2018 Campus Conference Update

Agenda
• Quick Look Back
• State of Mines
• MINES@150
• Campus Conversations
• VP Highlights
• Q&A

August 17, 2018
Materials informatics fellowship trains next-gen workforce
Materials informatics is the next frontier of materials...

Klimek, Skokan win 2018 Malone Award from APLU
A Colorado School of Mines music professor and professor...

Steel scientists recognized for thermal processing research
Colorado School of Mines researchers affiliated with the...

Ozkan receives SPE reservoir description, dynamics award
Erdal Ozkan, professor and F.H. "Mick" Merelli/Cimarex...

Students partner with GoFarm to improve local food access
A geographic information system tool designed by Colorado...

Methane gas explosions focus of two new research projects
Gregory Bogin Jr., associate professor of mechanical...

Clarke receives Young Investigator Award from ONR
Amy J. Clarke, associate professor of metallurgical and...

Herring wins ACS Storch Award in Fuel Science
Andrew Herring, professor of chemical and biological...
Samaniuk awarded ACS-PRF funding for gas hydrates work
A chemical and biological engineering professor at Colorado...

Drug-delivering microbots could help treat lacunar strokes
Strokes are the fifth leading cause of death in the United...

Flintoft co-edits 3rd edition of textbook on campus violence
Rebecca Flintoft, associate vice president of student life...

Clarke to take a close look at additively manufactured alloys
A Colorado School of Mines associate professor will be...

Navarre-Sitchler receives DOE funds for rock weathering work
It's a discrepancy that has dogged geochemists for years —...

Wu awarded NSF funding for software stack scalability
A computer science professor at Colorado School of Mines is...

Mines team wins NASA RASC-AL deep space competition
A team of Colorado School of Mines students won the grand...

Mines graduate student wins materials science prize
Diptak Bhattacharya, a doctoral student in the...
3rd Consecutive RMAC All-Sports Cup
6th Nationally in Learfield Directors' Cup standings
Positive Bottom Line every year

67% Operating Budget Revenue
- growth in expenses outpacing revenues

120% Tuition Revenue
- Undergraduate enrollment: +31%
- Graduate enrollment: -2.9%
- 57% resident tuition increase in 10 years (4.6% annual average increase)

75% Housing & Dining Revenue
- 51% increase in # of beds
- 5.6% annual average rate increase

(-2%) State Support
Operating Budget Funding Sources & Expenses

### Revenue
- **Tuition**: 63%
- **Auxiliary**: 10%
- **Gifts**: 10%
- **IDC Recoveries**: 5%
- **State Support**: 10%
- **Other**: 2%

**FY 2019**

$236.72

### Expenses:
- Undergraduate Scholarships (15%)
- Auxiliaries (Housing and Food) (9%)
- Student Services (3%)
- Faculty Salaries + Instruction + Academic Operations + Graduate Student Support + Research Support + Academic Support (48%)
- Operations and Maintenance (11%)
- Institutional Support (8%)
- Information Technology (4%)
- Capital and Renovations (2%)

Excludes direct expense budgets from external grants and contracts
Mines Foundation Endowment Fund

Year End Market Value of the Mines Endowment ($M)
Fiscal Years 1998 - 2018

Alumni donors +26% since 2015
Total Donors +91% since 2015

Scholarships • Fellowships • Professorships • Program Support
Investments: Faculty

Academic Program Faculty

- Tenured
- Tenure-Track
- Teaching Faculty and PoP

Fall 12: 0
Fall 13: 50
Fall 14: 100
Fall 15: 150
Fall 16: 200
Fall 17: 250
Fall 18: 300

19 new hires for AY18-19 with 1:1 F:M; +64 since Fall ’12
Investments: Facilities

50% increase in campus square footage in the last 10 years → 3.1M ft² today
External Resources: Research and Tech Transfer

Research Award Trends FY02 – FY18

- Federal
- State
- Industry

FY18 Total Research Awards: $65,890,070

FY18 Research Awards By Sponsor:
- Federal: 69%
- Industry: 24%
- State: 7%
Student Enrollment

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<thead>
<tr>
<th>Year</th>
<th>New Undergraduate</th>
<th>PhD</th>
<th>MS (Non-Thesis)</th>
<th>Continuing Undergraduate</th>
<th>MS (Thesis)</th>
<th>Total</th>
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<td>378</td>
<td>560</td>
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<td>2015</td>
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<td>2017</td>
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<td>560</td>
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<td>2018</td>
<td>3550</td>
<td>394</td>
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</table>
Undergraduate Applicants • Admits • Yield

2018 Class averages: 1397 SAT, 31 ACT, 3.8 GPA
Sub-Population Apply • Admit • Enroll Data

Women

- % of Applicants
- % of Admits
- % of Enrolled

Underrepresented

- % of Applicants
- % of Admits
- % of Enrolled

First-Year Undergraduate Students
Student Success Indicators

1st to 2nd Year Retention

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<tr>
<td>Pell</td>
<td>83%</td>
<td>84%</td>
<td>85%</td>
<td>93%</td>
<td>93%</td>
<td>89%</td>
<td>88%</td>
<td>90%</td>
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<tr>
<td>Hispanic</td>
<td>91%</td>
<td>88%</td>
<td>81%</td>
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<tr>
<td>All Freshman</td>
<td>88%</td>
<td>89%</td>
<td>89%</td>
<td>92%</td>
<td>94%</td>
<td>94%</td>
<td>92%</td>
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Student Success Indicators

4-year Grad Rate by Freshman Cohort

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<th>Year</th>
<th>Pell</th>
<th>Hispanic</th>
<th>All Students</th>
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<tbody>
<tr>
<td>2010</td>
<td>41.6%</td>
<td>46.1%</td>
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<td>2011</td>
<td>43.1%</td>
<td>46.3%</td>
<td>55.3%</td>
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<tr>
<td>2012</td>
<td>58.5%</td>
<td>42.4%</td>
<td>59.3%</td>
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<tr>
<td>2013</td>
<td>53.0%</td>
<td>39.7%</td>
<td>62.2%</td>
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<tr>
<td>2014</td>
<td>58.6%</td>
<td>59.7%</td>
<td>63.6%</td>
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6-year Grad Rate by Freshman Cohort

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<th>Year</th>
<th>Hispanic</th>
<th>Pell</th>
<th>All Students</th>
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<tbody>
<tr>
<td>2008</td>
<td>82.4%</td>
<td>74.8%</td>
<td>75.9%</td>
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<tr>
<td>2009</td>
<td>74.1%</td>
<td>68.8%</td>
<td>76.6%</td>
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<tr>
<td>2010</td>
<td>78.9%</td>
<td>71.1%</td>
<td>76.8%</td>
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<td>2011</td>
<td>72.5%</td>
<td>71.5%</td>
<td>78.5%</td>
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<tr>
<td>2012</td>
<td>71.2%</td>
<td>78.2%</td>
<td>81.0%</td>
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</table>
### 2017-18 Graduates

**Successful Outcome:** BS (83%), MS (90%), PhD (92%)

**Average Offers:** BS ($70K); MS ($78K); PhD ($80K)
Today, **MINES is a jewel in the higher education landscape**; highly-respected locally and in industries and regions of the world aligned with our historical expertise in earth, energy, and environment.

Our longevity is attributable in part to our unique mission and success at:

**Producing distinctive graduates.** Employers particularly value their success in teams, resilience, grit, and ability to get things done.

**Creating transformative and enduring value** through the students we graduate, the discoveries we make, and the challenges we solve for industry and society.

**Being a pioneer at the frontiers of science and engineering,** from locating and recovering earth resources, to new energy production processes, new materials, advanced manufacturing processes, health innovations, and space exploration.
**The world is changing.**
As we look around, we see threats to our future:

**Competition:** increasingly competitive higher education landscape

**Relevance:** changing needs for education and research

**Complacency:** believing the status quo will succeed in the future

- **Minimal Public Investment**
- **Increased Competition for Top STEM Students**
- **The 4th Industrial Revolution Is Here**
- **Demographic Shifts in College-Bound Students**
- **Automation: We Can Be Replaced**
- **Preparing for Jobs That Don’t Exist Today**
- **Global Equalizing and New Delivery/Business Models**
- **Millennial and iGen Learners**
Our Call to Action - The Imperatives

Based on the identified threats, a self assessment, and campus discussions, we know that **to succeed as a mid-sized and uniquely focused school, we must**:

- be a *top-of-mind and first-choice school* for students, public and private partners, and faculty and staff.
- *expand offerings and diversify delivery*, in particular for professionally-oriented pre- and post-graduate education.
- *grow the scale and impact of our research*: focus on thematic strengths, develop a more social research culture, diversify funding sources.
- *strengthen affinity* for MINES among our students, alumni, and external partners.
- *be more innovative and entrepreneurial*, especially in the use of our resources
- *attract private investment* to support our key strategic initiatives
There is no single formula, but top-of-mind and first-choice schools typically:

- **have a strong brand identity**, likely built on well-known strengths in education and/or research, distinctive programs, and a signature student experience.

- **have attractive student success indicators** (high retention, graduation, employment, and return on investment).

- **are financially accessible** to qualified applicants from all backgrounds.

- **develop strong affinity** for the school among students, alumni, and partners.

- **are agile and entrepreneurial**.

- **have comprehensive partnerships** with industry and agencies, and other complementary education-focused entities.
MINES@150: The Seven High-Level Goals

After considering our call to action imperatives and what it takes to be first-choice and top-of-mind, the MINES community has decided to focus our efforts around seven high-level goals:

**In 2024+ MINES will be:**

- A leader in educating STEM students and professionals
- A preferred partner for talent, solutions and life-long learning
- A great community to learn, explore, live and work in
- 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 for challenges facing industry and society
- The exemplar for alumni affinity, visibility and involvement
### Sample MINES@150 School-Level Initiatives

<table>
<thead>
<tr>
<th>MINES@150 School-Level Initiatives</th>
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<td>Family Friendly Initiative</td>
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<td>MINES Leadership Institute</td>
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<td>Cohort Scholarship Programs</td>
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<td>Trefny Innovative Instruction Center Initiatives</td>
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<td>Program-Level Pathways of Distinction Plans</td>
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<td>Business Programs Expansion</td>
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MINES Leadership Institute •
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<td>Fryrear Chairs for Innovation and Excellence</td>
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Investing in Mines - $4.2M FY19 Investment

- **Mines@150**
  - Online programs
  - Programs of distinction
  - Distinct student experiences
  - Expanding residential campus

- **Core University Operations**
  - Business process reengineering
  - Campus infrastructure
  - Market compensation assessment
  - Campus day care assessment
Recent and Upcoming Projects

- 2017: CoorsTek Center $52m
- 2018: 18th Street Plaza
- 2018: Western Water Research Collaboratory
- 2018: Catalyst in RiNo Mines Bio
- 2018: New HPC
- 2018: Campus Generator $8m
- 2018: Master Plan
- Aug 2019: Parking Garage and Classroom Wrap $28m
- Aug 2019: Green Center Renovation $17m
- Aug 2020: Residence Hall $45m
- Aug 2020: 1750 Jackson Residence Hall Development
- 2020/21: Library Renovation $13m
- 2022/24: Future Housing
- 2021: Sub Surface Frontiers Mines/USGS

50% increase in campus square footage in the last 10 years ➔ 3.1m sf today
Strategic Plan for Diversity, Inclusion & Access

Council Charge:
- Frame recommendations in a strategic plan
- Ensure recommendations are data driven
- Cultivate shared responsibility for DIA
- Expand pathways for success

The Strategic Plan has:

- 4 Goals
- 42 recommendations

Progress to Date:
- 10 pilot programs this summer
- 24 pilots for Fall 2018

Example programs include:
- Hiring Excellence
- Practices for inclusive classrooms
- Advocates & Allies

Want to get involved? Email amylandis@mines.edu
NREL partnerships: NEXUS, joint appointments, and new degree program

Shared research equipment: a list (at last!) and a test of subsidies

New facilities in downtown Denver: collaborative biology space and water-energy technology hub

New proposal manager; consultants to assist with DOE, DOD, and DHS

Grad student fellowship proposal writing workshop for fall

Many campus visitors (funders, future partners, and legislators) and more to come

Small Business workshop
Admin and Ops Highlighted Accomplishments

- **Total Compensation Assessment** - completed phase I with approximately $750,000 in equity adjustments made in July. More adjustments to come.

- **Business Process Re-engineering** - Seven areas highlighted for improvements; Shared Services first initiative to implement. Prioritization and action plans being developed for each area.

- **Enhancing Family Friendly initiatives** - Implemented Backup Care for Mines families; RTD Flex Pass; and moving forward on creating a Mines Day Care Center

- **New Model for continuing education programs and faculty workshops** - financial and operational
Highlights in Student Life 2017-18

• MEP - Leadership collaborative, Challenge program and new location

• ROTC – 30% increase in cadets; national awards and rankings for physical and academic achievement as a cadre. New location – corner of Illinois & 19th.

• Veterans Support Activities - Mines named a Top Veteran friendly school

• CARE Reports/CARE Team - 350+ students connected to resources (40% increase over last year)

• Oredigger Camp II – bigger, faster, stronger, better!

• Athletics - Mines won its 3rd consecutive RMAC All-Sports Competition Cup, finished 2nd in the RMAC Sportsmanship Cup, won 3 Brechler Awards for having the top team GPAs in respective sports, 4 RMAC Coaches of the Year and finished 6th in the nation in the Learfield Directors' Cup final standings out of ~310 D-II programs. Special shout out to our wrestling team!

• Career Center – Strong outcomes again (84%, 90%, 92%). New format and app/two locations this fall with record companies/recruiter participation (325+, 1200). Main Event-Tuesday September 11th, 9am-2:30pm
  • The Earth, Energy and Environment Event Center located in the Student Recreation Center
  • Aerospace, Bio and High-Tech Manufacturing Event Center located in the Steinhauer
Great Things Going On: Academic Affairs

- **New Degree Programs**: Quantitative Biosciences and Engineering, Advanced Manufacturing, Natural Resources and Energy Policy, BS Engineering
- **Online Programs**: Space Resources, Mining Engineering and Management, CS Certificates
- **New Hires**: 21 new academic faculty, other impactful hires (International Programs, Writing Center, First-Year Honors, Honors Director)
- **Incentive Programs**: Innovation Fund ($1,500,00 over past two years), Programs Incentives ($381,000 to 8 programs/departments in FY19)
- **Payne Institute**: New Director, annual Conference established
Mines Foundation

- **Arden Bement, Jr. Endowed Scholarship** - Provides financial aid to undergraduate students pursuing a degree in Metallurgical and Materials Engineering.
- **Jack Hancock Wrestling Center** – 45+ alumni and friends have contributed to renovate and rename the wrestling room to the Jack Hancock Wrestling Center.
- **Thorson First Year Honors Program** – Don Thorson made additional gifts in support of the First Year Honors Program.
- **The John E. Warme Geoscience Field Studies Research Endowment** – This fund, created by alumni, will support field research and related laboratory expenses for individual geology and geological sciences graduate studies and undergraduate field studies.
- **Samuel C. Sandusky Endowed Fund for Humanitarian Engineering** – This award provides student with travel awards to enhance their Humanitarian Engineering experience. Created by the estate of Samuel Sandusky ’48.
- **Nickoloff E&I Faculty Fellowship** – Development of an Entrepreneurship & Innovation (E&I) Faculty Fellowship program by funding up to six faculty fellows participating in a 2018 summer workshop.
- **New Mines Water Center** – $1.5 million gift from Zoma Foundation (Walton Family) to initiate a water center in Denver.
- **Ramona Graves Chair** – $1 million gift from an alumnus in honor of Dr. Ramona Graves to establish a chair in her name.
- **Bliss Endowed Scholarship** – Anonymous $1 million gift to support and honor the Bliss Endowment (first generation students).
- **Anonymous Gift of Property** – for Dr. Bob Kee to provide long term support his graduate students
- **A Month for Mines** – nearly $200K raised for The Mines Fund with challenge match from alumnus and spouse
- **#idigmines** in its second year experienced a 15% revenue increase
- **Gold Mine crowdfunding** – hosted 19 projects, 1,000 donors and resulted in $143K
- **Faculty & Staff giving** – record-high 360 donors (9% increase)
- **Student philanthropy** – record-high 527 student donors.
- **Alumni Programming and Engagement** – Successful launch of 4 Special Interest Groups aligned with strategic goals of the institution. 31 alumni-hosted welcome parties around the country. Added 3 M Clubs and increased engagement opportunities for alumni by 12%.
- **Movement X** – a concept with a goal to unite the Mines community by more fully recognizing and celebrating all of our generous community’s gifts of time, talent and treasure.
2018 Campus Conference Update