

Fall 2023 Campus Town Hall



MINES

@150 | 1874-2024



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September 20, 2023

P.C. Johnson, PhD
President and Professor

MINES.EDU

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



Mines Men's Cross Country Team
2022 NCAA DII National Champions

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

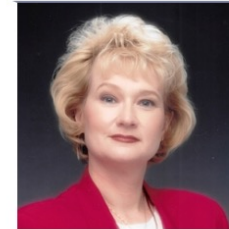
2022 Inaugural Petroleum Engineering Hall of Fame Induction Gala (& 100th Year Anniversary of the PE Dept)



VICTOR ALDERSON
[Read full bio](#)



STEVE CHESEBRO'
1964 Honorary Doctorate -
1998



DR. DEANN CRAIG
'73, '80, MSc'02, PhD '05, MS
Intl Pol Econ Res '06



**LAWRENCE "BUCK"
CURTIS**
1949 [Read full bio](#)



**R.C. "CHUCK"
EARLOUGHER**
1921



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](#)



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petroleum.mines.edu/hall-of-fame

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AY2022-23 Highlights: Research Enterprise

ENVIRONMENT  The Colorado Sun

Colorado gets \$32 million to create carbon-stuffing hub underground at Pueblo

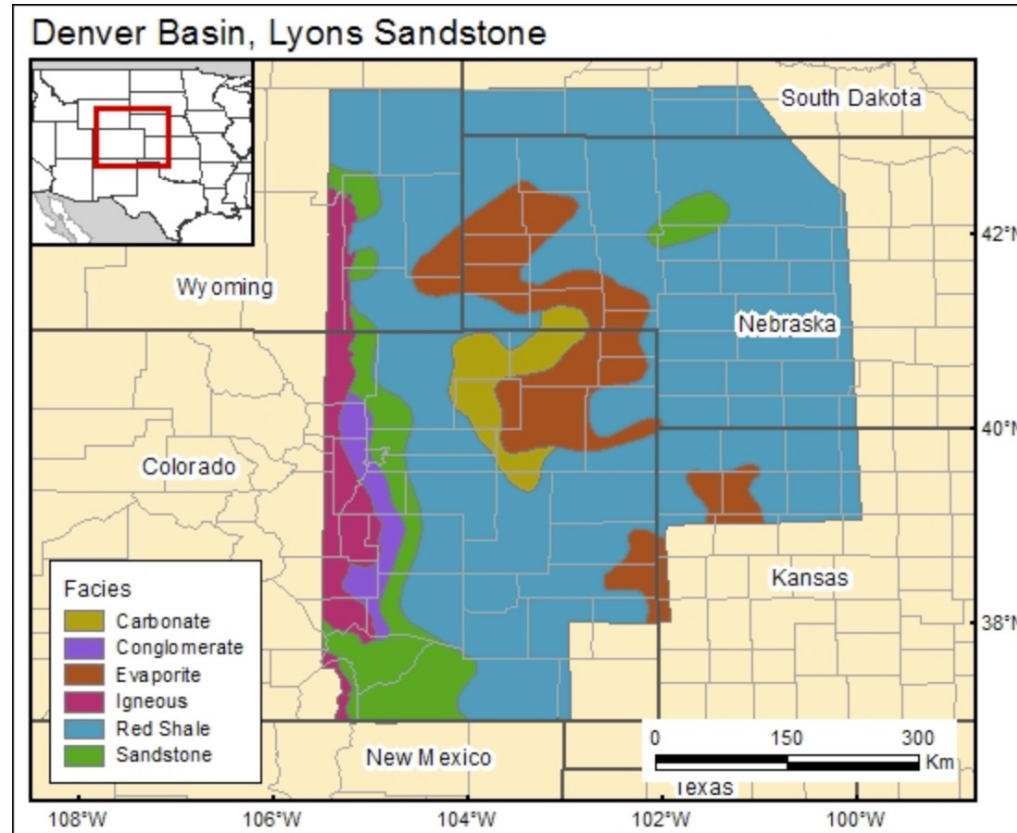


Michael Booth

3:08 AM MDT on May 18, 2023



“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)



Carbon America



AY2022-23 Highlights: Research Enterprise



- | | | | |
|-----------|---|-----------|---|
| 8 | Understanding critical materials deposits within the subsurface | 30 | Harnessing data to discover and design materials |
| 9 | Decarbonizing the metals industry | 32 | Customizing additive manufacturing for materials R&D |
| 10 | Understanding water's role in climate change | 33 | 3D-printed metal parts take a dip |
| 12 | Social responsibility in engineering, demystified | 34 | Teaching robots how to think and share information |
| 16 | Finding the energy balance | 38 | Concrete solutions to infrastructure challenges |
| 17 | Tackling the lithium supply chain | 40 | Bridging the interoperability gap in cities |
| 18 | Green hydrogen: Empowering the future of energy | 41 | Protecting infrastructure and privacy through cybersecurity |
| 26 | Cracking open enhanced geothermal energy | 42 | A shakedown for building construction |

\$96M in FY2023 External Funding Awards

\$95M in FY2023 Expenditures from External Funding
(+70% increase from 2015)



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research.mines.edu

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AY2022-23 Highlights: STEM Pipeline/Pathways to Mines

MINES NEWSROOM

NOVEMBER 16, 2022 / BY EMILIE RUSCH

Colorado School of Mines to launch Upward Bound Math Science Program

Students at Lakewood's Alameda International Jr./Sr. High School will receive support through federally funded college prep program



Screenshot

MINES NEWSROOM

FEBRUARY 8, 2023 / BY MINES MAGAZINE

Mines alum aims to make higher education attainable for all

Kurtis Griess '08 MS '10 recently helped his alma mater write successful grant to launch its first federally-funded Upward Bound Math and Science Program with Jeffco Public Schools



Screenshot

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



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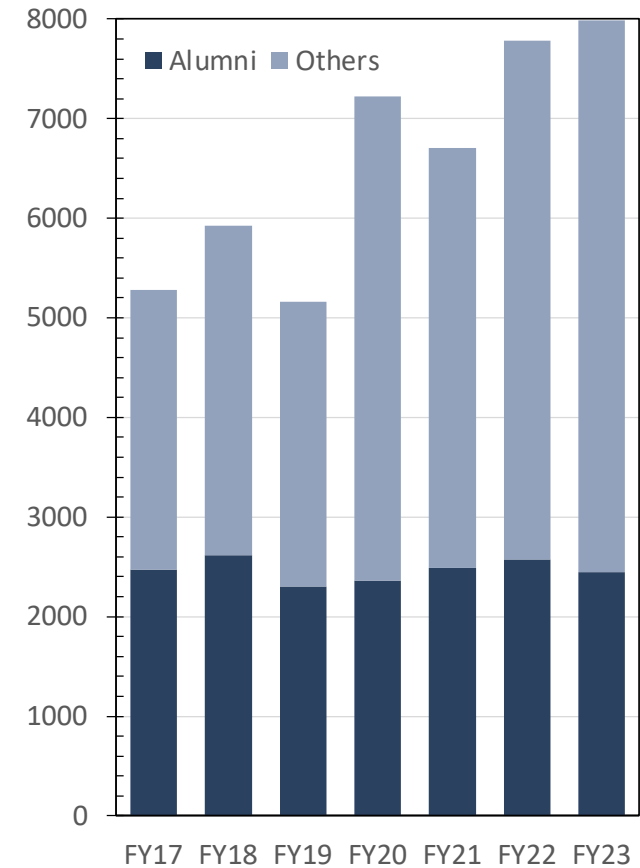
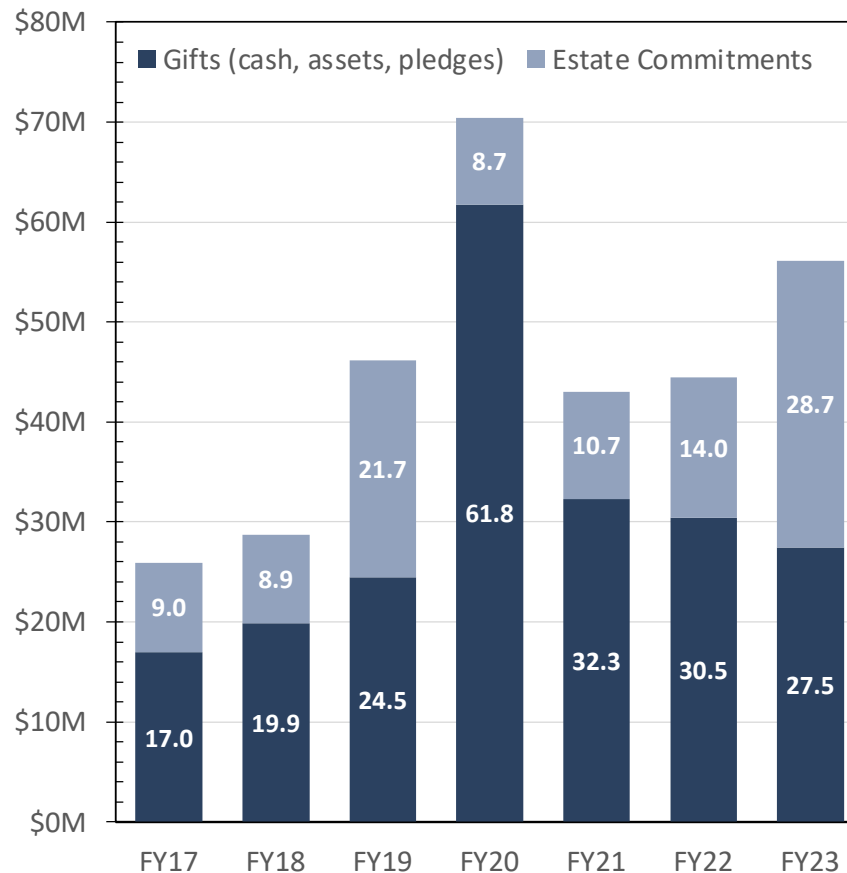
AY2022-23 Highlights: Investments in MINES@150

THE CAMPAIGN FOR



- 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



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campaign.mines.edu

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AY2022-23 Highlights: Investments in MINES@150

**Mining engineering program
receives historic \$7.5M
investment**



Alumnus J. Steven Whisler

“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.”

**Whisler Head of Mining Engineering • Whisler Professor of Practice
• Whisler Scholars**



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AY2022-23 Highlights: Investments in MINES@150

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



Andy Swiger



Howard Janzen



AY2022-23 Highlights: Entrepreneurs & Innovators

Ice Diggers: NASA's Break the Ice Challenge



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 goal of Phase 2 is to demonstrate long term operations and durability of icy regolith excavation and transportation equipment.



Test Start Date: September 9, 2023

The challenge: "...excavate, transport and dump at least 12 metric tons of concrete-hard lunar regolith simulant over a continuous 15-day test period"



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<https://www.minesnewsroom.com/news/colorado-school-mines-lunar-outpost-reach-level-2-nasas-break-ice-challenge>

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AY2022-23 Highlights: Entrepreneurs & Innovators

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AUGUST 31, 2023 / BY JASMINE LEONAS

Mines team advances to finals in NASA Watts on the Moon Challenge

Grad students in space resources one of four teams working toward prize of \$1 million



Space Technology Start-up formed by Mines students

\$600K won in the NASA competition

One of four finalist teams, they are the only one led entirely by students



Dewey Gazvoda, Daniel Abel, Chris Tolton, Ken Liang, Carsten Nesgaard, Zach Thelen and Ashle Jantzen.

“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)



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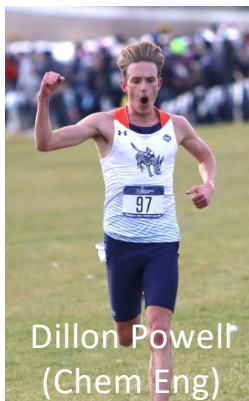
AY2022-23 Highlights: Student Athletes/Mines Athletics



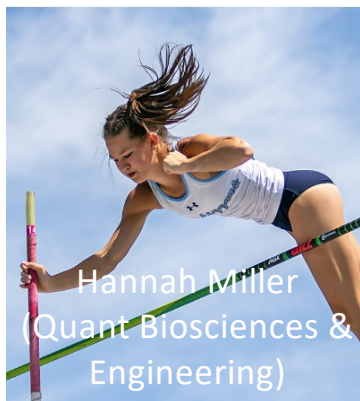
John Matocha
(Comp Sci)



Zoe Baker
(Math/CS)



Dillon Powell
(Chem Eng)



Hannah Miller
(Quant Biosciences & Engineering)

- 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



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minesathletics.com

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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

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



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

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)



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academicallamerica.com

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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...

**NATIONAL
SCHOLAR-ATHLETE
OF THE
YEAR**
DUNCAN FUEHNE



Applied Physics



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New For 2023-24 at Colorado School of Mines



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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

	Median GPA	Median SAT	Median ACT	>3.8 HS GPA
2017	3.77	1310	30	62%
2023	3.83	1400	31	74%



New Faculty: AY2023-24



COLORADO SCHOOL OF MINES



Getting to know you

NEW FACULTY BIOS
2023-24

- 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

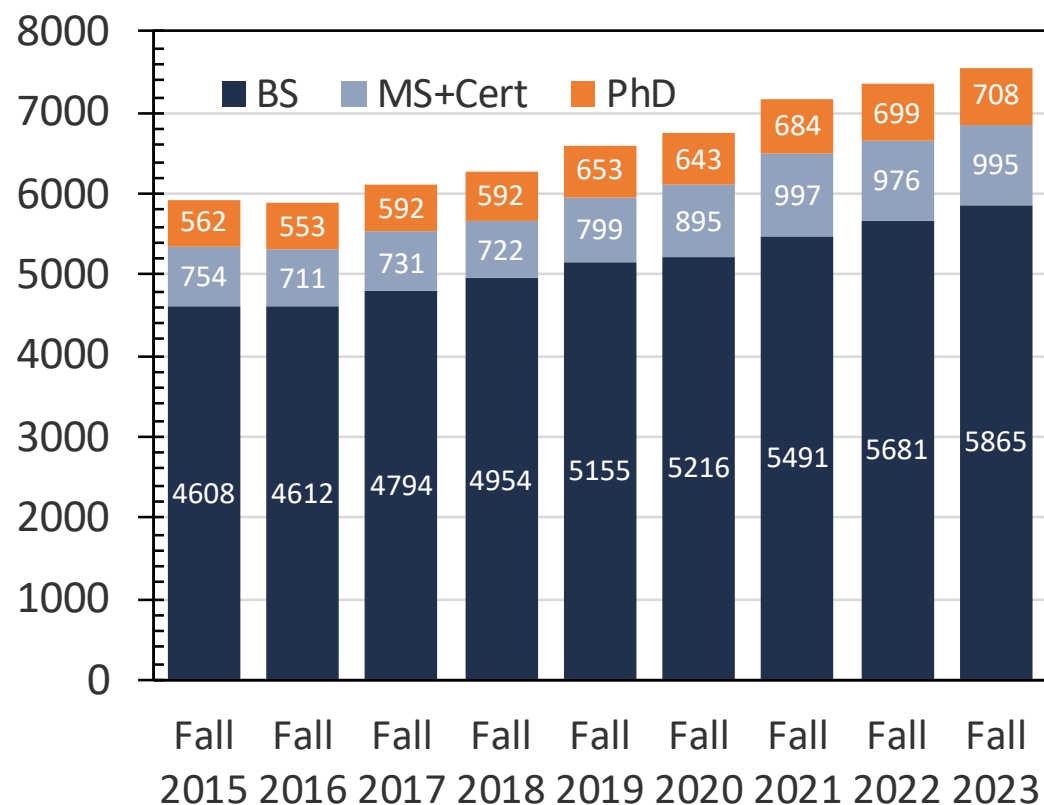


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MINES@150: grow to 7500 students

Headcount



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



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* - Fall 2023 Census Data

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MINES@150 – Our Aspiration: **Top-of-Mind & First-Choice**

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**

An inspiring and caring community in which to learn, explore, live and work

Accessible and attractive to qualified students from all backgrounds

A leader in educating STEM students and professionals

A producer of differentiated and highly desired STEM-educated leaders

A go-to place for use-inspired research and innovation needed to solve challenges facing industry, society, and the environment

A preferred partner for talent, solutions and life-long learning

The exemplar for alumni affinity, visibility and involvement



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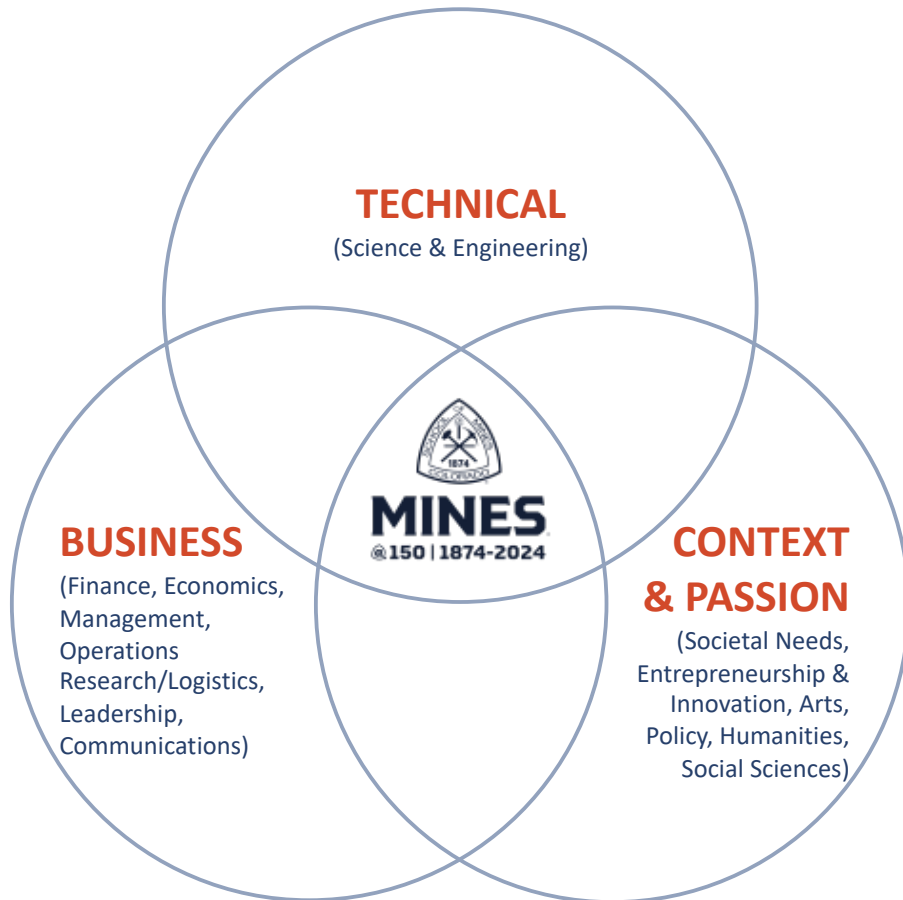
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MINES@150 – The Imperatives

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”)



2023 Fall Career Fair (2 days, 400+ companies)

+VIP/PASCAL Professional Development



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

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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."



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MINES@150: re-align our portfolio with the future; expand offerings and diversify delivery

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Fall 2023 BS Degree Program Enrollments

BS Degree Program	Headcount Fall 2023	BS Degree Program	Headcount Fall 2023
Mechanical Engineering	1769	Mining Engineering	102
Computer Science	1142	Geological Engineering	99
Chemical Engineering	493	Biochemistry	80
Electrical Engineering	428	Engineering/Design Engineering	50 + 26
Civil Engineering	330	Geophysical Engineering	69
Quantitative Biosciences Engineering*	238	Business Engineering & Mgmt Science*	68
Engineering Physics	215	Chemistry	55
Environmental Engineering	182	Undecided	48
Metallurgical & Materials Engineering	150	Economics	9
Applied Mathematics & Statistics	141	Ceramic Engineering**	10 (New Fall 2023)
Petroleum Engineering	126	Construction Engineering**	7 (New Fall 2023)
* - New in Fall 2021		** - New in Fall 2023	

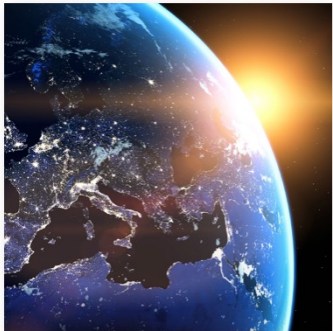
Fall 2023 Census Data



MINES@150: re-align our portfolio with the future; expand offerings and diversify delivery

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MINES@150: Promoting Our Unique Expertise and Capabilities



Earth Resources & Exploration

Responsibly developing Earth's resources



Integrated Energy Solutions

Powering the future



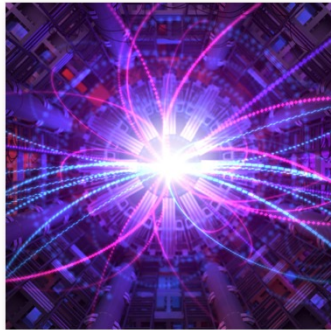
Sustainable Environment & Climate

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: 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



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

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MINES@150: The Entrepreneurship & Innovation Ecosystem



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

Labriola Innovation Hub

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

Beck Venture Center

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



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

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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



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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 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

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 ft²
of lab and office space

Groundbreaking
celebration in November
2023

Completion expected in
Summer 2026



MINES@150: a preferred partner for talent, solutions and life-long learning; a go-to place for use-inspired research and innovation

MINES@150 Infrastructure: AY 2023-24 Starts

Second-Year Housing

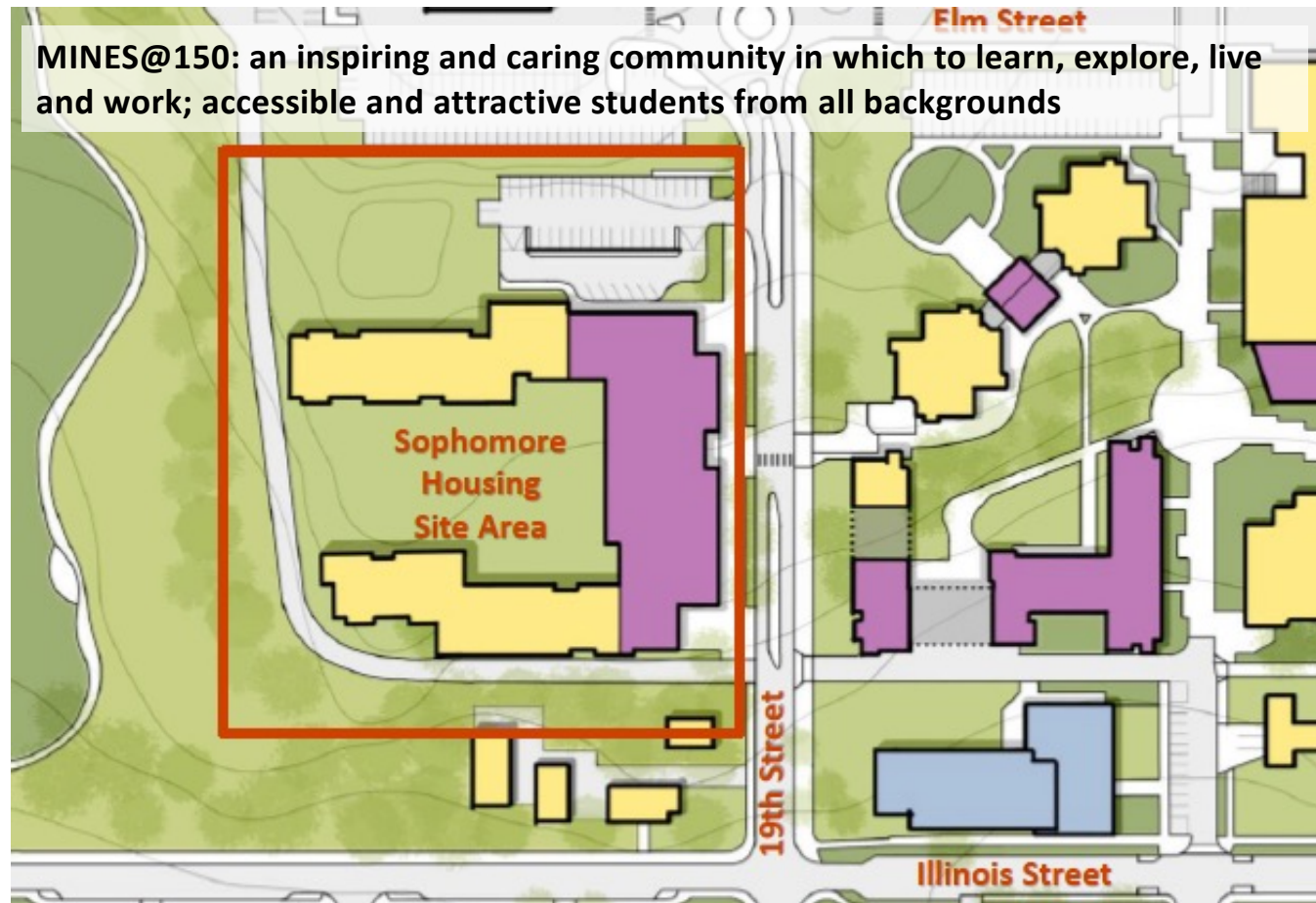
In planning phase – to meet MINES@150 goal of campus housing for all students for the first two years at Mines

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



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In planning...

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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)

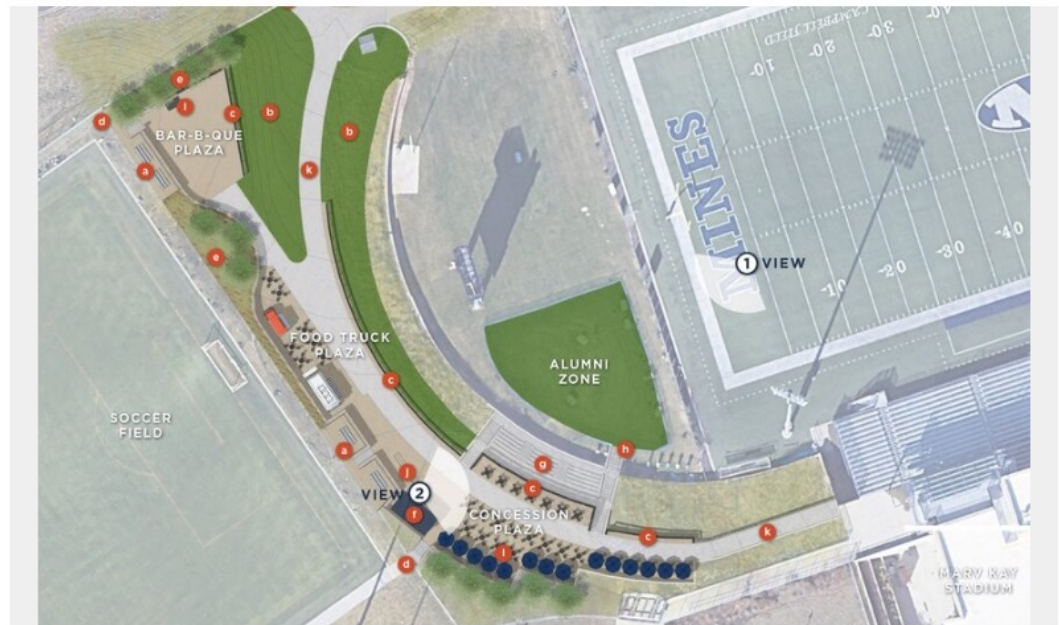
Expanded On-Campus Recreation Facilities

(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

GOLDEN TRANSCRIPT



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



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MINES@150 AY2023-24 Priorities

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

MINES@150 – The Why? (A Cautionary Tale...)

[View all Articles](#)



Commentary

By James Piereson, Naomi Schaefer Riley

West Virginia Budget Cuts Are a Taste of Higher Ed's Future

EDUCATION

Education

The Wall Street Journal
September 14th, 2023

Gordon Gee is only slightly ahead of his time. A baby bust will mean far fewer students in coming years.

1 Minute Read
[Share](#)



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Special Thanks



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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?



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