Mines’ Policy Institute Receives $5 Million Gift

Colorado School of Mines’ premier policy institute for earth resources has a new name: the Payne Institute for Earth Resources.

Thanks to a $5 million investment by Jim and Arlene Payne, the Institute will move forward with plans to expand its leadership and reach. The Payne Institute educates and informs policy makers and other stakeholders about pressing issues in the areas of earth, energy and the environment. Through research and policy analysis, the Payne Institute will foster collaborative partnerships with established research institutions, universities and government agencies around the world.

Originally established as the Earth Resources Institute in 2014, this new investment not only renames the organization, but enables the Payne Institute to propel its growth and enhance Mines’ role as a global public policy leader in these focus areas.

“My vision is to leverage the Institute’s first-class academic research and have it serve as the go-to resource for those engaged in public policy discourse on some of the challenges shaping our future,” said Jim Payne, who earned his professional engineering degree in geophysics from Mines in 1959.

The Payne Institute is a campus-wide initiative, led by Mines’ Division of Economics and Business and the Office of the Provost. “The Payne Institute provides Mines an institutional base from which to leverage a rich set of faculty resources across campus,” said Division Director Michael R. Walls, who is spearheading the effort. “Mines is already known as one of the nation’s top engineering and applied science universities, and the Payne Institute will open a wealth of opportunities to expand our innovative and influential quantitative analysis in the policy arena.”

Research at the Payne Institute will promote analysis based on sound economic and scientific principles. Areas of research will include rare earths and critical materials, climate and carbon policy, pollution regulation, global trade and the environment, minerals policy, energy security and more. To learn more, visit the Payne Institute website at:

http://earthpolicy.mines.edu

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Jim and Arlene Payne
Message from the Division Director

To our alumni and friends,

We are delighted to send along to you another of our EB Newsletters in order to keep you informed of the mix of interesting research, teaching, and outreach activities over the past few months. It has been an active and productive year in the Division and I am excited to report a number of key developments around our efforts.

The Division’s newest initiative, our policy institute, was launched late in 2014. As reported in this newsletter, we are thrilled to report the generous donation of Jim and Arlene Payne in the amount of $5 million to support the growth and development of the newly-named Payne Institute for Earth Resources. Coupled with other generous donations of over $1.5 million from a number of alumni and friends, the Payne Institute is now positioned to move aggressively in advancing the mission and goals of the public policy initiative at Mines. Over the last few months the Institute has launched its Distinguished Lecture Series, initiated a Visiting Scholar Program, sponsored and awarded a set of mini-grants to CSM faculty for joint policy work, and begun significant outreach to further our goal to educate and inform policy makers. You can learn much more about all the Institute activities by visiting our website at http://earthpolicy.mines.edu.

Other Division developments include significant research efforts associated with the Critical Materials Institute, a substantial increase in our enrollments associated with the M.Sc. in Engineering & Technology Management, continued strong interest in our graduate programs in Mineral & Energy Economics, and new curricular developments in our undergraduate economics program. The Division has also taken a major leadership role in Mines’ new emphasis on entrepreneurship and we look forward to additional developments in that area.

As always, to learn more about our activities, I invite you to visit our Division website at http://econbus.mines.edu. Thanks to everyone for your continued support of EB – I look forward to visiting with you more in the future regarding our ongoing activities. Please feel free to drop me a note or stop and visit us when you are in Golden.

Michael R. Walls
mwalls@mines.edu

GERENS Graduate Student Workshop

The mining industry in Peru has been a driver of the country’s long period of sustained economic growth. Peru graduates plenty of mining engineers but has relatively little educational capacity in mineral economics or mine management. Led by Professor Graham Davis and EB alumnus Professor Arturo Vasquez Cordano, the Colorado School of Mines has partnered with the GĚRENS Graduate School of Business in Lima to develop Peru’s indigenous capabilities in these areas. In June CSM welcomed to campus for the second year in a row 20 GĚRENS graduate students who participated in a three day workshop on mineral economics and management. CSM faculty from Economics and Business and Mechanical Engineering, in collaboration with the Office of Special Programs and Continuing Education, offered instruction in metals markets, resource-based economic development, metal price forecasting, mine planning and optimization, and mine strategy.
Faculty Highlights

Harrison Fell - Electricity Markets

Assistant Professor Harrison Fell continues his research on the joint impacts of low natural gas prices and increasing wind generation on electricity markets. He presented this work at the annual AEA meetings and at a seminar at the University of Wyoming. Beyond teaching his undergrad environmental economics course, Harrison is working on a hybrid pollution control policies project. This is collaborative research with Dr. Peter Maniloff on the effects of the Regional Greenhouse Gas Initiative. Dr. Fell is also working with Dr. Ian Lange on energy efficiency adoption issues and nearing completion of two research papers with MEE graduate students Jacquelyn Pless and Matt Doyle. He and his wife also welcomed the birth of their son in February.

Becky Lafrancois - Financial Challenge

Teaching Associate Professor Becky Lafrancois recently taught undergraduate courses in Principles of Economics and Intermediate Microeconomics. In her courses, Becky strives to bring in real-world examples of how economics is used for decision making by businesses and governments. Becky also conducted the Summer Field Session for economics majors at Mines, which involved visiting several local sites that employ economists. Becky also advised a group of Mines students who competed in the CFA Research Challenge, a financial competition in which students analyze a corporation, make investor recommendations, and present their findings to a panel of judges, including members from the corporation’s executive team. We are pleased to announce that the Mines’ team earned second place in the CO and WY Division. On the research front, a paper co-authored by Becky was accepted for publication in the Journal of Economics Education.

Peter Maniloff - Climate Policy

Assistant Professor Pete Maniloff has conducted research on climate change policy and the unconventional oil and gas boom, advised students, and taught a graduate course in econometrics. Maniloff’s climate policy research has focused on the effectiveness of a cap-and-trade system in northeastern states. He (and coauthors) have shown that it has been successful in reducing emissions, but has also pushed electricity generation to neighboring states. In other research, he (and a coauthor) have shown that the fracking boom has generated several hundred thousand jobs throughout the country. Additionally, he has started a new project exploring how state regulators can ensure that oil and gas production is both plentiful and safe. Maniloff’s students are exploring a variety of topics including auctions for oil and gas rights, how fuel prices and industry contracting affect electricity generation, and the impact of biofuel policy on food prices. In the classroom, he has expanded introductory graduate econometrics to include analysis in STATA and R, two popular statistics packages. Finally, he has enjoyed being a part of the Mines community.
Critical Materials Institute Update

The Critical Materials Institute (CMI) is completing its second year of operation, and EB Professor Rod Eggert continues to serve as CMI’s deputy director and to lead its economic research on supply chains for critical materials. This economic research involves a team of EB graduate students, as well as researchers at Purdue University and Idaho National Laboratory. His EB research assistants are working on projects that will lead to publications in the coming year: Brett Jordan on the economics of joint production in metals, Max Brown on rare-earth supply chains, Braeton Smith on material substitution in magnets and lighting, Sul-Ki Lee and Toru Muta on lithium markets, and Wes Sconce on vertical integration in the rare-earth industry.

In addition, the entire team is working on an overall assessment of ‘criticality’ for materials used in clean energy technologies. This assessment ranks materials according to both their degree of importance to decarbonization and their supply-chains risks. Under Professor Eggert’s leadership efforts, the CMI and its associated research efforts have established CSM as a hub of expertise as it relates to both the technical and policy issues associated with critical materials and rare earths.

USAEE Chapter Sponsors Fort St. Vrain Plant Tour

Through the CSM Chapter of USAEE, MEE graduate students participated in a tour of the Fort St. Vrain Gas Power Plant this past April. Fort St. Vrain is a combined cycle natural gas power plant owned and operated by Xcel energy in Platteville, CO. It was originally built as Colorado’s only nuclear power plant, but was decommissioned in 1989 and converted to a gas power plant.

The plant operates three combined cycle units and two simple cycle peaking units. The simple cycle units are used to meet peak demand periods for electricity, typically summer evenings. While the combined cycle units are more efficient, they take several hours to ramp up from a cold start. The simple cycle units are less efficient, but can be quickly started within thirty minutes. In addition to these five units, the plant still operates the turbine from the nuclear plant by piping in steam now created using natural gas.
Economics Summer Field Session 2015

A lot of current and prospective students ask, “What can I do with a degree in economics?” The goal of this summer’s field session was to show the students a variety of firms that employ economists, give them a chance to interact with them, as well as other professionals working for these companies. Our group visited several different sites this summer including the Denver Branch of the Federal Reserve Bank of Kansas City, COBank, Charles Schwab, Xcel Energy, Ponderosa Advisors, the Governor’s Office of State Planning and Budgeting, and the Governor’s Office of Policy.

At each visit, the students got a chance to hear what kind of work the economists and related staff undertake on a regular basis, and the types of skills that are valued when these firms are recruiting new employees. Of the skills that are particularly valuable, communication, the ability to program and work with large data sets, and being able to learn on the job were emphasized by every site that we visited. The students were also able to engage in conversation and ask questions about the firms and the economists’ backgrounds.

Along the way, the Mines’ economics students met with several alumni from the Colorado School of Mines. Some had their undergraduate degrees in Economics, and others had their Masters degrees in Mineral and Energy Economics. These alums included: Taylor Gunn working in the Knowledge Exchange Division at COBank; Marta Quintos and Nate Hart at Xcel Energy; Sarp Ozkan, Ben Nyarko, and Holly Graham at Ponderosa Advisors.

In addition to just talking with the economists, the students had some other unique experiences during field session. They met in the Federal Reserve board room with the executive economist at the branch, toured the electricity trading floor at Xcel energy, engaged in conversations with fund managers at Charles Schwab, heard about recruiting from a human resources representative at COBank, and had the chance to analyze and give their suggestions on a bill seeking to deregulate the taxi market in Colorado.

Engineering and Technology Management

Our entering 2015-2016 cohort of M.S. in Engineering and Technology Management (ETM) students is one of the largest in recent years. These accomplished students come from numerous undergraduate institutions with the shared drive and ambition to complement their technical undergraduate studies with technology oriented business management coursework at the graduate level. The start of the 2015 fall semester begins with several ETM activities designed to compliment formal coursework with practical experiences that will build leadership, analytical and communications skills.

One of the activities is a full-day Leadership Ropes Course. Students attend an off-campus facility to work together in team building, leadership and self-determination exercises under the watchful eyes of professional instructors. Other workshops will focus on economic analysis as well as enhancing professional presentations skills. These activities build a strong community in the ETM program, and help propel students into accelerated career paths with the confidence needed to succeed. Recent ETM alumni tell us that they have fond memories of the these shared ETM experiences and benefit from insight learned. The ETM program continues to draw increasing interest from ambitious students who seek to enhance their professional skills and critical thinking into multi-functional leadership roles.
Highlights from the Payne Institute

Distinguished Lecture Series

LAWRENCE H. GOULDER, STANFORD UNIVERSITY
FEBRUARY 6, 2015

Confronting Climate Change: Economics, Fairness, and Political Feasibility.

How can climate change policies be designed to be not only environmentally effective but also cost-effective and fair? And how can they be made more acceptable politically? Professor Lawrence Goulder’s presentation explored how these different and often competing goals can be approached. While acknowledging that no perfect approach exists, he suggests some potentially promising directions, drawing from academic research and recent climate-policy experience at the national and international levels. In considering these issues he explores the potential roles for carbon taxes, cap and trade, performance standards, and direct technology promotion.

Dr. Goulder is the Shuzo Nishihara Professor in Environmental and Resource Economics at Stanford and Director of the Stanford Environmental and Energy Policy Analysis Center. He is also a University Fellow at Resources for the Future and a Research Associate at the National Bureau of Economic Research.

Payne Institute Awards Mini-Grants

The Payne Institute is pleased to announce the award of mini-grants to four teams of CSM researchers. The mini-grants in the amount of $25,000 for each team of CSM researchers are designed to emphasize the collaborative research efforts between engineering/science and policy researchers on campus. The goal of these awards is to provide financial support for teams of researchers to formulate significant research proposals to award-granting agencies, whereby an element of policy analysis and/or the investigation of broader impacts on society is a key component.

Financial support for the 2015 Mini-Grant Awards is provided by the Jerry and Tina Grandey Mini-Grant Endowment, the College of Earth Resource Sciences & Engineering (CERSE), the Office of the Vice President of Research & Technology Transfer, and the Payne Institute for Earth Resources. Topics in this year’s awards include an investigation of U.S. nuclear generation and the costs of climate policy, policy alternatives for capturing fugitive methane emissions, and coal mine safety and performance.

Professor Dahl Named Senior Fellow

Dr. Carol Dahl was recently named a Senior Fellow of the Payne Institute for Earth Resources. Dr. Dahl received her PhD in Economics from the University of Minnesota having studied under Christopher Sims, who shared the Nobel Prize in Economics in 2010. She received a BA in Economics with distinction from the University of Wisconsin. She has published widely in peer reviewed energy journals, regularly presents her work at international conferences, and has been a visiting scholar at a number of well-known universities worldwide. Dr. Dahl has been a faculty member in the Division of Economics & Business since 1991.
Thanks to our Contributors and Supporters  July 2014- June 2015

Contributions from our alumni and friends make a difference. They fund computer software, student recognition events, scholarships, faculty research efforts, outreach activities, and the opportunity for students to attend professional conferences. We thank you for your continuing commitment to the Division of Economics and Business.

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Thank you for your continued support. You can make a one-time or recurring credit card gift online. Or, you can mail your check made payable to Colorado School of Mines Foundation with Division of Economics and Business Alumni Fund in the memo line to:

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Please also visit our matching gifts page to learn how you or your spouse’s company can double or even triple your gift to Mines. For more information, please contact the CSM Foundation at 303.273.3275 or visit giving.mines.edu.

Spring 2015 Award Winners

Students

Hubert and Sarah Risser Award in Mineral and Energy Economics was awarded to Matthew Doyle. This award recognizes outstanding academic and co-curricular performance.

William Jesse Coulter Award in Mineral and Energy Economics was awarded to the outstanding graduating student, Greg Steger.

Jerome and Rebecca Broussard Family Award for academic achievement in Engineering and Technology Management was awarded to Changkeun Lee and Jacqueline Mays.

Faculty

Engineering and Technology Management Excellence in Teaching Award was awarded to Teaching Associate Professor Mark Mondry.

Mineral and Energy Economics Excellence in Teaching Award was awarded to Professor Graham Davis.

Outstanding Undergraduate Economics and Business Professor Award was awarded to Teaching Associate Professor John Stermole.
Internship Experiences

Christopher Fogg
**Investor Relations and Corporate Development**
Newmont Mining Corporation, Greenwood Village, CO
Christopher was responsible for weekly and monthly competitor analysis reports, building and maintaining financial models of Newmont and competitors.
Christopher has found the Corporate Finance, Econometrics and Economic Decision Making classes to be particularly useful within his role.

Kelly Shanley
**Strategy, Planning, and Analysis - Global Primary Products**
Alcoa Corporate Center, Pittsburgh, PA
Kelly was responsible for developing a working database on bauxite, alumina, and aluminum supply/demand, and generating a final presentation for company leaders and team/advisers.
Kelly has found the Mineral and Energy Economics degree program to be very specific in preparing students for the mining industry.

Simon Ucros Diaz
**Portfolio Strategy and Business Planning**
Occidental Petroleum Corporation, Houston, TX
Simon was responsible for developing a simulation base model to support the Reservoir Engineers in their use of the PetroVR software.
The simulation class with Dr. Rebennack has been particularly useful for Simon’s simulation project at Occidental.

Qing Shi
**Power Market Analysis**
Energy Ventures Analysis, Inc, Arlington, VA
Qing was responsible for U.S. power market modeling and forecasting.
Qing found that Natural Resource Economics, Corporate Finance and Microeconomics for minerals and energy to be very useful throughout the internship.