Fall 2023 Campus Town Hall

Agenda

• AY2022-23 Highlights
• New for AY2023-24
• MINES@150 Infrastructure Update
• Priorities for 2023-24
• Some Special Thanks
• MINES@150 Celebrations
• Q&A
AY2022-23 Highlights

AY2022-23 was a HelluvaYear:

• Lots of first’s and most’s...
• Largest and most diverse incoming undergraduate class to date
• Most BS (1198), MS (529), PhD (136), Cert (109) graduates
• Strong R&D funding & largest award ever
• First-ever #3 finish for Mines Athletics in the Learfield Director’s Cup Rankings
• Great progress on MINES@150 fueled by the Campaign for MINES@150
AY2022-23 Highlights: Petroleum Engineering Hall of Fame

2022 Inaugural Petroleum Engineering Hall of Fame Induction Gala
(& 100th Year Anniversary of the PE Dept)

VICTOR ALDERSON
Read full bio

STEVE CHESEBRO
1964 Honorary Doctorate - T.O.R.

DR. DEANN CRAIG
‘73, ‘80, MSc’02, PhD’05, M5 Inv. Bd. From Petr. Eng.

LAWRENCE “BUCK” CURTIS
1949 Read full bio

R.C. “CHUCK” EARLOUGHER
1960 Read full bio

LINCOLN F. ELKINS
1940 Read full bio

LLOYD ELKINS, SR.,
1934 Read full bio

DENNIS E. GREGG
1950 Read full bio

HUGH E. HARVEY, JR.
1980 Read full bio

THEODORE “TED” W. NELSON
1934 Read full bio

RALPH J. SCHILTHUIS
1930 Read full bio

RUSSELL H. VOLK
1926 Read full bio
Colorado gets $32 million to create carbon-stuffing hub underground at Pueblo

“Colorado School of Mines got $32 million Wednesday from the federal Department of Energy to study and develop a carbon sequestration hub in southern Colorado, considered a key to meeting greenhouse gas reduction goals in coming years.”

Colorado researchers are studying the Lyons Sandstone formation thousands of feet under the Pueblo area as a prime spot to locate the state’s first carbon sequestration hub. (Gulf Coast Carbon Center)
AY2022-23 Highlights: Research Enterprise

- Understanding critical materials deposits within the subsurface
- Decarbonizing the metals industry
- Understanding water’s role in climate change
- Social responsibility in engineering, demystified
- Finding the energy balance
- Tackling the lithium supply chain
- Green hydrogen: Empowering the future of energy
- Cracking open enhanced geothermal energy
- Harnessing data to discover and design materials
- Customizing additive manufacturing for materials R&D
- 3D-printed metal parts take a dip
- Teaching robots how to think and share information
- Concrete solutions to infrastructure challenges
- Bridging the interoperability gap in cities
- Protecting infrastructure and privacy through cybersecurity
- A shakedown for building construction

$96M in FY2023 External Funding Awards

$95M in FY2023 Expenditures from External Funding
(+70% increase from 2015)
AY2022-23 Highlights: STEM Pipeline/Pathways to Mines

Upward Bound Math Science Program
(w/Lakewood Alameda International School)

federally-funded college prep TRIO program
low-income and first-generation students
encourage education beyond HS
strengthen skills in math and science

Other Pathways & Pipeline Programs:

Mines Academy at Red Rocks Community College (2021)
Associates in Engineering Science degree with Colorado Community College System (2021)
SUMMET & Challenge Programs
AY2022-23 Highlights: Investments in MINES@150

- Investments in Students
- The Mines Signature Student Experience
- Entrepreneurship, Innovation, and Business Programs
- Pursuit of Excellence and Distinction

Campaign goal may be increased to $500M
“Mines has the best mining engineering program in the world,” and Ardy and I are pleased to provide meaningful support to create an even better mining engineering educational experience for students.”

“There simply are not enough graduates with expertise to meet the rapidly escalating demand for minerals and materials used in construction, transportation, electronics and energy production, or to address the coming onslaught of retirements across industry and academia.”

“In the United States alone, the Bureau of Labor Statistics projects about 500 mining and geologic engineer jobs openings each year for the next decade.”

**Alumnus J. Steven Whisler**

- Whisler Head of Mining Engineering
- Whisler Professor of Practice
- Whisler Scholars
Other Examples of Recent Campaign for MINES@150 Investments:

- Andrew P. '78 and Sherry P. Swiger professorship for innovation in business engineering education
- Beavers Charitable Trust support for Heavy Construction programming and student outreach
- The Lockridge Charitable Foundation athletic scholarship for underrepresented students
- Howard E. Janzen '76 '77 names the pitch deck in the Beck Venture Center
- The James family (Pat ’68 and Sharon + daughter Amy ’89 and grandson Erik ’18) fund to support PASCAL programs
- Freeport-McMoRan Foundation support for Edgar Mine facilities improvements (being finalized)
- Record-breaking FY23 #idigmines annual Giving Day: $411K from 973 donors
- The Faculty and Staff committee raised more than $1M from 377 donors and promoted Blaster’s Basket resulting in 10K items donated
One of 15 Phase 2, Level I winners. “...NASA announced that Mines and Lunar Outpost have won an equal share of a $500,000 prize purse for their design (12/14/22)”

The challenge: “...excavate, transport and dump at least 12 metric tons of concrete-hard lunar regolith simulant over a continuous 15-day test period”
“Orbital Mining Corporation is working to bring energy distribution to the Moon by creating a DC-to-DC converter system that can make it through the cold darkness of a sunless lunar night”

(https://www.nasa.gov/directorates/spacetech/centennial_challenges/four-teams-win-prizes-to-advance-energy-technology-for-moon-missions)
AY2022-23 Highlights: Student Athletes/Mines Athletics

- Men’s XC National Champions
- Individual National Champions
  - Dillon Powell (XC, 5K(indoor))
  - Hannah Miller (pole vault(indoor))
- Football National Runner-Up
- John Matocha
  - Harlon Hill Trophy & National DII Player of the Year
- Zoe Baker
  - NCAA Woman of the Year Finalist (1 of 9)
- National Coaches of the Year
  - Siemers, Moore, Sterbick
- 7th Consecutive RMAC Cup
- #3 Learfield Director’s Cup Finish
AY2022-23 Highlights: Student Athletes/Mines Athletics

CoSIDA Academic All-America®
Who has had the most?

NCAA Division II
1. Colorado School of Mines - 172
2. Pittsburg State University - 154
3. Indianapolis, University of - 147
4. Central Missouri, University of - 145
5. Wingate - 144
6. Slippery Rock University - 126
7. Grand Valley State - 122
8. Truman State University - 121
9. Missouri University of Science & Technology - 120
10. Ashland University - 111

Honoring outstanding academic and athletic achievement by student-athletes throughout the landscape of college sports since 1952.

Since inception of the AAA recognition and through July 2023
(min 3.5 GPA to be nominated)

Most AAA selections since 2010
1. Massachusetts Institute of Technology - 259
2. Stanford University - 194
3. Johns Hopkins University - 170
4. Colorado School of Mines - 156
( across all NCAA divisions)
AY2022-23 Highlights: Student Athletes/Mines Athletics

John Matocha selected as NCAA DII's top scholar-athlete

Mines quarterback is the first Oredigger student-athlete to receive the nation's highest academic honor

Mines Athletics @MinesAthletics · 6h
Duncan Fuehne of @csmtrack is the Division 2 Conference Commissioners' Association's 2022-23 national Scholar-Athlete of the Year.

He and Zoe Baker were also named the D2 CCA South Central Region Scholar-Athletes of the Year. #HelluvaEngineer

minesathletics.com/news/2023/9/14...
New For 2023-24 at Colorado School of Mines
New Students: AY2023-24 Incoming Undergraduate Students

- **About 1600** New Undergraduate Students
- **1452 1st-Year + 140** Transfer Students
- Similar in total size to 2021 Class
- **52% CO Resident/48%** Non-resident
- Most-ever women (522; 33%)
- Most-ever 1st-Gen (294; 18%)
- Most-ever identifying as non-White/Caucasian ethnicity (505, 32%); **+16%** change from 2022

<table>
<thead>
<tr>
<th></th>
<th>Median GPA</th>
<th>Median SAT</th>
<th>Median ACT</th>
<th>&gt;3.8 HS GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>3.77</td>
<td>1310</td>
<td>30</td>
<td>62%</td>
</tr>
<tr>
<td>2023</td>
<td>3.83</td>
<td>1400</td>
<td>31</td>
<td>74%</td>
</tr>
</tbody>
</table>

*- Fall 2023 Census Data*
New Faculty: AY2023-24

• About 40 new faculty joined in Fall 2023
• 357 Total Academic Faculty Now
  • 126 Teaching Faculty
  • 218 Tenured & Tenure-Track (T/TT) Faculty
  • 13 Professors of Practice
• 35% Women Overall (25% in 2015)
• 29% Women in the T/TT Ranks (<20% in 2015)
• 16:1 UG Student/Faculty Ratio
• 21:1 Total Student/Faculty Ratio
MINES@150: grow to 7500 students

Headcount

<table>
<thead>
<tr>
<th>Year</th>
<th>BS</th>
<th>MS+Cert</th>
<th>PhD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2015</td>
<td>4608</td>
<td>754</td>
<td>562</td>
<td>7924</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>4612</td>
<td>711</td>
<td>553</td>
<td>7936</td>
</tr>
<tr>
<td>Fall 2017</td>
<td>4794</td>
<td>731</td>
<td>592</td>
<td>7156</td>
</tr>
<tr>
<td>Fall 2018</td>
<td>4954</td>
<td>722</td>
<td>592</td>
<td>7288</td>
</tr>
<tr>
<td>Fall 2019</td>
<td>5155</td>
<td>799</td>
<td>653</td>
<td>7657</td>
</tr>
<tr>
<td>Fall 2020</td>
<td>5216</td>
<td>895</td>
<td>643</td>
<td>7954</td>
</tr>
<tr>
<td>Fall 2021</td>
<td>5491</td>
<td>997</td>
<td>684</td>
<td>8572</td>
</tr>
<tr>
<td>Fall 2022</td>
<td>5681</td>
<td>976</td>
<td>699</td>
<td>8736</td>
</tr>
<tr>
<td>Fall 2023</td>
<td>5865</td>
<td>995</td>
<td>708</td>
<td>8668</td>
</tr>
</tbody>
</table>

- **Total Students**
  - Mines @150 Design: 7500
  - Fall 2023 Values: 7608
- **Undergraduate**
  - Mines @150 Design: 5000
  - Fall 2023 Values: 5852
- **Masters + Certificate**
  - Mines @150 Design: 1600
  - Fall 2023 Values: 1032
- **Doctoral**
  - Mines @150 Design: 900
  - Fall 2023 Values: 724
- **T/TT Faculty (FTE)**
  - Mines @150 Design: 250
  - Fall 2023 Values: 218
- **Teaching Faculty & Professors of Practice (FTE)**
  - Mines @150 Design: 90
  - Fall 2023 Values: 139
- **Annual External Research Funding [$/year]**
  - Mines @150 Design: $85M
  - Fall 2023 Values: $95M

* - Fall 2023 Census Data
To thrive as a mid-sized and uniquely STEM-focused university, MINES needs to be a top-of-mind and first-choice university for students, public and private partners, and faculty and staff.

A Top-of-Mind & First-Choice University

- A leader in educating STEM students and professionals
- A preferred partner for talent, solutions and life-long learning
- An inspiring and caring community in which to learn, explore, live and work
- A producer of differentiated and highly desired STEM-educated leaders
- Accessible and attractive to qualified students from all backgrounds
- A go-to place for use-inspired research and innovation needed to solve challenges facing industry, society, and the environment
- The exemplar for alumni affinity, visibility and involvement
To achieve our MINES@150 aspirations, we must:

- **grow to 7500 students** (5000 undergraduate + 2500 graduate/post-bac students)
- **expand pathways** for, and be attractive and accessible to students we want at Mines
- offer a unique signature student experience with deliberate professional development, and achieve best-in-class student success outcomes and ROI
- **produce distinctive graduates**: highly-valued, future-prepared and adaptable
- **re-align our portfolio** with the future; expand offerings and diversify delivery
- **grow the reach and impact** of our R&D and E&I efforts
- **build/acquire the infrastructure** needed for MINES@150
- **grow/attract the leaders, faculty, and staff** needed for MINES@150
- **strengthen affinity for MINES** among our students, alumni, and external partners
- **attract investment** to support our strategic initiatives
New for 2023-24: Undergraduate Preparation

Core Revision: programming • data analytics • business acumen • wellness • context ("Futures")

MINES@150: produce distinctive graduates: highly-valued, future-prepared & adaptable; deliberate professional development

2023 Fall Career Fair (2 days, 400+ companies)
New for AY2023-24: Bachelor’s Degree Programs

Mines to launch Bachelor of Science in Construction Engineering

The new program, which will begin in Fall 2023, will prepare students for high-demand careers in a growing industry.

COLORADO SCHOOL OF MINES TO LAUNCH BACHELOR’S DEGREE IN CERAMIC ENGINEERING

Jan 10, 2023 | CCAC News

A new bachelor’s degree launching at Colorado School of Mines next fall will prepare engineers for careers working with one of the world’s most versatile materials – ceramic and glass.

“It’s more than just tiles and bricks,” said Brian Gorman, professor of metallurgical and materials engineering. “CoorsTek likes to say that they have 100 ceramic components in every passenger vehicle and the vehicle wouldn’t operate without any one of them. And that’s just one example of the myriad applications for these crucial materials.”
## Fall 2023 BS Degree Program Enrollments

<table>
<thead>
<tr>
<th>BS Degree Program</th>
<th>Headcount Fall 2023</th>
<th>BS Degree Program</th>
<th>Headcount Fall 2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineering</td>
<td>1769</td>
<td>Mining Engineering</td>
<td>102</td>
</tr>
<tr>
<td>Computer Science</td>
<td>1142</td>
<td>Geological Engineering</td>
<td>99</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>493</td>
<td>Biochemistry</td>
<td>80</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>428</td>
<td>Engineering/Design Engineering</td>
<td>50 + 26</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>330</td>
<td>Geophysical Engineering</td>
<td>69</td>
</tr>
<tr>
<td><strong>Quantitative Biosciences Engineering</strong></td>
<td><strong>238</strong></td>
<td><strong>Business Engineering &amp; Mgmt Science</strong></td>
<td><strong>68</strong></td>
</tr>
<tr>
<td>Engineering Physics</td>
<td>215</td>
<td>Chemistry</td>
<td>55</td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>182</td>
<td>Undecided</td>
<td>48</td>
</tr>
<tr>
<td>Metallurgical &amp; Materials Engineering</td>
<td>150</td>
<td>Economics</td>
<td>9</td>
</tr>
<tr>
<td>Applied Mathematics &amp; Statistics</td>
<td>141</td>
<td>Ceramic Engineering**</td>
<td>10 (New Fall 2023)</td>
</tr>
<tr>
<td>Petroleum Engineering</td>
<td>126</td>
<td>Construction Engineering**</td>
<td>7 (New Fall 2023)</td>
</tr>
</tbody>
</table>

* - New in Fall 2021
** - New in Fall 2023

---

Fall 2023 Census Data

**MINES@150: re-align our portfolio with the future; expand offerings and diversify delivery**
MINES@150: Promoting Our Unique Expertise and Capabilities

MINES@150: grow the reach and impact of our R&D and E&I efforts

Research communications - telling the stories of Mines, research relevance, innovation impacts, commercial opportunities

Focused outreach to policymakers, funding agencies, influencers, industry, partners, entrepreneurs, investors

Mines Pillars of Research & Innovation

MINES@150: Be a go-to place for use-inspired research and innovation needed to solve challenges facing industry, society, and the environment

Earth Resources & Exploration
- Responsibly developing Earth's resources

Integrated Energy Solutions
- Powering the future

Sustainable Environment & Climate
- Protecting our planet

Foundations of Responsible Innovation
- Building solutions in global context

Fundamentals of Scientific Discovery
- Expanding our understanding of the world

Science & Engineering Frontiers
- Pushing the boundaries of what's possible
MINES@150: The Entrepreneurship & Innovation Ecosystem

Beck Venture Center

31,000 ft² for start-up/venture programs, E&I courses, Einstein’s Bagels; due November 2023

Labriola Innovation Hub

37,000 ft² for design courses, prototyping, McNeil E&I Center HQ, Café; due December 2023

MINES@150: offer a unique signature student experience; produce distinctive graduates: highly-valued, future-prepared and adaptable

MINES@150: grow the reach and impact of our R&D and E&I efforts; produce distinctive graduates

McNeil Hall (learning) + Labriola Innovation Hub (making) + The Shops (large project space) + GRL Annex (EDS Home) = The Labriola Innovation District
MINES@150: The Entrepreneurship & Innovation Ecosystem

Mines’ Newest E&I Ecosystem Leaders

Victoria Bill
Director, Labriola Innovation Hub
(Capstone, Cornerstone, Hands-on Programming for all students)

Sid Saleh
Director, McNeil Center for E&I
(E&I Education, Launch Runway, Innov8X Challenges, etc.)

Zack Bennett
Director, Beck Venture Center/Venture Programs
(BVC/VC Programming, external partnerships, funding and promotion)

Partners
Mines Venture Fund I
Mines’ RTT
NREL West Gate
Academic Affairs
Student Life

Indicators of Future Successes
50+ Start-Ups to date
$20M+ in funding
$9M+ in non-dilutive funding
MINES@150 Infrastructure: Completions in AY2023-24/25

Mines Early Childhood Education Center
100 children, ages 6 months – 5 years, operated by Bright Horizons; Due July 2024

MINES@150: an inspiring and caring community in which to learn, explore, live and work

New Classroom Bldg and Parking Garage
51,000 ft² + 870 parking spaces, 9 new active-learning classrooms + faculty/student office space; Due October 2024 and January 2025

MINES@150: a leader in educating STEM students and professionals

MINES@150: an inspiring and caring community in which to learn, explore, live and work

Underway...and not too far out...
MINES@150 Infrastructure: Completions in AY2023-24/25

Mines Park Renovations and New Builds

Will result in 1062 total bed capacity (about 2X the previous capacity)

Renovations (400 beds) to be complete in July 2024

New builds (662 beds across 5 buildings) to be complete in August 2025

Will also include new community center with café and rec space

MINES@150: an inspiring and caring community in which to learn, explore, live and work; accessible and attractive students from all backgrounds

In Progress...(one to two years out)
MINES@150 Infrastructure: AY2023-24 Starts

USGS Energy and Minerals Research Facility

Funded by the Federal Government ($240M)
Will be largest R&D facility on the Mines campus
Mines to occupy 25,000 ft$^2$ of lab and office space
Groundbreaking celebration in November 2023
Completion expected in Summer 2026
MINES@150 Infrastructure: AY 2023-24 Starts

Second-Year Housing

In planning phase – to meet MINES@150 goal of campus housing for all students for the first two years at Mines

800 bed project

Construction start proposed for early 2024

Occupancy expected in Fall 2026

MINES@150: an inspiring and caring community in which to learn, explore, live and work; accessible and attractive students from all backgrounds
MINES@150 Infrastructure: AY2023-24 Starts

Clayworks in Golden

Developed by the Coors Family

Future CoorsTek Headquarters

Mines plan: lease about 50,000 ft² in the CoorsTek HQ building for R&D and signature programs growth

Occupancy expected in Fall 2025
MINES@150 Infrastructure: AY2023-24 Projects

**McKee West End Zone Project at Marv Kay Stadium**
(Phase I near completion, donor-funded)

**Mines Athletics Cross-Country Course**
(planned Fall 2023 construction & completion, donor-funded)

**Expanded On-Campus Dining Options**
(planning underway Fall 2023)

**Expanded On-Campus Recreation Facilities**
(planning underway Fall 2023)

---

**Mines adding amenities, seating in Marv Kay Stadium’s west end zone**

Beer garden, walkway scheduled to open by Aug. 31 football game

---

Colorado School of Mines has started a two-phase improvement project in Marv Kay Stadium’s west end zone. The first phase, which is scheduled to be completed by the Aug. 31 home football game, will include additional seating, a beer garden and patio area, and an ADA-accessible walkway from the south entrance to the main course on the stadium’s north side. The second phase, which is included in the graphics, will include a concession building, food truck plaza, and a barbecue area.
New for Fall 2023: The Ore Cart

MINES NEWSROOM

AUGUST 9, 2023 / BY EMILIE RUSCH

Ore Cart expands service, with two new routes connecting Mines, W Line, downtown Golden

Free Silver, Tungsten routes will be operated by Colorado School of Mines in partnership with the City of Golden
## MINES@150 AY2023-24 Priorities

<table>
<thead>
<tr>
<th>Top-of-Mind</th>
<th>MINES@150 Aspirations &amp; Imperatives not fully realized</th>
<th>Critical now and beyond MINES@150...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celebrate MINES@150</td>
<td>Deliver new components of the Updated Core (programming &amp; data analytics, business acumen, Futures, wellness)</td>
<td>Increase undergraduate admissions applications (2X)</td>
</tr>
<tr>
<td>Activate the E&amp;I Ecosystem (including launching an entrepreneurial faculty program)</td>
<td>Signature student experience for graduate students (focused on professional preparation)</td>
<td>Achieve best-in-class student success metrics</td>
</tr>
<tr>
<td>Increase MS-NT &amp; certificate programs enrollment (2X overall)</td>
<td>Housing/dining/recreation/etc. (needed for 1st and 2nd year undergraduate on-campus living learning experience &amp; research-supported graduate students)</td>
<td>Campus master plan</td>
</tr>
<tr>
<td>Campaign for MINES@150 – meet the new $500M goal</td>
<td></td>
<td>Energy &amp; Minerals Research Facility, etc. delivery</td>
</tr>
<tr>
<td>Drive efficiencies &amp; decrease cycle time (reallocate existing resources, redirect efforts, etc.)</td>
<td></td>
<td>Grow the next leaders/build the bench</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reconnect our community &amp; celebrate successes (e.g., Mines-a-palooza!)</td>
</tr>
</tbody>
</table>
West Virginia Budget Cuts Are a Taste of Higher Ed’s Future

Gordon Gee is only slightly ahead of his time. A baby bust will mean far fewer students in coming years.
Special Thanks
MINES@150 Celebrations

- Founding Day (February 9, 2024)
- E-Days (April 12-14, 2024)
- Graduation (May 10, 2024)
- Homecoming (September 27-28, 2024)
- Campaign for MINES@150 (Spring 2025)
- Others
Wrap-Up/Questions?