing oil and gas recovery from the reservoirs in the State of Wyoming. Dr. Piri's external research funding exceeds \$20 million.

Interdisciplinary

Steve Smutko, *Eldon & Beverly Spicer Chair in Environmental and Natural Resources* (See WY Excellence Endowment Report)

Heidi Jo Albers, *Knobloch Wyoming Excellence Chair for Conservation Economics and Finance* (See WY Excellence Endowment Report)

Bruce Parkinson, (Ph.D. California Institute of Technology) *J.E. Warren Distinguished Professorship of Energy and the Environment*. Dr. Parkinson has been a Professor of Chemistry at Colorado State University since 1991. Dr Parkinson is jointly appointed in the School of Energy Resources and the Chemistry Department. (See School of Energy Resources (SER) faculty, part B)

John and Jane Wold Chair of Energy - Vacant

College of Law

Jacquelyn Bridgeman, (J.D., University of Chicago), has been the *Kepler Distinguished Professorship of Law*. During FY 2018, Ms. Bridgeman became the inaugural interim director of the newly formed School of Culture, Gender and Social Justice (SCGSJ). A school combining the programs in African American and Diaspora Studies, Gender and Women's Studies, Latina/o Studies, and Native American and Indigenous Studies. In addition to her work as director she also taught two courses for the College of Law, two upper division electives, Employment Law and Sports & Entertainment Law. She also taught African American History, an undergraduate Communications 2 and a diversity course. She completed two book chapters on race and education, which are slated for publication in 2019, and has begun work on a new book project on women in sports. The SCGSJ, which Professor Bridgeman directs, is involved in a number of statewide engagement initiatives and programs including the Wyoming Pathways from Prison Program, the Native American Summer Institute, and the Wyoming Latina Youth Conference. Additionally, Professor Bridgeman has been chairing a committee that is developing a 2+2+3 diversity pipeline program that seeks to partner with Wyoming Community Colleges, to bring underrepresented students interested in law who first matriculate at a community college to transfer to UW and then gain automatic admission to the University of Wyoming College of Law provided certain benchmarks are met.

Stephen Feldman, (J.S.M., Stanford University, 1986; J.D., University of Oregon, 1982; B.A., Hamilton College, 1977) - has been the *Jerry W. Housel/Carl F. Arnold Distinguished Professor of Law* and Adjunct Professor of Political Science since 2002. During the past year, he has published numerous articles and essays, including the following: Broken Platforms, Broken Communities? Free Speech on Campus, _ Wm. & Mary Bill Rts. J. _ (forthcoming); Having Your Cake and Eating It Too? Religious Freedom and LGBTQ Rights, _ Wake Forest J. of Law & Policy _ (forthcoming); The Politics of the Law-Politics Dichotomy, _ B.Y.U. J. Pub. L. _ (forthcoming); Justice Scalia and the Originalist Fallacy, *in* The Conservative Revolution of Antonin Scalia 189 (Howard Schweber & David A. Schultz eds., Lexington Books, 2018); Nothing New Under the Sun: The Law-Politics Dynamic in Supreme Court Decision Making, 2017 Pepp. L. Rev. 43 (2018); and The History, Philosophy, and Law of Free Expression in the United States: Implications for the Digital Age, *in* Speech and Society in Turbulent Times 192 (Monroe Price & Nicole Stremlau eds., Cambridge University Press, 2018). As he does regularly, he taught Constitutional Law I, Constitutional Law II, and Jurisprudence. His research and

writing projects emphasize national concerns and are of national interest. As such, they benefit the University of Wyoming, the state of Wyoming, and Wyoming residents. His articles and essays consistently rank in SSRN's Top Ten Percent Total New Downloads List as well as SSRN's Top Ten Percent Total All-Time Downloads List. His essay, *Nothing New Under the Sun: The Law-Politics Dynamic in Supreme Court Decision Making*, 2017 Pepp. L. Rev. 43 (2018), placed in SSRN's Top Ten Download List for The Judiciary & Judicial Process (July 18, 2018; July 9, 2018), and Federal Courts and Jurisdiction eJournal (July 29, 2018; July 21, 2018). His article, *Postmodern Free Expression: A Philosophical Rationale for the Digital Age*, 100 Marquette L. Rev. 1123 (2017), placed in SSRN's Top Ten Download List for Post-Modern (Topic) (June 8, 2018), and Political Theory: History of Political Thought eJournal (June 8, 2018). This past year, he also participated in a panel discussion of the film, *Marshall* (about Thurgood Marshall) during the MLK Days of Dialogue, University of Wyoming.

James Delaney, (J.D., Gonzaga School of Law), *Winston S. Howard Distinguished Professor*. James Delaney was appointed as the Winston S. Howard Distinguished Professor of Law at the beginning of the 2017-2018 academic year. At the beginning of the 2017-2018 academic year, Prof. Delaney completed his appointment as the Associate Dean of Academic Affairs where he, under the leadership of Dean Clint Alexander, was responsible for managing all faculty, staff and student affairs for the College of Law. In this role, Assoc. Dean Delaney managed College of Law admissions, registration, and career services to assist UW law students in their efforts to attend, graduate and successfully integrate into local, regional and more distant bar associations. During the past year, Prof. Delaney completed a book, *Questions & Answers, Federal Income Taxation*, Carolina Press (2018). This book was a second edition which Prof. Delaney was invited to author and includes the changes which were enacted this past December when the Tax Cuts & Jobs Act (2017) was signed into law by President Donald Trump. He has also been researching and writing another work-in-progress, *Questions & Answers, Estate and Gift Taxation*, Carolina Press (forthcoming). In the spring of this year, Prof. Delaney was also invited along with two other authors in the Mountain West to rewrite a legal treatise used by the local and national members of the bar entitled *Planning for Large Estates* (forthcoming). This project will span more than two years due to the changes in tax law which have occurred over past several years. With regard to teaching and due to the loss of one professor who retired and another who left for a different institution, Prof. Delaney teaches an overload of business law and tax courses at the College of Law. He teaches Contracts 1, Business Entities Taxation (corporate and partnership taxation), Federal Income Taxation, Estate & Gift Taxation, and Estate Planning every year. Professor Delaney's teaching and writing projects emphasize national concerns and are of national interest. As such, they benefit the University of Wyoming, the state of Wyoming, and Wyoming residents. For instance, his books on Federal Income and Estate & Gift Taxation Serve to educate students at Colleges of Law throughout the Mountain West and abroad. In relation speaking, Prof. Delaney was invited this fall to speak at the American College of Trust and Estate Counsel's Rocky Mountain West Conference to be held in Jackson Hole, Wyoming. He was also invited to speak at the University of Montana Tax Institute which will also occur next fall. This past spring, Prof. Delaney was recently honored by the Board of Regents of the American College of Tax Counsel who elected Professor Delaney as Fellow of the College. The American College of Tax Counsel was formed to elevate professional standards in the practice of tax law, stimulate knowledge, provide for input by the tax bar into the development of tax laws, and to facilitate the scholarly discussion and examination of tax policy issues. Membership in the College is an honor limited to a maximum of 700 tax attorneys nationwide. The Board of Regents elected Professor Delaney based upon his active involvement in the work of the Tax Section of the American Bar Association and his numerous presentations at tax conferences which are national, regional and statewide. The Regents also considered Professor Delaney's scholarly publications, extensive teaching experience in the field of tax law, and his previous service to the United States Judiciary as Counsel to the Chief Judge of the United States Tax Court as well as his service as an Attorney Advisor to the Honorable Judge Robert P. Ruwe, Judge, United States Tax Court.

Tori Kricken, (B.S. in Business Administration, University of Wyoming, 1996; J.D., University of Wyoming College of Law, 2000). *E. George Rudolph Distinguished Visiting Chair*. The Honorable Tori Kricken is the District Judge for the Second Judicial District, Albany County, Wyoming. In that capacity, she works closely with the University of Wyoming to provide students with learning opportunities in law-related fields. She serves as the Chair of the Academic Achievement Program at the College of law, where she works individually with law students to maximize their success in the law studies. Additionally, Tori teaches business and law courses at the University of Wyoming. She strives to foster a love of academics and a particular passion for the legal field in each of her students. Even more importantly, Professor Kricken hopes that all of her students will take from her courses real-life skills that can assist them in becoming contributing members of Wyoming's society. She serves on several law-related boards and committees and is actively involved in volunteer work in the Laramie community. Prior to these positions, she served as a Hearing Examiner for the Office of Administrative Hearings and was in private practice at the firm of Brown and Hiser, LLC. Tori received her J.D. from the University of Wyoming in 2000.

Mary Dee Pridgen, (J.D., New York University) has been the *Carl M. Williams Professor of Law & Social Responsibility* since July 1, 2008, now split with Alan Romero. In the summer of 2017, she updated her treatises, *Consumer Credit and the Law*, and *Consumer Protection and the Law*, published by Thomson Reuters and coauthored with Richard Alderman. Ms. Pridgen was assisted on the research for the update by a College of Law student, Seth Dinkel. In the fall of 2017, she taught two classes at the law school, Consumer Protection and Payment Systems, both of which are upper class electives. In the spring and early summer of 2018, she updated an “e-supplement” to accompany the Consumer Law casebook that she coauthored and that she uses in her course. The 48-page supplement includes some new [edited] cases, problems and updated notes. This supplement has been made available to students via the course TWEN website, and is also being made available by the publisher to faculty adopting the casebook. In May of 2018, Professor Pridgen was a featured speaker at a professional conference in Santa Fe, New Mexico. Her speech was entitled “The Importance of Consumer Law” and was well received by her fellow consumer law academics. Given her long career as a scholar in the field of consumer protection, her research and instruction has benefitted law students, lawyers, businesses and the general public. The law students in her consumer protection course have benefitted from the products of her research, including a nationally published casebook, “nutshell” and treatises. The attorneys of the state of Wyoming, as well as attorneys nationwide, can also benefit from Ms. Pridgen’s published works which are basically reference works for attorneys and law students. Since businesses and industries dealing with consumers must comply with consumer protection laws, both state and federal, these works also benefit them and their legal counsel. Students in her courses benefit from instruction by an experienced and knowledgeable professor. One of her courses, Payment Systems, includes material that is tested on the Wyoming Bar Exam, which directly benefits students taking that exam. Prof. Pridgen has supervised students writing their own research papers on consumer protection topics, and she also routinely hire Wyoming law students as research assistants.

Alan Romero, (J.D., Harvard University) *Carl M. Williams Professor of Law & Social Responsibility*, split with Mary Dee Pridgen. Professor Romero is the founding Director of the University of Wyoming Rural Law Center. During the 2017-2018 academic year, he directed student volunteers of the Center’s Legislative Research Service in researching and drafting a guide about the law of county roads to be distributed to Wyoming counties. The project began with a request from Weston County, which had undertaken a statutory road identification project. The guide will help counties involved in road identification projects as well as counties dealing with any other legal requirements concerning county roads. Professor Romero also supervised student volunteers researching and drafting chapters of a guide about specialty crops to be published by the University of

Wyoming Extension. Projects such as these both serve people across the state and help prepare students to continue such service professionally after graduation. He also organized a conference that offered expert presentations and individual advising to help farmers and ranchers, and those who serve them, with succession planning. The conference was supported by a USDA grant and held in March at Central Wyoming College in Riverton. In February, Professor Romero presented a new article, *Bridging the Urban Versus Rural Divide in Extraterritorial Land Use Regulation*, at the Texas A&M University School of Law Real Property Law Roundtable. The article originated with research about extraterritorial jurisdiction at the request of the Wyoming Association of Municipalities and addresses a subject of recent and current legislative interest in Wyoming. It will be published this academic year. Professor Romero taught Property I and Property II, required courses for all first-year law students, Real Estate Finance which covers subjects tested on the Wyoming bar exam, and Land Use Law. He also supervised students who wrote papers about transferable development rights, conservation banking, stadium financing, and the Second Amendment.

Sam Kalen, (J.D., Washington University), *Carl M. Williams Centennial Distinguished* Mr. Kalen is the Associate Dean and Co-Director of the Center for Law and Energy Resources in the Rockies. He is a nationally recognized scholar in the fields of energy, environment, public lands and natural resources, and administrative law. He is a co-author of one of the principal natural resources law casebooks, as well as a co-author of the American Bar Association's Endangered Species Act Basic Practice Series book. Mr. Kalen also has published numerous law review articles, one of which has been cited and quoted in a United States Supreme Court opinion, and another one, on the federal Clean Air Act, was published in a top 30 law review, out of hundreds. During this past year, Mr. Kalen taught administrative law, environmental law, Indian law, and public lands. Also during this past year, he completed a book on national energy policy, published this month by Cambridge University Press. He also published, along with another scholar at Berkeley, an article in one of the nation's more prestigious environmental journals (online) on a constitutional issue involving the state and federal roles over energy decisions. He teaches both federal energy law as well as environmental law, and by exploring aspects of both in his scholarship he believes that it allows him the opportunity to better engage with students. He brings parts of his research into the classroom, and challenges students to think critically about areas of the law that presently may not be as thoroughly explored in existing scholarship.

Steve Easton, (J.D., Stanford Law School) *William T. Schwartz Professor of Law*. In August of 2018, Steve directed the Summer Trial Institute at the College of Law, which welcomed approximately 60 Wyoming attorneys, judges, and court reporters as guest faculty for a record 28 College of Law students learning trial advocacy. He also co-wrote (with College of Law Professor Tara Righetti and School of Energy Resources faculty members) an oil and gas litigation problem for use in this course that was based primarily on Wyoming law, to give students the opportunity to work on a trial arising out of energy production. In the falls of both 2017 and 2018, Prof. Easton presented continuing education courses on Evidence for Wyoming judges at their annual conferences. In September of 2018, he presented a continuing education lecture on legal ethics for Wyoming prosecutors. He also directed the 2018 Spence Law Firm Historic Trial, which was based on the Lewis and Clark Expedition, working with Wyoming attorneys, judges, and law students. This event is open to the public, to give non-lawyer Wyomingites the opportunity to learn about both history and the legal system. He continues to provide evidence and legal ethics advice upon request to Wyoming attorneys and judges. The subjects in two of Prof. Easton's courses, Evidence and Professional Responsibility, are tested on the Wyoming bar examination. Prof. Easton also coordinates law student participation in the Ewing T. Kerr Inn of Court, an organization of Laramie and Albany County attorneys and judges. He also serves as a member of the Wyoming State Bar's Criminal Jury Instruction Committee.

Noah Novogrodsky, (J.D., Yale Law School) *Carl M. Williams Professor of Law and Ethics*. Split with Michael Smith, Noah Novogrodsky joined the law school as an associate professor in the fall of 2009. Professor Novogrodsky teaches International Human Rights, Immigration Law and Civil Procedure. Professor Novogrodsky is a Phi Beta Kappa graduate with highest honors from Swarthmore College; he holds a law degree from Yale and an M.Phil. in International Relations from Queens' College at Cambridge University, where he won the Daniel Vincent Prize for the best thesis on the Middle East. After law school, he served as law clerk to the Honorable Nancy Gertner of the U.S. District Court for the District of Massachusetts; as a Robert L. Bernstein Fellow in International Human Rights in Asmara, Eritrea, Addis Ababa, Ethiopia and Cape Town, South Africa; as a litigation associate at the firm of Howard, Rice, Nemerovski, Canady, Falk & Rabkin in San Francisco; and as the founding director of the International Human Rights Clinic at the University of Toronto Faculty of Law. Professor Novogrodsky has also been a Visiting Professor at Georgetown University Law Center and the University of Connecticut School of Law; his scholarship is focused on the global HIV/AIDS pandemic and international criminal justice. Professor Novogrodsky has recently published *Is ISIS a State? The Status of Statehood in the Age of Terror*, 36 Berkeley Journal of International Law 36 (2018).

Michael R. Smith (J.D., University of Florida). *Carl M. Williams Professor of Law & Ethics*, split with Noah Novogrodsky. Professor Smith is the Director of the Legal Writing Program and is the Founder and Director of the Center for the Study of Written Advocacy at the University of Wyoming College of Law. During the 2017-2018 academic year, he published the article *Metaphoric Parable: The Nexus of Metaphor and Narrative in Legal Persuasion*, which appears in *NARRATIVE AND METAPHOR IN LAW*, a book published by Cambridge University Press (Michael Hanne & Robert Weisberg, eds. 2018). Professor Smith is also the author of an ongoing column called “Write On!,” which appears in the *WYOMING LAWYER*, a magazine published by the Wyoming State Bar. During the 2017-2018 academic year, Professor Smith published the following articles under this column: *Strategies Behind Quoting a Quote* (August 2017); *Bad Metaphors, Part 1: Insulting Metaphors* (December 2017); and *Bad Metaphors, Part 2: Arcane Metaphors* (April 2018). As the Director of the Center for the Study of Written Advocacy, Professor Smith often engages in outreach activities to members of the Wyoming Bar by providing Continuing Legal Education (CLE) seminars on written advocacy. In March of 2017, he presented “Effective Written Advocacy” at the 2017 Pathways to Professional Practice Event sponsored by the Wyoming State Bar in Cheyenne. In his role as the Director of Legal Writing, Professor Smith generally administers the legal writing program at the College of Law. During the 2017-2018 academic year, these duties included overseeing the hiring of adjunct professors to teach in the first-year writing program, overseeing and mentoring these adjunct professors during the academic year, overseeing the hiring of four students teaching assistants for the first-year legal writing program, and generally being the contact person at the law school on issues related to the legal writing program. In the fall of 2017, Professor Smith also began working with the Writing Center on the main campus to strengthen the relationship between law students and the Writing Center. To better prepare the Writing Center advisers for working with law students, Professor Smith presented “Introduction to Legal Writing” at the Center in October of 2017. This presentation acquainted the advisers with the general nature and conventions of legal writing. Professor Smith also worked with Matt Drollette, Interim Director of the Writing Center, to begin a program under which an adviser from the Writing Center would hold weekly office hours at the law school to help law students with their writing projects. This program was implemented for the first time in the fall of 2017 and operated throughout the 2017-2018 academic year.