



Changes keep EB Division busy

It has been an exciting and productive year for the Division of Economics and Business. We are delighted to report that the new Master's degree in Engineering and Technology Management will begin its first class in the fall of 2001. We are excited about this new graduate program and the high level of support we have received both in and outside CSM.

This past year has included a number of other positive changes in the Division. In terms of personnel, we have three new faculty members, a division administrator, and a new administrative assistant. The Engineering Hall Annex has been remodeled and the Division has moved both faculty and students into this building for Division activities.

We are excited about these changes and invite you to learn more about these and other Division developments in this newsletter. Also, visit our website at www.mines.edu/econbus.

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Division unveils ETM program

The Division is pleased to announce the development of a new Master of Science in Engineering and Technology Management (ETM) degree. This 36 credit-hour program, which begins in the fall of 2001, focuses on the intersection of managerial practice and engineering and technology-related issues. The program capitalizes on the Division's strengths in quantitative business methods, operations research, decision making, economics, and strategic management.

"CSM implemented the new degree because companies in all business sectors have a growing need for engineers who are technically competent and possess the required management skills to effectively function in the new

digital economy," said Dr. Michael Walls, ETM Program committee chair.

The carefully crafted ETM curriculum focuses on the interface between engineering practice and the

business challenges faced by practicing managers—with a strong emphasis on technology implications.

ETM students take a set of core courses that provide a strong foundational perspective in the areas of accounting,

finance, OR, economics, and management. Students can then tailor their degree program to their area of particular interest.

The program offers two areas of specialization: *Quantitative Business Methods/Operations Research* and *Strategy and Organization*.

Quantitative Business Methods/OR emphasizes valuable techniques for managing large engineering and technical projects effectively and efficiently. The Strategy and Organization specialization will teach the correct match between organizational strategies and structures to maximize the competitive power of technology.

"Expectations for ETM graduates are high," Walls said. "The integration of technical and best business practices in the ETM curriculum will provide graduates a unique skill set that enables them to rapidly assume leadership roles in industry."



Interested students attend the information session on the ETM program in February.

\$1 million gift funds ETM program

With a gift in excess of \$1 million, the Jerome and Rebecca Broussard family is paving the way for the new Master's degree in Engineering and Technology Management. Of the Broussards' gift, \$100,000 is earmarked for program development and technical support and \$900,000 has been set aside as an endowment to help fund the ETM Program in perpetuity. In addition, \$50,000 a year for three years will be used to support student fellowships enabling the Division to provide financial support to ETM students.

"We are deeply honored that the Broussard family has chosen this gift as a means to exhibit their commitment to the quality of education provided here. Mines constantly strives to tailor its programs to be meaningful for the student and relevant to the marketplace," said John U. Trefny, CSM president.

Publications, travel highlight busy year for EB faculty

Rod Eggert served as a member of the U.S. delegation to the Eighth General Session of the International Copper Study Group, June 13-16, 2000, in Lisbon, Portugal.

John Tilton was named 2000-2001 N.M. Rothschild Visiting Professor at the Curtin University of Technology and the Western Australian School of Mines. During 2000, he was also a member of the Committee on Technologies for the Mining Industries, which produced a study of promising new technologies in exploration, mining, and mineral processing for the U.S. National Research Council.

Wade Martin evaluated environmental policy in a World Bank project for 13 countries in North Africa, Middle East, Central and Southern Europe. He is also working on a multidisciplinary effort with the USDA Forest Service to revise the method for including public input into the national strategic planning process. In conjunction with Dr. Steven Piper (PhD, 1996), Professor Martin is also working on an optimal management model for the Rio Grande Basin in northern New Mexico.

Anas Alhajji has been hard at work discussing oil and gas prices movements. He spoke at the Foothills International Forum on *The International Politics Of Oil* last Nov. 21. In addition, Professor Alhajji gave a lecture to CSM senior alumni on Feb. 8, titled, *Gas 'Oil' ine Prices and Government Regulations: Is there a Link?*

Carol Dahl was a visiting scholar to the Department of Economics, University of New South Wales, Kensington, New South Wales, Australia, June 10-15. She also presented with Zauresh Atakhanova (current PhD student) on *Managing*

in the Multicultural World of Oil at the Papers and Proceedings of the 21st Annual North American Conference of the United States/International Association for Energy Economics. Professor Dahl has published and has articles forthcoming in *Applied Economics*, *OPEC Review*, *Energy Policy*, and *Macmillan Encyclopedia of Energy*.

Graham Davis' recent publications include, *The Potential for Economic Recovery of Metals from the Sillamäe Site*, in Turning a Problem into a Resource: Remediation and Waste Management at the Sillamäe Site, Estonia. *Valuing Mineral Stocks and Depletion in Green National Income Accounts*, co-authored with David Moore, (Ph.D. 1998) in Environment and Development Economics. In addition, Professor Davis is collaborating with the Division's Institute on Global Resources Policy on topics related to sustainable development and mineral investment.

Michael Walls was instrumental in developing and gaining approval of the new M.S. Program in Engineering and Technology Management. Professor Walls will continue in this role as Chair of the ETM Program Committee. He is also working on a number of research projects in corporate risk management and business strategy. Professor Walls offered his three-day executive seminar on petroleum risk management to industry personnel in London, Calgary, Melbourne, Jakarta, Rio de Janeiro, and Houston.

Janis Carey published several articles this past year, including *Price Caps and Investment: Long-run Effects in the Electric Generation Industry*, co-authored with Jeffrey Grobman (PhD, 2000), "Energy Policy," *The Effects of Transaction Costs on Market Trading Behavior:*

Theory and Application to California Water Markets, co-authored with David Sunding, and David Zilberman, "Journal of Environmental and Development Economics," and *Emerging Markets in Water: A Comparative Institutional Analysis of the Central Valley and Colorado-Big Thompson Projects*, co-authored with David Sunding, "Natural Resources Journal."

Frank and John Stermole were busy this past year providing continuing education in the area of engineering economics. John presented courses focused on exploration economics for BHP in Chile; Canada; and Australia. John has also presented other short courses for companies such as AngloGold Corp., Chevron, and Delta Airlines. Frank Stermole taught a number of courses for Texaco in Kuwait, New Orleans, LA, and Bakersfield, CA. The Stermole's also released a new edition of their popular textbook, *Economic Evaluation and Investment Decision Methods*. This book is now in its 10th edition and includes the Solutions Manual, Self-Teaching Manual, and later this spring, a CD with examples solved in Excel. The Stermole's are hoping to have an online version of their course later this year.

Cheryl Hoepfner joined our staff last year as the Division's new administrative assistant. **Linda Tomitsch**, the Division's administrative assistant for the last 10 years retired at the end of last year.

Steve Fullam holds the position of interim division administrator and takes an active role in the day to day administrative management of the Division. Steve also provides placement support, website management, alumni support, undergraduate and graduate student assistance, and a wide variety of other support roles.

Operations Research graduates earn international honor

With the addition of Alexandra Newman to the faculty, the OR specialization has its third faculty member to complement the skills of Professors Gene Woolsey and Shekhar Jayanthi. In addition, students enrolled in the new Engineering and Technology Management Master's Program can take advantage of this expertise through the Quantitative Decision Methods/Operations Research Specialization.

The Division is proud of some of its recent graduates in the OR specialization. William Tarentino, a PhD graduate, and Dr. Elena Katock won the international level Edelman Prize

for Excellence in Operations Research Practice. This is one of the most prestigious prizes in the prac-



Students and faculty work together on projects in the new facilities at the Engineering Hall Annex.

tice of operations research. Also, a group of Division graduates have

been named finalists for this year's Edelman prize competition. They are: James Knowles, Greg Hoscheit, Mark Young and Rick Ayer. They modeled the Army recruiting process so well that Recruitment Command made quota for the first time in years, and generated substantial savings to taxpayers.

Many other OR students either completed or are working on projects with area firms, including the Colorado Public Utilities Commission, Christy Sports, the Clear Creek County Economic Development Commission, JATO Communications, Sun Microsystems, Coors Brewing, U.S. Army, Level 3 Communications, and Federal Express.

Institute for Global Resources Policy concentrates in 4 areas

In 2000, the Institute for Global Resources Policy Management, which focuses on natural resources public policy within a national and international context, concentrated its efforts in four programs: Global Mining Taxation; Natural Resources & the Community; Natural Resources Policy, Legal and Economic Systems; and Mining and the Environment.

In December, IGRPM Director John Cordes retired. Professor Emeritus Cordes will continue his association with IGRPM by collaborating on selected research

projects through the Institute.

Jim Otto, who has been with the Institute since 1996, has been appointed the new IGRPM director.

The Institute completed several projects this year. In conjunction with Maria Luisa Beraun (MS 1999), Otto and Cordes published the second edition of *Global Mining Taxation Comparative Study* which has been distributed worldwide through the United Nations. Working with the Metal Mining Agency of Japan, the United Nations Environmental Program, and a team of authors including a number of EB

faculty, IGRPM released *Sustainable Development and the Future of Mineral Investment*.

The IGRPM was active this past year on the conference and workshop circuit. Otto presented work at the Prospectors and Developers Association of Canada Mining Millennium conference in Toronto and held a one-day workshop on mining investment and risk analysis for the Canadian Institute of Mining and Metallurgy. Cordes and Otto also presented papers at the first World Mine Ministers Meeting organized by the World Bank.

EB faculty books to cover real options, mining and minerals

A number of the EB faculty are working on books in a variety of topic areas.

Graham Davis is co-authoring a book with Diane Lander of Babson College, *A Practitioner's Guide to Understanding and Valuing Real Options*.

The book's goal is to simplify real options to make them accessible to all readers, at least at an introductory

level. It is written for an audience with no background in financial theory and no previous exposure to options pricing.

While on sabbatical, **Rod Eggert** is writing a book on *Mining and Economics Sustainability*. The manuscript looks at two primary questions: (1) What are the economic benefits of mining to local communities, to regions, and to na-

tions; and (2) How can these benefits be managed so that economic well-being is sustained even after a mine is depleted or exhausted?

John Tilton is working on *Long-Run Availability of Mineral Resources*. The availability of non-renewable mineral resources is a long-standing concern. John reviews 30 years of work in this area and studies the implications for mineral policy.

IFP graduates five students in December

The Joint Degree Program in Petroleum Economics and Management with the Institut Français du Pétrole in Paris continues to grow. The program graduated five students in December 2000 and has one scheduled to finish in May 2001.

With oil prices on the rise, enrollments are increasing substantially. September 2000 brought 12 new students into the program. New countries that are represented include India, Algeria, Morocco, and Nigeria.

The 24th IAEE International Conference in Houston, Texas, April 25-27, 2001 is a great place to network and meet other alumni of the Division and the IFP Program.

For information on how to recruit Division undergraduate and graduate students for your company, including:

- Ordering the EB resume guide,
- Reserving a booth at the career fair, and
- Arranging interviews on campus,

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New Division faculty join EB staff

Alexandra Newman joined the Division as an assistant professor last August. Prior to her arrival at the School of Mines, she served as a research assistant professor in the Operations Research Department at the Naval Postgraduate School, Monterey, California.

Professor Newman received her BS in applied mathematics from the University of Chicago, an MS in operations research, and a PhD in industrial engineering and operations research from the University

of California, Berkeley. Her primary research interests lie in the application of optimization to logistics problems.



Alexandra Newman

She teaches graduate courses in linear programming and network flows, and plans to add a new course in computational optimization next year. Professor Newman has also been involved in the development of the division's new M.S. Program in Engineering and Technology Management.

Luis Sosa joined the faculty in the fall of 2000 as an assistant professor of economics. Professor Sosa holds a BA and MS in economics from the Universidad de Carabobo in Venezuela, an MS and a PhD in economics from the University of North Carolina at Chapel Hill.

Professor Sosa has served as a professor in the Department of Economics at the Universidad de Carabobo and at Central Technological University in Venezuela. In both institutions he taught macroeconomics, finance, and mathematics courses. He has also taught macroeconomics, economic statistics, and the graduate course of mathematical economics at the University of North Caro-

lina at Chapel Hill. Dr. Sosa has received several teaching awards and recognitions.



Luis Sosa

Professor Sosa is convinced that both teaching and learning are enjoyable activities. Through questioning and answering, his teaching style encourages students to participate in discussions during the lectures. He sees himself as a "seller of knowledge" and thinks of his students as "customers" who deserve maximum satisfaction.

Professor Sosa's research interests focus on the macroeconomic effects of corruption, the links between corruption and production of natural/mineral resources, and developing economies. He is also interested in the study of the economics of sub-national governments.

Irina Khindanova joined the Division of Economics and Business for the fall semester after earning her PhD in economics at the University of California, Santa Barbara, in August 2000.

An assistant professor, Khindanova teaches principles of finance, investments and portfolio management, financial risk management, and financial derivatives. She also serves on the Division's Graduate Studies Committee.

Her areas of research interest include financial economics and engineering, and risk management.

She earned an MA in economics from the University of California, Santa Barbara in August 1996 and an MA in development economics from Williams College in June 1995.

She has received a BS in applied mathematics from Irkutsk State University in Russia.

Prior to joining the Division, Khindanova was a teaching assistant at UC Santa Barbara, and also worked at the Sanwa Bank Limited.

While living in Russia, she served as director of information, director of sector and an engineer-mathematician for various companies.



Irina Khindanova

**Coming Soon! New and Updated Version of the
Division's Web Site: www.econbus.mines.edu**