

Appendix II

Faculty Curriculum Vitae

Sumit Agarwal

Sumit Agarwal completed his Chemical Engineering degrees as follows: B.S. at the Indian Institute of Technology (Varanasi) in 1996; M.S. at the University of New Mexico in 1998; Ph.D. at the University of California – Santa Barbara in 2003 and post-doctoral study at the University of Massachusetts – Amherst (2003-2005).

Sumit joined Mines as an Assistant Professor in 2005. He was promoted to Associate Professor in 2011, and to Professor in 2018. His current research is focused on synthesis and characterization of solar and electronic materials. Sumit was a visiting faculty in Applied Physics at Eindhoven University of Technology, the Netherlands, in 2011 and 2013.

Sumit received the NSF CAREER Award in 2009, and the Paul Holloway Young Investigator Award from the American Vacuum Society in 2011.

To learn about the department culture in which Sumit started at Mines, please see “The Ely Years” chapter.

Robert M. Baldwin

Bob Baldwin obtained his B.S. (1969) and M.S. (1972) in Chemical Engineering from Iowa State University, before coming to Mines to complete his Ph.D. (1975). Bob was such an outstanding scholar that he was named a Mines Instructor in 1975, while completing his doctorate and he was named an Assistant Professor in 1976. He then spent one year in 1978-1979, in the U.S. Department of Energy Fossil Energy Program, before returning to Mines. He was promoted to Associate Professor in 1980, and Full Professor in 1985.

Bob was named Chemical and Petroleum Refining Department Head in 1990, where he served until 2000. Bob led the department to many advances during the last decade of the millennium, including such things as doubling the number of faculty and students, doubling the research volume of the department, and doubling the size of the building. He was named Emeritus Professor of Chemical Engineering in 2004 following his retirement from Mines. For details the reader is referred to the chapter, “The Baldwin Years (1990-2000).”

Bob was the Program Director and academic founder of the Petroleum Institute in Abu Dhabi where he worked from 2002 until 2007. In 2008, Bob returned to Golden with the National Renewable Energy laboratory, where he currently serves as Principal Scientist in the National Bioenergy Center.

To learn about the department culture in which Bob started at Mines, please see “The Dickson Years” chapter.

J.O. Ball

James Ogden Ball was the first Department Head, and his remarkable history is told in detail in Chapter 1 of this book. He obtained a B.S. in Civil Engineering from the University of Colorado in 1920, and went to work in what became the Standard Oil of Indiana refinery in Casper, Wyoming. He became plant engineer and studied petroleum refining on the job and at night. During the depression in 1938 he came to Mines, as one of two professors in the Petroleum Engineering department. J.O. obtained a M.S. in Chemical Engineering from the University of Colorado at night and in his spare time, while teaching a full load of courses.

Upon his M.S. graduation in 1944, the Mines Board of Trustees and President Coolbaugh created the new department of Petroleum Refining Engineering, and promoted J.O. Ball to Full Professor and head of the new department. Among many other startup accomplishments J.O. is responsible for the design and construction of Alderson Hall (1953) and the Unit Operations building (1954), the accreditation of the Department by AIChE, the organization of Mines 75th anniversary celebration, and the selection of his successor, James Gary.

For a more complete description, please see Chapter 1, The Ball Years.

Michael Barakin

Michael David Mau Barankin, obtained his B.S. (2002) and his Ph.D. (2010), in Chemical Engineering from the University of California, Los Angeles, interspersed with his M.S. (Cum Laude, 2004) in Chemical Engineering from the Technical University of Delft. He returned to Delft for postdoctoral research (2009-2011).

In 2016, Micha was hired as an Assistant Teaching Professor at Mines. He proposed and will chair the 2021 ASEE National Summer School for Chemical Engineering Teachers (Faculty) on the Mines campus held every five to ten years since 1931.

To learn about the department culture in which Micha started at Mines, please see “The Marr Years” chapter.

Nanette R. Boyle

Nanette R. Boyle obtained her B.S.E. (2004) from Arizona State University and her Ph.D. (2009) from Purdue University, both in Chemical Engineering. She spent 2007-2008 as a visiting researcher in biotechnology at the Technical University at Delft in The Netherlands. She did postdoctoral research in Chemistry and Biochemistry (2009-2011) at the University of California, Los Angeles, and a second postdoctoral fellowship (2011-2013) in Chemical and Biological Engineering at the University of Colorado.

Nanette accepted an Assistant Professorship in 2013 at Mines, and had the W.K. Coors Developmental Chair from 2013-2015. She was awarded the National Institute of Health Ruth L. Kirschstein National Research Service Award in 2013. In 2018, Nanette was awarded the prestigious U.S. Department of Energy’s Early Career Research Award to develop predictive metabolic models for diurnal growth in algae. She also serves as the faculty advisor for the international Genetically Engineered Machine (iGEM) team.

To learn about the department culture in which Nanette started at Mines, please see “The Marr Years” chapter.

Paul F. Bryan

Paul Bryan received his B.S. (Summa Cum Laude) from Pennsylvania State University in 1980, before receiving his Ph.D. from the University of California at Berkeley (1985), and doing postdoctoral study (1985-1986) at Ecole des Mines in Paris.

In 1986, Paul accepted an Assistant Professor position in the Chemical and Petroleum Refining Engineering department at the Colorado School of Mines. He taught in the department until 1989, when he accepted a position with Chevron in Richmond, CA. He has since held a number of different positions and he currently serves as the Senior Scientist and Biomass Program Manager at Sandia National Labs in Livermore CA.

To learn about the department culture in which Paul started at Mines, please see "The Kidney Years" chapter.

Annette L. Bunge

Annette L. Bunge obtained her B.S. (summa cum laude) in 1976 from the State University of New York at Buffalo, and her Ph.D. (1982) from the University of California at Berkeley working in the area of enhanced oil recovery.

In 1981 Annette became the first woman faculty member in the department, achieving promotion to Associate Professor in 1985 and Full Professor in 1991. She was the first female Assistant Professor at the school to achieve the rank of Professor.

She taught graduate and undergraduate courses in transport, and for many years, the graduate applied math course. In research Dr. Bunge adapted to changing funding sources by moving from her doctoral work on enhanced oil recovery to remediation of chemically contaminated soils, then to membrane methods for wastewater cleanup, and finally to absorption of chemicals in human skin, which has been her primary focus since 1990.

In 1987 Annette became the Director of Mines Center for Waste Management, and served as the Director of the Mines Center for Environmental Risk Assessment (2008-2012) after becoming Professor Emerita in 2005. From 2010 until the present Annette continues to serve as Research Professor with a continuing her research on very active program in human skin research, collaborating in collaboration with scientists at several universities.

Annette has won a number of awards, including the 2010 Mines Faculty Senate Distinguished Lecturer Award and the 2011 George R. Brown Mines Board of Trustees Medal for distinguished service to the field of engineering education.

To learn about the department culture in which Annette started at Mines, please see "The Dickson Years" chapter.

Moises A. Carreon

Moises Carreon, obtained his B.S. (1997) in Chemical Engineering and his M.S. (1999) in Materials Science Engineering from the Universidad Michoacana de San Nicolás de Hidalgo (U.M.S.N.H.) in Mexico. He obtained a Ph.D. (2003) in Chemical and Materials Engineering from the University of Cincinnati.

In 2003, Moises returned as an Assistant Professor of Materials Science at U.M.S.N.H. and in 2003-2004 he did postdoctoral research in Chemistry at the University of Toronto. He was a Research Associate in Chemical and Biological Engineering at the University of Colorado in 2006-2007, before accepting an Assistant Professorship (2007) of Chemical Engineering at the University of Louisville and advancing to Associate Professor in 2013.

In 2014, Moises began his career at Mines as an Associate Professor of Chemical and Biological Engineering. In 2011, Moises won the prestigious National Science Foundation CAREER Award, and he was given the AIChE Separations Division Kunesh Award in 2013. Also, in 2013 Moises was given the Presidential Early Career Award for Scientists and Engineers, and in 2018 Moises was named an Early Career Scholar in Materials Science by the Journal of Materials Research.

To learn about the department culture in which Moises started at Mines, please see “The Marr Years” chapter.

Kevin J. Cash

Kevin Cash obtained his B.S. in Chemical Engineering in 2003 from Northeastern University, and his Ph.D. in 2009 from the University of California, Santa Barbara. From 2009 until 2014 Kevin did postdoctoral research in the H. Clark Laboratory at Northeastern University in Boston, and at the C.S. Draper Laboratory in Cambridge, Massachusetts.

Kevin joined Mines in 2014 as an Assistant Professor of Chemical and Biological Engineering. In 2015, he was named the National Academics Education Fellow in the Life Sciences. Kevin has been active in AIChE service both in Boston and in Colorado. He currently serves as Advisor to the Mines Student AIChE Chapter.

To learn about the department culture in which Kevin started at Mines, please see “The Marr Years” chapter.

Anuj Chauhan

Anuj Chauhan joined the Colorado School of Mines as the Chemical and Biological Engineering Department Head in August, 2018. Prior to that he was a faculty member in the Chemical Engineering Department at the University of Florida from 2001-2018. Born and raised in Jaipur, India, Anuj obtained his undergraduate degree in Chemical Engineering from the Indian Institute of Technology in Delhi. He moved to the United States in 1993 to pursue doctoral studies at the Levich Institute for Hydrodynamics at the City College of New York where he did research on hydrodynamic stability of liquid compound jets under the guidance of Charles Maldarelli and David Rumschitzki.

After finishing his Ph.D. in 1998, Anuj went to the University of California at Berkeley for postdoctoral research with Clay Radke on the movement and deformation of contact lenses in eyes due to the blink-interblink cycle. Anuj joined the University of Florida as an Assistant Professor in the Chemical Engineering Department 2001. He achieved the rank of Professor in 2011 and served as Associate Department Head from 2013 to 2018. He had the honor of serving as the first Dinesh O. Shah Distinguished Faculty Fellow of Chemical Engineering.

Anuj's research interests center around transport and interfacial phenomena in biological systems. Fascinated by the eyes, he has been pursuing many problems in ophthalmology including developing novel contact lenses for improved comfort and also using contacts for delivering drugs to treat many ocular diseases including glaucoma, Cystinosis, dry eyes, infections, allergies, macular degeneration and diabetic retinopathy. Other problems of interest include modeling ocular physiology, developing preservative free multi-dose eye-drops, and understanding tear film drainage and breakage. His work on ophthalmic drug delivery via contact lenses was named one of the Medical Breakthroughs of the Year by Readers Digest in 2004 and received media coverage in many countries. His research goals include translating his research to commercialization, hoping to make a significant positive impact on the patients' lives. To learn more about the department culture that Anuj headed, please see the final book chapter.

Anthony M. Dean

Tony Dean attended Georgia Institute of Technology briefly before obtaining his B.S. in Chemistry (Summa Cum Laude) from Spring Hill College in 1966. He obtained his A.M. (1967) and Ph.D. (1971) from Harvard University in Physical Chemistry.

Tony joined the Department of Chemistry at University of Missouri-Columbia as an Assistant Professor (1970), becoming Associate Professor in 1975, and then Associate Chairman of the Department of Chemistry in 1977. He joined the Corporate Research Laboratory of Exxon Research and Engineering in 1979, rising to Senior Research Associate (1990-2000) doing research in kinetic mechanisms of engine fuel reactivity. Tony has 13 patents in the area of fuel combustion.

In 2000, Tony accepted the inaugural William K. Coors Distinguished Professorship at Mines. He held that Chaired Professorship until 2012, when he was named Dean of the College of Applied Science and Engineering (2013-2014). Tony was named Senior Vice President of Research and Technology Transfer in 2015, and held that position until his retirement in 2017.

Tony's unusual ability is bespoken by his rapid advancement in Mines' administration. He was given the Dean's Excellence Award at Mines in 2008, for meritorious achievements in Teaching and Scholarship

To learn about the department culture in which Tony started at Mines, please see "The Baldwin Years" chapter.

Phillip F. Dickson

Phil obtained his B.S. with honors in 1957 from the South Dakota School of Mines and Technology, before completing his Ph.D. (1962) at the University of Minnesota, all in Chemical Engineering. He then worked for Exxon Chemical in Baytown, Texas, before departing due to one of his daughter's severe allergies.

Phil accepted an Assistant Professorship in 1963 at Mines in the Chemical and Petroleum Refining Engineering Department. He progressed rapidly through the ranks to Associate Professor (1965) and Full Professor (1969).

Phil was very interested in research, and in the Minnesota tradition, he taught principally transport phenomena. Phil was an outstanding teacher and won the departmental teaching award twice. During this time, he advised the M.S., and Ph.D. degrees for a number of students, including one of the authors (CV) of this book.

In 1972, when Jim Gary was appointed Vice President of Academic Affairs and Dean of the Faculty by President Guy T. McBride, Phil was named the Department Head. Phil continued the Gary tradition of emphasizing research by hiring several research-active faculty members, including Dr. Annette Bunge, the first woman in the department.

The departmental faculty were uniform in their admiration of Phil, and the way he encouraged their research activities, while insisting on excellence in the classroom. A chapter in this book deals with the Dickson years (1972- 1983). The entire school was unpleasantly surprised by Phil Dickson's untimely demise due to cancer in 1983.

To learn about the department culture in which Phil started at Mines, please see "The Gary Years" chapter.

Thomas C. Doody

Thomas Doody obtained his B.S., M.S., and Ph.D. all in Chemical Engineering from the University of California. He taught in the Petroleum Refining Engineering Department from 1957 to 1958 as an Associate Professor.

To learn about the department culture in which Thomas started at Mines, please see “The Ball Years” chapter.

John R. Dorgan

John Dorgan obtained his B.S. from the University of Massachusetts Summa Cum Laude in 1986., before obtaining his Ph.D. from the University of California at Berkeley in 1991, both in Chemical Engineering. He then did postdoctoral research at the Max-Planck Institut für Polymerforschung, in Mainz, Germany in 1992.

In 1993 John was appointed as an Assistant Professor in the Chemical and Petroleum Refining Engineering Department, rising to Associate Professor (1996), and then Full Professor (2005).

During John’s Mines career he did research in polymers and he helped launch the Colorado Center for Biorefining and Biofuels (C2B2), which included the principal four Colorado Research Institutions: Mines, Colorado University, Colorado State University, and the National Renewable Energy Laboratory (NREL).

John was given the National Science Foundation CAREER Award (1995) and the Dow Outstanding Young Faculty Award (1996). He also served as the Elected Faculty Trustee to the Mines Board of Trustees (2008). After 24 years, in 2017, John retired from Mines to take the inaugural Lamp Endowed Chair in Chemical Engineering at Michigan State University.

To learn about the department culture in which John started at Mines, please see “The Baldwin Years” chapter.

James F. Ely

Jim Ely graduated with a B.S. from Butler University in 1968, before obtaining his Ph.D. at Indiana University in 1971. He did four years of postdoctoral research divided evenly between the National Bureau of Standards (NBS) in Boulder, Colorado, and Professor Kobayashi's laboratory at Rice University. From 1975 to 1979 Jim worked with the Shell Development Company, where he developed fluid property prediction methods.

In 1979, Jim returned to Boulder to a full-time position at the National Institute of Standards and Technology (NIST, formerly NBS). He became the Group Leader of the Theory and Data Group (1988-1991), and from 1990-1991 he was the Associate Director of the NIST Chemical Science and Technology Laboratory.

While at NIST Jim accepted an Adjunct Professorship at Mines in 1981. In 1991 after a dozen years at NIST, Jim accepted a full-time position as Professor of Chemical and Petroleum Refining Engineering at Mines. In 2000, when Bob Baldwin departed to inaugurate the Petroleum Institute in Abu Dhabi, Jim was named Head of the Chemical and Petroleum Refining Engineering Department. From 2007-2016 he was the Director of the Bioengineering and Life Sciences (BELS) program at Mines.

Jim has won multiple awards in academia, including the Mines Alumni Association Outstanding Teaching Award (2002), and in industry, including the U.S. Dept. of Commerce Silver Medal for Meritorious Federal service, and the NBS sustained superior performance award, 1983, 1985-1990. In 2009, Jim was given the Donald L. Katz Award for research by the Gas Processors Association.

To learn about the department culture in which Jim began full time employment at Mines, please see "The Baldwin Years" chapter.

Professor Erickson

Professor Erickson taught briefly during the Ball years in the department, and his photograph is in that chapter. Unfortunately, no further information is available.

Nikki Farnsworth

Nikki Farnsworth received her B.S. (Cum Laude) in Chemical Engineering from Rensselaer Polytechnic Institute in 2007. She received her M.S. and Ph.D. in bioengineering from the University of Colorado Boulder in Chemical and Biological Engineering in 2009 and 2012 respectively. From 2012-2018, Nikki did postdoctoral work at the University of Colorado Anschutz Medical Campus and became a Research Instructor in the Barbara Davis Center for Diabetes. She joined the CBE faculty in the fall of 2019.

Jason C. Ganley

Jason Ganley obtained his B.S. (1998) at the University of Missouri at Rolla, and his M.S. (2001), and Ph.D. (2004) from the University of Illinois at Urbana-Champaign, all in Chemical Engineering. He then took a teaching position at Howard University, where he rose from Assistant Professor (2004) to Associate Professor (2008-2011). He then taught at Tuskegee University (2011) before accepting a Teaching Associate Professorship (2012) at Mines. Since 2015 Jason has served as an Assistant Department Head of the Chemical and Biological Engineering Department (CBEN) at Mines. Jason was promoted to Full Teaching Professor in 2018.

Jason has rapidly assumed a natural departmental leadership role at Mines. For example, in 2018 he led CBEN to obtain the six-year (maximum) American Board of Engineering and Technology (ABET) accreditation. In addition, he organizes the principal, unique activity in a Mines undergraduate CBEN degree – namely the six weeks summer laboratory between the Junior and Senior years. While his brief review of this unique laboratory is in “the Gary Years” chapter a comprehensive description of the laboratory and its impact is in Appendix III.

To learn about the department culture in which Jason started at Mines, please see “The Marr Years” chapter.

Tracy Q. Gardner

Tracy Gardner obtained a dual major undergraduate B.S. in Mathematical and Computer Sciences, and in Chemical and Petroleum Refining Engineering in 1996, and then obtained an M.S. (1998) in Chemical and Petroleum Refining Engineering Department, all from Mines. She obtained her Chemical Engineering Ph.D. in 2002 from the University of Colorado, and did postdoctoral work (2002-2004) at the Technical University of Delft in the Netherlands. She began teaching at Mines in 2004, and served as an Assistant Department Head from 2010-2015. Tracy was promoted to Teaching Professor in 2018.

Tracy has taught 19 different courses at Mines including nearly all of the Chemical Engineering core courses. She has won several teaching awards, including the Board of Trustees Outstanding Faculty Award (2019), the Outstanding Faculty Member in Chemical Engineering (4 times), and the Best Lecturer of the Year at TU Delft during her postdoctoral stint. She also received the Alfred E. Jenni Faculty Fellowship in 2018 and used the award to help move Mines toward online exams even for face-to-face classes. Her research currently focuses primarily on pedagogy and her teaching style consequently involves active learning strategies to motivate and enhance student learning. She has published and presented several times on these topics in recent years.

Tracy has been an active leader on campus working toward enhancing the student experience at Mines. She served on the school’s Mental Health and Suicide Prevention task force. She helped start the Student Ambassador Program in CBE serving to connect students with faculty, students from all class levels with each other, and students in need with activities and resources to help them succeed and thrive.

To learn about the department culture in which Tracy started at Mines, please see “The Ely Years” chapter.

James H. Gary

James Gary received his B.S. in Chemical Engineering from Virginia Polytechnic Institute just before World War II, and returned to VPI for his M.S. after the war. He began his Ph.D. in Chemical Engineering at Case Western Reserve while working for Standard Oil of Ohio, but due to a temporary closure of that department, he completed his Ph.D. at the University of Florida in 1950.

Jim returned to work for Standard Oil of Ohio and then taught at the University of Virginia (1952-1956) and the University of Alabama (1956-1960) before becoming the second Mines Petroleum Refining Department Head in 1960. In 1972, Jim Gary became the Mines Vice President for Academic Affairs and Dean of the Faculty (currently the Provost position). Jim returned to the department in 1979 and taught there until his retirement in 1986. Jim Gary heroically brought the CBE department to steady-state in terms of teaching and research. To read more about his outstanding efforts, please see the second chapter.

Hugo H. Geissler

Hugo Geissler obtained his B.S. in Chemical Engineering at the Illinois Institute of Technology, Chicago, and taught in the Petroleum Refining Engineering Department from 1944 to 1952 during the department startup years.

To see Hugo's photograph and to learn about the department culture in which Hugo started at Mines, please see "The Ball Years" chapter.

John Golden

John O. Golden, obtained his B.S. (1959) and his M.S. (1960) in Chemical Engineering at Vanderbilt University, before finishing his Ph.D. (1964) at Iowa State University. From 1964-1967, John worked as an engineer for Lockheed Missiles and Space Company in Huntsville, Alabama.

In 1967, John took an Assistant Professorship in Chemical and Petroleum Refining Engineering at Mines, and he advanced to Associate Professor, then Full Professor in 1975. John became Mines Director of Research Development in 1975, when his former Iowa State classmate Frank Stermole returned from that position to Mineral Economics.

From 1970 until 1983, John was the Dean of Graduate Studies and Research at Mines. In 1983 John was named Vice President for Academic Affairs (VPAA) and Dean of Faculty, currently called Provost. John smoothed the transition after President Guy McBride's retirement in 1984, serving six years into George Ansell's Presidency.

John returned to the Chemical and Petroleum Refining Engineering Department in 1990, and retired in 1998, at which time he was granted Emeritus Status. In 2001, John was named Chief Academic Officer at the Petroleum Institute (PI) in Abu Dhabi, United Arab Emirates. For an overview of the Mines-PI years, see the section under the Baldwin Years chapter. John and his wife Lynne are particularly proud of their role in admitting women to the PI in 2005. John and Lynne returned to Golden, Colorado after John's retirement from the PI in 2013.

To learn about the department culture in which John started at Mines, please see "The Gary Years" chapter.

Diego A. Gómez-Gualdrón

Diego Gómez-Gualdrón obtained his B.S. (2006) in Chemical Engineering at the Universidad Industrial de Santander (UIS) in Colombia. He obtained his Ph.D. (2012) in Materials Science and Engineering from Texas A&M University. As a Ph.D. Student, he was awarded the Silver Graduate Student Award by the Materials Research Society (MRS) for his research modeling the growth of carbon nanotubes on supported catalysts.

From 2013 until 2016, Diego worked as a postdoctoral researcher in the Chemical and Biological Department at Northwestern University. In 2014, he received the Outstanding Researcher Award from the International Institute of Nanotechnology (IIN) at Northwestern for his research modeling gas storage in metal-organic frameworks.

In 2016, Diego came to Mines as an Assistant Professor of Chemical and Biological Engineering. During his time at Mines, his research has focused on the use of molecular simulation and machine learning to accelerate the discovery of advanced crystals for energy-related applications. In 2019, Diego was given the prestigious CAREER award by the National Science Foundation (NSF)."

To learn about the department culture in which Diego started at Mines, please see "The Marr Years" chapter.

Michael S. Graboski

Michael Graboski received his B.S. (1967) from Rutgers University, and his M.S. (1970), and Ph.D. (1977) from Pennsylvania State University, all in Chemical Engineering. In 1967 Mike was a plant engineer for Humble Oil and Refining. Mike came to Mines in 1977 as an Assistant Professor, and was promoted to Associate professor in 1981.

While at Mines, Mike taught courses in kinetics and thermodynamics, and did research in fuels. In 1984, Mike became Vice-President and Director of Research for Syngas Systems, and he became the Director of the Colorado Institute for Fuels and High-Altitude Engine Research beginning in 1990. Mike retired from Mines as Professor Emeritus in 2000.

To learn about the department culture in which Mike started at Mines, please see "The Dickson Years" chapter.

Andrew M. Herring

Andrew Herring obtained his B.Sc. (honors) in 1985 and his Ph.D. (1988) in Chemistry from the University of Leeds, UK. From 1988-1990 Andy was a NATO/SERC Postdoctoral Fellow.

In 2000, Andy was appointed as an Assistant Research Professor in Chemical and Petroleum Refining Engineering, then Associate Research Professor in 2004, before being promoted to Associate Professor in 2006, and Professor in 2015.

Andy has four patents and a number of research awards: American Chemical Society (ACS) Fuel Division Glenn Award (2006); the 3M Non-Tenured Faculty Award, 2007, 2008, 2009; the Colorado School of Mines Excellence in Research Award, 2011; and the ACS Energy and Fuel Division Distinguished Service Award, 2015. Andy was named a Fellow of the American Chemical Society in 2016. In 2018, Andy was given the Henry H. Storch Award from the American Chemical Society.

To learn about the department culture in which Andy started at Mines, please see "The Ely Years" chapter.

Anthony L. Hines

Anthony Hines obtained his B.S. (1967) from University of Oklahoma in Chemical Engineering, and worked two years for Warren Petroleum (1967-1969) before obtaining his M.S., from Oklahoma State University (1972) in Chemical Engineering. He then obtained his Ph.D. (1973) from the University of Texas at Austin, in Mechanical Engineering.

Tony began teaching at the Georgia Institute of Technology from 1973-1975. He came to Mines in 1975 as an Assistant Professor in the Department of Chemical and Petroleum Refining Engineering, progressing to Associate Professor in 1977. Tony taught courses in heat, mass, and fluids transfer.

In 1980, Tony accepted the position as Professor and Head of the Department of Chemical Engineering at the University of Wyoming. In 1983 he became Associate Dean of Engineering at Oklahoma State University. From 1987 until 1992 Tony held the Ketcham Chair of Chemical Engineering and was Dean of the College of Engineering at the University of Missouri-Columbia. He held a number of industrial positions before becoming Dean of Engineering at the University of Iowa from 1999 until 2000, when he left to become Senior Vice President of Operations of Walter Industries. Tony retired to become a futures trader and author of mass transfer texts in 2004.

Tony is a Fellow of the American Institute of Chemical Engineers. He holds one patent, has 93 refereed publications, has co-authored two books, and has advised 34 M.S. and Ph.D. Students.

To learn about the department culture in which Tony started at Mines, please see "The Dickson Years" chapter.

A.S. Houghton

Professor Houghton obtained a B.A. in Chemistry from Princeton, a B.S. in Chemical Engineering from the Massachusetts Institute of Technology, and a Ph.D. in Chemical Engineering from the University of Colorado, Boulder. He taught Petroleum Refining Engineering at Mines from 1962-1966.

To see his photograph and to learn about the department culture in which Professor Houghton started at Mines, please see “The Ball Years” chapter.

John Jechura

John Jechura grew up in Michigan and attended the University of Toledo and the University of Michigan for his B.S.ChE. and M.S.ChE. He has over 37 years industrial experience, primarily in areas of fuels-related technology. His employers ranged from Marathon Oil Company, the National Renewable Energy Laboratory in the biofuels program, and a global engineering/construction firm URS/AECOM supporting both petroleum and biofuels clients.

John began at Mines as an Adjunct Professor in 1999, and began full-time teaching in 2017, as part of the teaching faculty, when he was named the first Professor of Practice in the department.

To learn about the department culture in which John started at Mines, please see “The Baldwin Years” chapter.

Michael C. Jones

Michael Jones obtained his B.S. from the University of London (1955) in Chemical Engineering and went into the British Royal Navy from 1955-1957. Mike then worked as a Process Engineer for Royal Dutch Shell, first in the Netherlands (1957-1960), and then for Shell Development Company in Emeryville, California (1960-1962).

Mike obtained his M.S. in Chemical Engineering (1964) from the University of California, Berkeley, before becoming a Chemical Engineer at the National Bureau of Standards (NBS) in Boulder, Colorado. He returned to Berkeley for his Ph.D. (1970) in Mechanical Engineering, then completed another eight years at NBS Boulder.

In 1978, Mike joined the Mines Chemical and Petroleum Refining Engineering Department as an Associate Professor, where he served until 1984, teaching mainly fluids and heat transfer, and doing research. In 1984, Mike returned again to NBS Boulder (now named the National Institute of Standards and Technology [NIST]), where he became Group Leader (1990) in Transport Processes, then Assistant Director of the Chemical Science and Technology Laboratory, serving in that capacity until his retirement.

To learn about the department culture in which Mike started at Mines, please see “The Dickson Years” chapter.

Arthur J. Kidnay

Art. Kidnay obtained both his B.S. (1956) in Petroleum Refining and his D.Sc. (1968) in Chemical and Petroleum Refining from the Colorado School of Mines, and his M.S. (1965) from the University of Colorado in Chemical Engineering. He served with the Army Corps of Engineers and worked for the Monsanto Corporation in Massachusetts. After returning to Colorado, Art worked at the National Bureau of Standards in Boulder for nine years.

Having earned his D.Sc., Art joined the Chemical and Petroleum Refining Department as an Assistant Professor in 1968. After the untimely death of Phil Dickson, Art served as the Department Head from 1984 to 1990, when he was appointed the Dean of Graduate Studies and Research. He held that post until he retired as an Emeritus Professor of Chemical Engineering in 1998.

Art received the CSM amOCO Foundation Outstanding Teaching Award (1975) and the student departmental Outstanding Teacher Award in 1991. He was elected an AIChE Fellow in 1987, and served as the Colorado Governor's appointee to the State Board of Registration for Professional Engineers and Land Surveyors (1984-1992).

In 2013, Art was presented the Gas Processors Association Donald L. Katz Award. His book, *Fundamentals of Natural Gas Processing*, coauthored with W.R. Parrish and D.W. McCarthy, was published in its third edition in 2019.

After retiring, Art returned to Mines and taught the senior "Natural Gas Processing" course every spring semester as well as an annual, industrial short course on the same topic. Art passed away suddenly on January 6, 2015.

To learn about the department culture in which Art started at Mines, please see "The Dickson Years" chapter.

Hugh King

Hugh King received a B.S. in Mathematics from Iowa State University in 1968. He then spent five years working at the Bell Laboratories in New Jersey. During this time, he earned an M. S. in Mathematics from the Courant Institute at New York University. He obtained an M.D. from the University of Pennsylvania in 1977 and was a practicing physician for 15 years. During this time, he earned a Ph.D. in Applied Mathematics from the University of Colorado at Denver and in 1992 he joined the Mines Mathematical and Computer Science Department.

While at CSM Hugh taught courses in Mathematics, Computer Science, Electrical Engineering, Chemical Engineering and in 2007 he joined the Bioengineering and Life Sciences group in the Chemical and Petroleum Refining Engineering Department.

In his third career, Hugh initiated eleven courses new to CSM and won six major "Excellence-in-Teaching" awards, including the CSM Alumni Association Teaching Award and the Burton Jones Award for Distinguished University Teaching from the Mathematical Association of America. He was the first Senior Lecturer (subsequently titled Full Teaching Professor) at Mines, and retired from the faculty in 2015.

A lifelong believer in the importance of service to humanity, Hugh was the co-founder of Namlo International, a non-profit organization that helps people of very poor countries with community development and to build schools for their children.

To learn about the department culture in which Hugh started in CBE, please see "The Ely Years" chapter.

Carolyn A. Koh

Carolyn Koh obtained her B.S.(Honors) in 1987 in Chemistry and her Ph.D. in 1991 in Physical Chemistry from the University of West London. She then did postdoctoral research in the department of Chemical Engineering at Cornell University from 1991-1993.

Carolyn took a position at Kings College, University of London, as a Lecturer B (Assistant Professor) in 1994 and was promoted to Reader (Associate Professor) in 1998 in the Department of Chemistry.

In 2004, Carolyn came to Mines as an Associate Professor, and in 2012 she was promoted to Professor of Chemical and Biological Engineering. In 2016, Carolyn was named The W.K. Coors Distinguished Chair in the Department.

She served as Co-director (2005) and then Director (2014) of the Center for Hydrate Research. Since 2017, she has been the interim co-Director of the Renewable Energy Materials Research Science and Engineering Center (REMRSEC, CSM) and. She has served as Associate Editor of the Society for Petroleum Engineers Journal, Chair of the U.S. DOE Methane Hydrate Advisory Committee, and served on the U.S. Secretary of Energy Advisory Board, and many more. She was elected Chair of the Gordon Research Conference on Gas Hydrates in 2018 and was the Chair of the International Conference on Gas Hydrates (ICGH9) in 2017.

In 2004 Carolyn was named a Fellow of the Royal Society of Chemistry. She has received several awards, including the Young Scientist Award of the British Association for Crystal Growth, the CSM Young Faculty Research Excellence Award (2012), and Dean's Award (2016). She has over 170 publications. Carolyn served as the Interim Department Head of Chemical and Biological Engineering Department in 2018. More on her career and departmental service is to be found in the Chauhan and Interim Years chapter.

To learn about the department culture in which Carolyn started at Mines, please see "The Ely Years" chapter.

Melissa D. Krebs

Melissa Krebs obtained her B.S. (2002), and her M.S. (2003) in Chemical Engineering from the University of Rochester. She obtained her Ph.D. (2010) in Biomedical Engineering from Case Western Reserve University. She did postdoctoral research at Case Western Reserve University 2010-2012, and was also a postdoctoral visiting scientist at University of Colorado School of Medicine 2011-2012. In 2012, Melissa accepted an Assistant Professorship at Mines.

Melissa was given the Boettcher Foundation Webb-Waring Early Career Investigator Award (2013-2016), and she was a Daniels Fund Faculty Fellow in 2016-2017. Melissa holds three patents and she was given the Colorado School of Mines Inventor of the Year Award in 2017.

To learn about the department culture in which Melissa started at Mines, please see "The Marr Years" chapter.

Stephanie Kwon

Stephanie Kwon obtained a B.S. in Chemical Engineering (Magna Cum Laude) in 2010 from Seoul National University and a Ph.D. (2015) in Chemical Engineering from Northwestern University. Since 2015 she has been working as a postdoctoral fellow at the University of California, Berkeley. She works in kinetic mechanisms, particularly for metals and oxides. She will join the CBE faculty in the spring semester of 2020.

George W. Lemaire

George Lemaire was the first professor in the department, serving under J.O. Ball the first Department Head. He had a B.S. in Chemical Engineering and spent a 20-year career in Petroleum Refining with Exxon in Aruba. George taught in the department from 1944 to 1969, spanning both the Ball and the Gary years. He was very interested in the stock market and served to encourage the economic interest of younger faculty such as Frank Stermole.

To see George's photographs and to learn about the department culture in which George started at Mines, please see "The Ball Years" chapter.

Matthew W. Liberatore

Matthew Liberatore obtained a B.S. (Honors) at University of Illinois at Chicago in 1999, and went on to obtain a M.S. (2001) and a Ph.D. (2003) from the University of Illinois at Urbana-Champaign, all in Chemical Engineering, before doing postdoctoral research at the University of Delaware (2004-2005).

Matt joined the Chemical Engineering Department as an Assistant Professor in 2005 and was promoted to Associate Professor in 2011. Matt did research in rheology and won a number of teaching awards while at Mines. He relocated to the University of Toledo Chemical Engineering Department as an Associate Professor in 2015, and was promoted to Professor in 2017.

To learn about the department culture in which Matt started at Mines, please see "The Ely Years" chapter.

David W.M. Marr

David Marr obtained his B.S. in Chemical Engineering with High Honors from the University of California, Berkeley in 1988, before obtaining his M.S. (1989) and Ph.D. (1993), from Stanford University, all in Chemical Engineering. From 1993-1995 he was a Staff Scientist/Post-Doctoral Fellow with Raychem Corporation.

In 1995, Dave became an Assistant Professor in the Chemical and Petroleum Refining Engineering Department, advancing to Associate Professor (2000), Full Professor (2006), and Department Head in 2010. For more on Dave's leadership in the department see the chapter "The Marr Years (2010-2016)."

Dave has a number of awards for his outstanding performance: Dean's Excellence at Mines (2007), the Outstanding Faculty Member in Chemical Engineering (2004), the Humboldt Research Fellowship from Germany (2005), the NASA Inventions and Contributions Board Space Act Award (2006), and the National Science Foundation CAREER Award, (1998). Dave was the Mines Faculty Senate Distinguished Lecturer in 2014. He has taken sabbaticals in Germany and Thailand. Dave has nine patents in the area of microfluidics and colloids.

To learn about the department culture in which Dave started at Mines, please see "The Baldwin Years" chapter.

C. Mark Maupin

Mark Maupin joined the CBEN department as an Assistant Professor in 2010 after his B.S. and M.S. in Biochemistry at Boise State university and a Ph.D. and postdoctoral study in Physical Chemistry at the University of Utah. Mark did teaching and research in renewable nano-materials for gas storage and photovoltaics from experiment, theory, and computer simulation. Mark left Mines in 2017 to accept an industrial position with Proctor and Gamble.

To learn about the department culture in which Mark started at Mines, please see "The Marr Years" chapter.

Guy T. McBride, Jr.

Guy McBride earned a B.S. in Chemical Engineering from the University of Texas in 1941, and did M.S. and Ph.D. studies at the Massachusetts Institute of Technology, completing the latter under W.K. "Doc" Lewis in 1945.

Guy worked briefly for Chevron Engineering before coming to the Chemical Engineering faculty at Rice University in 1948 and serving as the Rice University Dean of Students from 1957-1958. He then worked for Texas Gulf Sulphur, rising to become Vice President for Research. He was named the 12th Mines President in 1970, where he served until 1984. During his presidency he taught thermodynamics at 8am, which the students named "Breakfast with McBride." Guy McBride was one of the best Mines presidents in recent history, and moved the school into the modern era. He served as Mines President Emeritus until his death in 2011.

To learn about the department culture in which Guy started at Mines, please see "The Gary Years" chapter tribute to President Guy T. McBride.

Clare McCabe

Clare McCabe joined the department as an Assistant Professor in 2002 after her B.S. and Ph.D. in Chemistry at the University of Sheffield in the UK. Her research concerned the use of molecular modeling to understand and the thermodynamic and transport properties of complex fluids, nanomaterials, and biological systems. Clare left the department in 2004, and currently holds the Vanderbilt Chair in Chemical and Biomolecular Engineering at Vanderbilt University.

To learn about the department culture in which Clare started at Mines, please see “The Ely Years” chapter.

J. Thomas McKinnon, Jr.

Thomas McKinnon, Jr. obtained a B.S. (honors) in Chemical Engineering in 1979 from Cornell University, and worked for the Solar Energy Research Institute (later renamed the National Renewable Energy Laboratory (NREL)) from 1979 to 1982. He obtained his Ph.D. in Chemical Engineering from the Massachusetts Institute of Technology (MIT) in 1989. Tom was a senior engineer for TDA Research, Inc. in Wheat Ridge, Colorado, before becoming a Research Associate in Combustion Research at the University of Colorado Boulder in 1990.

In 1991 Tom was first appointed Adjunct Professor, then Assistant Professor of Mines Chemical and Petroleum Refining Engineering. He was promoted to Associate Professor in 1996, and then Professor in 2001. While he was at Mines Tom did research in combustion and software development, and he served as founder or co-founder of several related companies: 1) the RES Group, Inc. in Cambridge, MA (1996-2008), 2) Fullerene Sciences, Inc. in Boulder, CO (2005-2008), and 3) Novare Biofuels, Inc., in Boulder, CO (2006-2009).

While at Mines, Tom conducted research on combustion chemistry, combustion modeling, pyrolysis of halogenated hydrocarbons, fine water mist fire suppression systems, and nanomaterial synthesis. Experiments were done in molecular beam mass spectrometry, flow tube pyrolysis reactors, and microgravity drop tower experiments. Tom was the Principal Investigator (PI) for the water mist fire suppression experiment that flew on the Space Shuttle STS-107, and he was PI on the OpenChem Workbench combustion modeling software project.

In 2009 Tom retired from Mines as Professor Emeritus to do small company startups and consulting work in Boulder, CO.

To learn about the department culture in which Tom started at Mines, please see “The Baldwin Years” chapter.

Ronald L. Miller

Ronald Miller obtained his B.S. (1977) and his M.S. (1979) in Chemical Engineering from the University of Wyoming, before obtaining his Ph.D. (1982) in Chemical and Petroleum Refining Engineering from Mines. He returned to Wyoming as an Assistant Professor of Chemical Engineering (1982-1986). In 1986, he returned to Mines as Research Assistant Professor, advancing to Assistant Professor (1988), Associate Professor (1990) and Full Professor in 1999.

While Ron initially did research in synthetic fuels, he rapidly morphed into the departmental expert in pedagogical methods, with more than 155 refereed publications in engineering education, and \$8,500,000 in educational research, primarily from the National Science Foundation (29 projects). Ron has won 14 teaching awards (13 at Mines, and 1 at University of Wyoming), four Best Paper Awards from the Journal of Engineering Education (2006), the Chemical Engineering Division of ASEE, and the Education and Research Methods Division of ASEE, and three best workshop awards from ASEE Frontiers in Education.

Ron was named the 46th ConocoPhillips Lecturer in Chemical Engineering Education at Oklahoma State University (2012), and the 6th Gibbons Lecturer in Chemical Engineering Education at the University of South Carolina (2013). In 2011 Ron was awarded the ASEE Lifetime Achievement Award, presented only seven times since its inauguration in 2002. Ron was the only Mines recipient of the above honors. Ron retired as Emeritus Professor of Chemical Engineering in 2016.

To learn about the department culture in which Ron started at Mines, please see “The Kidnay Years” chapter.

Lyman W. Morgan

Lyman Morgan joined the department in 1958 and taught Petroleum Refining until the arrival of James Gary in 1962.

To See Lyman’s photograph and to learn about the department culture in which Lyman started at Mines, please see “The Gary Years” chapter.

Rachel M. Morrish

Rachel Morrish obtained her B.S. (2004) at Mines, before her Ph.D. (2009) at the University of Arizona. Rachel returned to Mines in 2009 as an Adjunct Assistant Professor in CBEN, before being promoted in 2010 to Teaching Associate Professor.

Rachel was awarded a Fulbright Scholarship Grant in 2014, which enabled her to conduct sabbatical research in the Department of Materials Engineering at the University of Trento, Italy. Rachel earned the Outstanding CBEN Faculty Award in 2012, 2017, 2018 and 2019.

To learn about the department culture in which Rachel started at Mines, please see “The Ely Years” chapter.

Keith B. Neeves

Keith Neeves obtained his B.S. in Chemical Engineering at the University of Colorado Boulder in 2000, followed by a Ph.D. in Chemical and Biomolecular Engineering from Cornell University in 2006, interspersed by a few years as process engineer at NREL. He did postdoctoral work at the University of Pennsylvania in hematology. Keith began as an Assistant Professor at Mines in 2008 and was promoted to Associate Professor in 2014. His research was recognized with an NSF CAREER award, the Karl Link Early Career Award in Thrombosis from the American Heart Association, and Early Career Investigator Awards from the Boettcher Foundation and the Bayer Hemophilia Awards Program.

Keith advised 8 Ph.D. students at Mines and 7 postdocs, and taught in the McBride Honors program as well as Transport Phenomena. In 2019, Keith and his lab moved to the University of Colorado campus at Anschutz Medical Center. To learn about the department culture in which Keith started at Mines, please see "The Marr Years" chapter.

Cynthia Norrgran

Cynthia Norrgran received a B.S. in Physics (1971) from the University of Minnesota, and a M.D. from the University of Nevada in 1983. She did her neurosurgery residency at the University of Cincinnati and then did private practice in neurosurgery in the Denver area until retiring in 2004. She received a M.S. in Astrophysics from James Cook University in Australia in 2006, and a Ph.D. in Psychology from Capella University in 2018.

Cynthia joined Mines as an Adjunct faculty in 2004 in the Bioengineering and Life Sciences Program (BELS) and joined the Chemical Engineering Department as a Teaching Associate Professor in 2008. She was instrumental in bringing the Biology laboratory courses to CSM and recently helped to establish the Biology minor.

To learn about the department culture in which Cynthia started at Mines, please see "The Ely Years" chapter.

Paul D. Ogg

Paul Ogg received a B.A. in Psychology (1991) and a B.A. in Biology (1996) both from Albion College in Michigan. He went on in his studies, obtaining a Ph.D. (2005) in Molecular Biology from the University of Iowa. He worked briefly in a post doctorate position studying cancer research at the University of Colorado.

Paul began at Mines in 2007. With his strong biology background, he discovered several novel yeasts and used them to produce exceptional beers. The brewing science students called him the "Yeast Yoda". Each semester the brewing course would be over-subscribed within hours and was one of the most popular courses on campus. The campus mourned Paul's untimely death from cancer in 2016.

To learn about the department culture in which Paul started at Mines, please see the "Paul Ogg Tribue " in "The Ely Years" chapter.

Bruce Palmer

Bruce Palmer graduated with honors from the Colorado School of Mines in 1968 and received his Ph.D. from the University of Utah in 1972. He started his teaching career at the South Dakota School of Mines and Technology where he rose to the rank of Full Professor. Bruce joined the Petroleum Institute (Abu Dhabi, UAE) in 2004 where he served as Professor of Chemical Engineering for five years. He was also acting Head of the Chemical Engineering Department for two years. He moved subsequently to Texas A and M University, Qatar, where he was Program Chair and Professor of Chemical Engineering for five years. His research in the Middle East involved gas processing and sour-gas corrosion. Currently he is an adjunct faculty member at the Colorado School of Mines Chemical and Biological Engineering Department where he contributes to teaching the senior design and summer field session courses.

Bruce's industrial experience started at Elf Aquitaine (1982) where he was a Senior Engineer. In 1985, Bruce moved to the Kerr-McGee Technology Division, and he subsequently led the Continuous Improvement Department in Kerr-McGee Global Chemical Operations.

Bruce's publications include over 80 technical papers, patents and presentations. He received the Colorado School of Mines' van Diest Gold Medal which recognizes distinguished young engineers, the ASM Bradley Stoughton Award for outstanding professors, the AIME Arthur F. Taggart Award for an outstanding research paper, and the AIME Publications Committee Award for an exceptional book.

John M. Persichetti

John Persichetti obtained a B.S. Chemical Engineering at the University of Colorado Boulder (1980), and an M.S. Chemical and Petroleum Refining Engineering at the Colorado School of Mines (1985). John worked in industry and then as a consultant for a number of years before returning to Mines as a Lecturer in 1997, moving into a fulltime Teaching Faculty position in 2004. John taught a number of courses in the CBEN department before transferring to teach in the Engineering, Design, and Society Division in 2018. Currently, he is the director for the Capstone Design@Mines program which is the two-semester senior design course for approximately 45% of graduating seniors at Mines.

While in the CBEN Department, John did most of the course development for "Chemical and Biochemical Engineering Practice" and the "Bioprocess Engineering" course including writing the textbook used in the first, sophomore-level courses.

John received the Alfred E. Jenni Faculty Fellowship that led to the overall curricular layout and specifically the initial development of the B.S. Engineering degree program, which includes eight semesters of design delivered through the "Integrative Design Studio" sequence for the BSE program.

To learn about the department culture in which John started at Mines, please see "The Baldwin Years" chapter.

Christopher Joshua Ramey

Josh Ramey received his B.S. (1998) in Biology from the University of New Mexico, before obtaining his Ph.D. (2006) in Molecular Biology from the University of Colorado Health Science Center.

In 2007, Josh worked at OPX Biotechnologies as Senior Scientist, before doing five years of postdoctoral work (2009-2014) in Molecular Biology at the University of Colorado Anschutz Medical Campus.

In 2013, Josh accepted an Adjunct Assistant Professorship in CBEN at Mines, and from 2017 he has been a Teaching Associate Professor. With Professor Schoonmaker, Josh developed the Studio-Biology laboratory; this laboratory may accommodate as many as 25% of the Mines Freshman class.

To learn about the department culture in which Josh started at Mines, please see “The Marr Years” chapter.

Richard C. Robinson

Richard Robinson taught for one year in the department, from 1974-1975, when he went to work for Conoco in Oklahoma.

To see Richard’s photograph with the faculty, and to learn about the department culture in which Richard started at Mines, please see “The Dickson Years” chapter.

Joseph R. Samaniuk

Joe Samaniuk obtained his B.S. (2006) and M.S. (2008) from Virginia Polytechnic Institute and State University before obtaining his Ph.D. (2012) from the University of Wisconsin-Madison, all in Chemical Engineering. Joe then did postdoctoral research in Europe: from 2013-2014 in the Department of Chemical Engineering at KU Leuven in Belgium, and from 2014-2016 in the Materials Science Department at ETH Zürich. He accepted an Assistant Professorship at Mines in 2016.

Joe does research in rheology and colloids science, has patented a rheometer design for rheological measurements in lignocellulosic biomass, and teaches courses on transport phenomena, and process dynamics and control.

To learn about the department culture in which Joe started at Mines, please see “The Marr Years” chapter.

Judith M. Schoonmaker

Judy Schoonmaker received a B.S. in Honors Biology (1974) from the University of Illinois, and her Ph.D. in Physiology from the University of Michigan (1980). She began teaching at D'Evelyn Junior/Senior High School in Denver, Colorado in 1998. During her thirteen-year tenure at D'Evelyn, she taught Anatomy and Physiology (12th grade), Advanced Placement Biology (12th grade), Biology (9th grade), and Life Science (7th grade). During her time at D'Evelyn, Judy won several teaching awards: Teacher of the Year (2011), Jamin B. Wilson Excellence in Education Award (2010), and the Siemens Award for Outstanding School Advanced Placement Program in Math and Science, 2007.

In 2010 Judy joined the Bioengineering and Life Sciences program as an Adjunct Lecturer in the Chemical and Biological Engineering Department. When promoted to Teaching Associate Professor in 2011, she was responsible for BELS 101, instructing over 400 students in the Fundamentals of Biology each year. She revamped this introductory course, adding rigor and relevance, emphasizing the engineering focus of our students and adding an interactive element to the large lecture classes.

When laboratory space was acquired in fall of 2012, Judy took the lead in creation of Studio Biology I, deploying this new course in the fall of 2013. She was responsible for the innovative design of the CBE Studio Biology classroom and transforming BELS 101 from a traditional large lecture format to a two-semester Biology course. Additionally, Judy developed a training program for Chemical Engineering graduate student teaching assistants who had minimal biology background. Finally, she initiated a program to characterize student behavior and growth through a variety of tools, including a biology concept inventory, an attitude survey, and a questionnaire about student study skills and strategies.

In 2015, Judy put Studio Biology I in the capable hands of Josh Ramey so that she could extend the studio classroom concept to both Studio Biology II and Studio Physiology courses. Judy retired from Mines in 2017.

To learn more about the culture in which Judy started in the department, please see "The Ely Years" chapter.

M. Sami Selim

Sami Selim earned an undergraduate degree at the University of Alexandria (Egypt) in 1962 and M.S. from Carnegie Mellon in 1966, both in Chemical Engineering. In graduate school at Iowa State University he earned both an M.S. in Mathematics in 1969 and a Ph.D. degree in Chemical Engineering in 1970. He then served as a Postdoctoral Fellow at Iowa State from 1970 to 1974, interrupted by a year (1971-1972) as Associate Vice President for Technical Planning, Ministry of Industry, Cairo, Egypt.

Sami taught at the University of Petroleum and Minerals in Saudi Arabia (1974-1979), and was an Associate Professor at Texas Tech University from 1979 to 1982. He came to Mines in 1982, where he was one of the principal intellects and best professors in the department until his untimely death in 2000. Among his many contributions was bringing computer aided design to Mines.

For more information, please see the Selim tribute in "The Dickson years" chapter.

Justin F. Shaffer

Justin Shaffer obtained his B.S. in Chemical Engineering (2005) from Pennsylvania State University, and his Ph.D. in Bioengineering (2010) from the University of Washington, before doing a postdoctoral year at University of North Carolina. From 2013 to 2018 Justin was an Assistant Teaching Professor in the Department of Developmental and Cell Biology, University of California at Irvine. Justin was hired as a Teaching Associate Professor in Chemical and Biological Engineering at Mines in 2018.

Justin studies the impacts of in-class active learning exercises and out-of-class assignments on student performance and attitudes in a variety of contexts (upper vs. lower division, introductory biology vs. thermodynamics, face-to-face vs. online, etc.). He is also interested in understanding how engineering students perceive the basic sciences, specifically Biology.

In 2016 Justin won the UC Irvine Ayala School Golden Apple Award for Excellence in Teaching.

To learn about the department culture in which Justin started at Mines, please see “The Chauhan and Interim Years” chapter.

Elwyn Shimoda

Elwyn Shimoda was born to immigrant parents on a Colorado tenant farm, and through diligence, Elwyn was able to come to Mines on a scholarship with the Reserve Officer Training Core (ROTC) program. He graduated with a degree in Petroleum Refining Engineering in 1949, as one of the first students to complete their four-year program after J.O. Ball became Department Head in 1944.

After graduation Elwyn served 5 years in the Army, then began his engineering career at the Hanford Nuclear Site in the state of Washington. Elwin returned to teach at Mines in 1966.

While teaching a full load at Mines, over a number of years, Elwyn studied at the University of Denver in Chemical Engineering and received his Ph.D. in 1974 in Chemical Engineering.

In 1975, the Shimoda family moved to Ponca City, Oklahoma, where Elwyn enjoyed a career in Research and Development at Conoco. He took early retirement in 1994 and returned to Colorado, where he promptly started his next career as a recruiter, often working with Mines graduates and former Conoco colleagues. Elwyn died in 2018.

To learn more about the culture in which Elwyn started in the department, please see “The Dickson Years” chapter.

Annette D. Shine

Annette D. Shine, obtained her B.S. in Chemical Engineering and B.A. in Chemistry, Summa Cum Laude, in 1976 from Washington University, St. Louis, Missouri. She received her M.S. in 1979 from Case Western Reserve University in Macromolecular Science, and her Ph.D. from the Massachusetts Institute of Technology in Chemical Engineering in 1983.

Until 1985 Annette worked as Research Scientist/Development Engineer for the Eastman Kodak Company. From 1986 until 1989 she was an Assistant Professor of Chemical and Petroleum Refining Engineering. In 1989 she left Mines to accept an Assistant Professorship at the University of Delaware.

To learn more about the culture in which Annette began her department career, please see “the Kidney Years” chapter.

E. Dendy Sloan

Dendy Sloan obtained his B.S. (1965), M.S. (1972), and Ph.D. (1974) all in Chemical Engineering from Clemson University. Between his B.S. and M.S. degrees, he worked six years for E.I. DuPont de Nemours, installing chemical plants in four different states. In 1975 he did postdoctoral research at Rice University in natural gas hydrates.

Dendy began as an Assistant Professor at Mines in January of 1976, progressing through the ranks of Associate Professor (1979), and Full Professor (1983). From 1992-2009, he held the first department chaired professorship as the Gaylord and Phyllis Weaver Distinguished Professor. He also held Visiting Chairs at Keio University (1996), and University of Canterbury (2002). While at Mines, he taught every required undergraduate course, except Petroleum Refining, and advised or co-advised 129 graduate students and postdoctoral researchers.

Dendy principally did research in natural gas hydrates, publishing five books in the area. Upon transitional retirement in 2009, he broadened his academic interest and spent a decade studying neuroscience at the University of Colorado. Dendy co-authored two editions of the text, *Neuroscience, Memory, and Learning* with Mines Professor Cynthia Norrgran, M.D., Ph.D.

Dendy holds five patents and he is a Registered Professional Engineer in the State of Colorado. He is a Fellow of the American Institute of Chemical Engineers. Dendy chaired the Education and Research Methods Division (1983-85) and the Chemical Engineering Division of ASEE (1985), and the Publications Board of *Chemical Engineering Education*, (1990 – 2006). He was elected chair of the inaugural Faculty Senate (1989), and was the first Board of Trustees faculty representative. He was named the 1996 SPE Distinguished Lecturer, and the 1997 Mines Faculty Senate Distinguished Lecturer.

He has been given a number of awards, including Outstanding Faculty Member in Chemical Engineering (3 times), the 1988 Mines President’s Award as the Outstanding Educator at Mines, the Donald L. Katz Research Award from the Gas Processors Association (2000), the 2011 Lifetime Achievement Award from the International Conference on Gas Hydrates, and the 2013 Distinguished Achievement Award from the SPE Offshore Technology Conference. Upon his retirement in 2011, he was given the Mines Trustees George R. Brown Medal, and he was named University Professor Emeritus. He continues to teach one course entitled “Neuroscience, Memory, and Learning”.

To learn more about the culture in which Dendy started in the department, please see “The Dickson Years” chapter.

Franklin J. Stermole

Frank Stermole obtained his B.S. (1957), M.S. (1961), and Ph.D. (1963) in Chemical Engineering from Iowa State University with intermediate service in the Navy (1957-1959). Frank came to Mines in 1963, rejecting nine other university offers. Frank taught a number of courses: Engineering Economics, Mass and Energy Balances, Reaction Kinetics, and Thermodynamics. Frank was promoted to Associate Professor (1966) and Full Professor (1970). Frank was more interested in teaching than doing research at Mines.

Frank had an active interest in Economics and wrote the first edition of his best-selling book, *Economic Evaluation and Investment Decision Methods*, in 1970. The 17th edition of his book was published in 2019. His undergraduate course on economic evaluation techniques was one of Mines most popular courses for over 50 years. In addition, Frank has taught over 700 "Economic Evaluation" short courses to over 16,000 persons from industry.

When Jim Gary was appointed Mines Vice President for Academic Affairs in 1972, Frank took the position of CSM Director of Research and Development, where he served until 1975. Frank left that position to become Professor of the new Mines Department of Mineral Economics, which was begun in 1970 by former MIT President J. Paul Mather. Frank taught in the Mineral Economics department until his retirement in 2012, as Professor Emeritus of both Mineral Economics and Chemical and Petroleum Refining Engineering.

To learn more about the culture in which Frank started in the department, please see "The Gary Years" chapter.

Amadeu K. Sum

Amadeu Sum obtained Mines double major undergraduate degrees in Chemical and Petroleum Refining Engineering and in Chemistry in 1995. He remained at Mines for his M.S. (1996) in Chemical and Petroleum Refining Engineering, and then completed his Ph.D. (2001) in Chemical Engineering at the University of Delaware.

Amadeu did postdoctoral research from 2001-2004 in Chemical Engineering at the University of Wisconsin, followed by a faculty position as an Assistant Professor at Virginia Polytechnic Institute and State University (Virginia Tech) from 2004-2008. From 2008 until 2013 Amadeu was an Assistant Professor of Chemical Engineering at Mines, and was tenured and promoted to Associate Professor in 2013, and then to Professor in 2018. He also holds Visiting Professor positions in Brazil and China.

Amadeu is internationally recognized for his work on molecular thermodynamics, clathrate hydrates, and molecular simulations with applications in flow assurance, energy storage, and biopreservation. He has worked closely with industry and leads a Joint International Research Program involving his group at Mines, UTFPR in Brazil, and Mines St-Etienne in France. He has authored/co-authored over 160 peer-reviewed publications and has given over 60 invited lectures. He received the DuPont Young Professor Award from 2008-2011, and the prestigious Arthur Lubinski Award by ASME for the Best Mechanical Engineering Paper in the 2017 Offshore Technology Conference.

To learn more about the culture in which Amadeu started in the department, please see "The Ely Years" chapter.

Charles R. Vestal

Charles Vestal obtained a B.S. in Petroleum Refining Engineering at Mines in 1962. He then worked as a Process Design Engineer for Continental Oil Company for a year before being entering active duty with the U.S. Army as the Commanding Officer of the 959th Petroleum Products Laboratory. He returned from military service to a successful career with Marathon Oil Company from 1965 to 1997. While working at Marathon, Charles earned a M.S. (1969) and a Ph.D. (1974) in Chemical and Petroleum Refining Engineering at the Colorado School of Mines with Phil Dickson.

While at Marathon Oil Company he had three major job responsibilities – a petrochemical process design engineer, a developer of numerical models for petroleum reservoir simulation and geostatistics, and a manager of computing and information technology. Charles is a Registered Professional Engineer in the State of Colorado.

Charles began teaching at Mines in 1998 as an Adjunct Assistant Teaching Professor, and was promoted to Teaching Associate Professor in 2010. While at Mines he received the Outstanding CBE Faculty Award in 2014 and 2015 along with the CBE Favorite Professor Award for the same years. Charles is the principal author of *Just in Time Class Notes for CBEN 210, Introduction to Engineering Thermodynamics*, a free textbook for students enrolled in the class.

Charles retired from Mines in 2019 as an Emeritus Teaching Professor. To learn more about the culture in which Charles started in the department, please see “The Baldwin Years” chapter.

J. Douglas Way

Doug Way obtained his B.S. (1978), M.S. (1980), and Ph.D. (1986) all in Chemical Engineering, from the University of Colorado, Boulder. He was a Senior Chemical Engineer at Stanford Research Institute from 1987 to 1989, when Doug joined Oregon State University as an Assistant Professor of Chemical Engineering. In 1993, he accepted a Research Professor position at Mines, and rapidly advanced to Associate Professor (1994) and Full Professor (2003) of Chemical Engineering. Doug retired as Professor Emeritus in 2017.

Doug holds ten patents in his research area of membrane separations. Doug is internationally recognized for research and his teaching in separations. He won the Dean’s Excellence Award (2011), and in 2014 Doug won the American Institute of Chemical Engineers Institute Award for Excellence in Industrial Gases Technology. He was elected to Tau Beta Pi Engineering Honorary as Eminent Engineer (2017) and he was named an Outstanding faculty member in Chemical and Biological Engineering in 2017.

Doug continues a very active research career as an Emeritus Professor in Chemical and Biological Engineering. In 2018 Doug had amassed 123 peer-reviewed publications, and more than 7,000 citations listed in Google Scholar.

To learn more about the culture in which Doug started in the department, please see “The Baldwin Years” chapter.

Jennifer L. Wilcox

Jennifer Wilcox obtained her B.S. (1998) in Mathematics from Wellesley College, and her M.A. (2004) in Physical Chemistry, and her Ph.D. (2004) in Chemical Engineering, both from the University of Arizona. From 2004-2008 Jennifer was an Assistant Professor of Chemical Engineering at Worcester Polytechnic Institute. From 2008 – 2016 she was an Assistant Professor of Energy Resources Engineering at Stanford University.

In 2016, Jennifer became an Associate Professor of Chemical and Biological Engineering at Mines, and in 2017 she became the Interim Department Head.

Jennifer has three patents in the area of nitrogen and Carbon Dioxide separation, and in 2012 she authored a book entitled *Carbon Capture*. In 2017, Jennifer was given Air and Waste Management's Arthur C. Stern Award.

In 2018 Jennifer left Mines to assume the James H. Manning Chaired Professorship of Chemical Engineering at Worcester Polytechnic Institute.

To learn more about the culture in which Jennifer started in the department, please see "The Marr Years" chapter.

Colin Wolden

Colin A. Wolden obtained his B.S. from the University of Minnesota (1990) and his M.S. (1992) and Ph.D. (1995) from the Massachusetts Institute of Technology, all in Chemical Engineering. Following graduation, he was the Station Director of the MIT Chemical Engineering Practice School. From 1995-1997 he was a National Research Council/Army Research Office postdoctoral fellow in Materials Science and Engineering at North Carolina State University.

In 1997 Colin began as an Assistant Professor of Chemical Engineering at Mines, and he subsequently was promoted to Associate Professor (2002) and Full Professor (2008). From 2010-2017 Colin held the Gaylord and Phyllis Weaver Distinguished Professorship of Chemical Engineering.

Colin develops nanostructured materials and processes for applications in energy sustainability. To date he has published >150 papers and mentored >30 graduate students. Professional honors include the National Science Foundation CAREER Award (2001), Science Foundation Ireland's E.T.S. Walton Fellowship (2010), CSM Dean's Excellence Award (2013), and he is a Fellow of the American Vacuum Society (2014).

Colin also served the Mines faculty on the Faculty Senate (2004-2006). He twice served as Interim Department Head (2015, 2017), and his contributions during the latter appointment are detailed in the chapter, "The Chauhan Years," which includes the interim heads.

To learn more about the culture in which Colin started in the department, please see "The Baldwin Years" chapter.

David Wu

David Tai-Wei Wu graduated from Harvard University (Magna Cum Laude with highest distinction) in Chemistry (1985), before obtaining his Ph.D. (1991) in Chemistry from University of California at Berkeley. He did postdoctoral work in the Cavendish Laboratory at Cambridge University (1991-1993) and in Chemical Engineering at University of California at Santa Barbara (1993-1996).

In 1996 David took a joint appointment in Chemical and Petroleum Refining Engineering and in Chemistry at Mines, rising from Assistant to Associate Professor in 2002. He was appointed Professor in 2008 and Chaired the Mines Chemistry Department from 2012 to 2017, when he returned to Chemical Engineering, after a sabbatical in Taiwan. Like David Marr, David Wu's personal relationships are international, particularly connected to China and France.

David does research in four areas: 1) conformational effect in conducting polymers, 2) statistical mechanics of powders, 3) direct simulation algorithms, and 4) viral morphogenesis for programmed self-assembly. David has received numerous of awards for his scholarship and innovation, such as the Research Corporation's Research Innovation Award for five consecutive years (1997-2002).

To learn more about the culture in which David started in the department, please see "The Baldwin Years" chapter.

Ning Wu

Ning Wu received his B. Eng. (Honors) in 2001 and his M. Eng. in 2003 from the National University of Singapore, before coming the U.S.A. to obtain his M.S. (2005) and his Ph.D. (2008), all in Chemical Engineering from Princeton University under the supervision of Professor William B. Russel. He did postdoctoral work at Harvard in the laboratory of Professor Joanna Aizenberg, from 2008 to 2010, when he accepted a position as an Assistant Professor at Mines.

Ning's major research interest lies in finding simple and elegant ways to precisely control the structures of colloidal and other types of soft materials at different length scales, which are important for the development of photonic crystals, efficient photovoltaics, multi-functional and environmentally adaptive nanomotors, as well as biomedical diagnostic/therapeutic systems. He was given an NSF CAREER Award in 2015. Ning was promoted to Associate Professor in 2016.

To learn more about the culture in which Ning started in the department, please see "The Ely Years" chapter.

Victor F. Yesavage

Vic Yesavage obtained his B.ChE. at the Cooper Union in 1962, before his M.S. (1964) and Ph.D. (1968) in Chemical Engineering at the University of Michigan. He then worked for Shell Oil Company modeling multiphase reactors (1969-1972) and doing environmental engineering (1973).

Vic joined Mines in 1973 as an Assistant Professor, advancing to Associate Professor (1977) and then full Professor in 1982. He taught the inaugural Mines environmental engineering course, and he taught every required undergraduate course in the Chemical Engineering curriculum, except Petroleum Refining. With the opening of the Coady Computer Laboratory in 1995, Vic began developing user-friendly interactive process simulations using Aspen⁺, including Aspen⁺ sections in Mass Transfer, and Design.

After the 1973 Arab oil embargo, and the increase in government energy funding, together with co-Principal Investigators Dickson and Kidnay, Vic acquired \$500,000 (1975 dollars) in government funding. This had a significant effect of shifting emphasis in the department from teaching to a balanced teaching-research department.

Vic's research was primarily in two areas: shale oil and thermodynamics. He advised over sixty graduate students, of which at least ten entered academia. In addition to Vic's research with Phil Dickson on shale oil as a petrochemical intermediate, he also co-taught a short course with Phil to over 500 industrial engineers and scientists – "Shale Oil: Its Production, Properties and Utilization." In the area of thermodynamics, he did over three decades of research in calorimetry, equations of state, vapor-liquid equilibria, and CO₂ and H₂S gas absorption.

Vic retired from the department as Emeritus Professor in 2006. To learn more about the culture in which Vic started in the department, please see "The Dickson Years" chapter

