In attendance via ZOOM technology (teleconference):

Advisory Board: Andrew Farke; William Siok; Janet Carter; David Hammond; Jeanne Goodman; Joy Lester; Barbara Nielsen; Paul Murphey; Scott Cooper; Sherwin Artus; Steve O'Rourke; Stuart Buchholz; Tim Wilcox;

GGE Department: Laurie Anderson; Arden Davis; Ed Duke; Kurt Katzenstein; Sarah Keenan; Liangping Li; Tim Masterlark; Darrin Pagnac; Chris Pellowski; Curtis Price; Foster Sawyer; Larry Stetler; Gokce Ustunisik; Nuri Uzunlar; Kevin Ward

Foundation and Administration: Jim Rankin; Lance Roberts; Sharon Chontos; Elizabeth Sailer;

Guests: Ann Brentlinger; Charles M. Ray; Lynn Taylor Rick

1. Welcome, Introduction, Minutes and Agenda review

2. Comments and Q&A with:

Jim Rankin, President SD Mines:
- Upon onset of CV19 restrictions, MINES was not equipped for on-line course offerings. Within two weeks, a functional on-line system was in-place.
  - In-person classes will resume in the fall of 2020.
  - On May 1, Gov. Noem issued an order to resume campus work.
  - MINES has been assisting local health agencies in support of CV19 response.
  - MINES has issued $1.6 million refunds in tuition and boarding fees.

Lance Roberts, Interim Provost and VP of Academic Affairs:
- Re-enforced the plan to re-establish a full activity schedule by fall.
- Establishing on-line curricula has been a significant challenge.
- Sturgis motorcycle rally 2020 is not definite at this point.
- A task force for on-line course work is developing a system for better synchronization between instructor and student.
- Currently negotiating with a candidate for Chair of the Mining Engineering and Management Dept.

Sharon Chontos, Interim President SD Mines Foundation:
- For Liz Sailer: Gave an update on Student Relief Fund and CARES Act.
- Announced the merger of the MINES Alumni Association and the Foundation.
3. Department, Museum, and Field Station Updates: Anderson, Uzunlar
   -Anderson: ABET and Geology
   Program Educational Objectives
   Constituencies
   Assessment of Student Outcomes and Performance Indicators
   (Refer to slides entitled: Geology and Geological Engineering, Museum of Geology, Advisory Board Meeting; ANSAC Assessment Summary for GEOL BS SD Mines; )
   -Discussed Role of Advisory Board in advancing GGE and University’s Strategic Plan.
   Fostering Recruiting Efforts, developing plans including:
   >Marketing and Communications Strategies for Social Media (Brentlinger, Ray, Taylor Rick)
   >Alumni involvement in Outreach and Recruiting
   >Professional Development for Teachers
   >Balance Message of Resource Extraction and Environmental Protection

4. IAB Business Meeting  Board
   Election of Officers
   -Nomination for Board Membership
     Bill Eldridge – approved.
   -Nomination of renewing member
     John Chandler – approved.
   -Old Business
     -Short discussion on the role of Advisory Board in advancing GGE and University’s Strategic Plan.
   -New Business
     -None brought forward.

   -Schedule for next Advisory Board Meeting set for Sat. September 19, 2020 at MINES.

Committee breakouts followed Via Zoom (invitation email sent separately).
Museum Committee (Laurie, Sarah, Darrin, Andy, Jim, Paul): 1:00-2:00
Field Station (Nuri, Dave, Steve, Scott): 1:00-2:00
GEOL Committee (Laurie, Andy, Bill, Nuri, Barbara, Scott): 2:00-3:00

Copies of slides attached.
Geology & Geological Engineering
Museum of Geology
Advisory Board Meeting

May 2, 2020
GGE: Covid-19

• Spring Break Extended March 16-20
• Museum closed March 16-June 30  
  • Passport in Time Cancelled
• All classes online March 23 for remainder of semester
• Work from home March 16-May 31
• No classes on campus thru June 30
• High School Camps cancelled
• Field Camps delayed until at least early July  
  • Contingency plans for online instruction of graduating seniors
• Research access to campus restricted starting March 16
• Operating Budget Reductions
• Defenses (online) still a go!
• Student Emergency Fund +$200k
• CARES Act: SD Mines $1.5 M
• Internship Coop offer: some rescinded
GGE: Awards, Updates

Michael Cyrier: GSA Rocky Mtn Section UG Research Grant

Jichao Bao: SD Mines Ivanhoe Fellowship

Fleford Redoloza: SD Mines Kate Simmons Teskey Fellowship

Perrin Salonek: SD Mines Leadership Hall of Fame

Disha Gupta: AAPG Student Research Grant

Grace DeVault: Charles Sternberg Scholarship (AAPS)
GGE: Outstanding Student Awards 2019-20

Geology & Geological Engineering
• Jack A. Redden Award, Outstanding Geology Senior: Michael Cyrier
• Edward L. Tullis Award, Outstanding Geological Engineering Senior: Wyatt Tatge

Graduate Education
• Outstanding Geology and Geological Engineering MS Student: (GEOE) Todd Anderson
• Outstanding Geology and Geological Engineering MS Student: (GEOL) Kristen Lewis
• Outstanding Paleontology MS Student: Grace DeVault
GGE and Museum: In the News

Jefferson Science Fellow 2020-21

Colorful sunsets and powerful volcanoes — the link between geology and weather

CO2-Research SDPB Oct 2019

SDPB/SD Mines STEAM Café October 2019

Some Museum of Geology staff were interviewed last week by KOTA Territory about campus programs to support women in science. Here at the Museum we are proud to be a female led department!

Tech makes moves to get more women in science
The School of Mines is working to improve the number of women...

Our Forest Service work in the Paleo Resource Management class last spring.

School of Mines gets an animal bone collection
A collection of animal bones ranging from bison and elk to mounta...
Department Strategic Plan

Academic & Co-Curricular Excellence
- Initiative 1: ABET Accreditation GEOL BS, Reaccreditation GEOE BS
- Initiative 2: UG Recruiting: Evaluate current initiatives and continue innovation

Research & Innovation
- Initiative 1: Increase external grant funding for RAs to attract strong graduate candidates
- Initiative 2: Assess our graduate program offerings to meet current trends in geoscience graduate education (non-thesis MS, hybrid courses, recruiting, employment)

Outreach & Engagement
- Initiative 1: Funding for Geo-EPICS, Geo-PATHS
- Initiative 2: Engage Outstanding Alumni with students

Campus Culture
- Initiative 1: Department Salons with Strategic Plan themes
- Initiative 2: Free Mini-Camps for regional high school students
## GGE: Admissions (as of 4/15/20)

<table>
<thead>
<tr>
<th></th>
<th>Fall 2018</th>
<th>Fall 2019</th>
<th>Fall 2020</th>
<th>Change ('19-'20)</th>
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<tbody>
<tr>
<td><strong>Applications</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOE</td>
<td>34</td>
<td>25</td>
<td>20</td>
<td>-20%</td>
</tr>
<tr>
<td>GEOL</td>
<td>50</td>
<td>59</td>
<td>55</td>
<td>-6.8%</td>
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<tr>
<td><strong>Acceptances</strong></td>
<td></td>
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<tr>
<td>GEOE</td>
<td>28</td>
<td>22</td>
<td>15</td>
<td>-31.8%</td>
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<tr>
<td>GEOL</td>
<td>40</td>
<td>41</td>
<td>42</td>
<td>2.4%</td>
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<tr>
<td><strong>Course Registrations</strong></td>
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<td></td>
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<tr>
<td>GEOE</td>
<td>3</td>
<td>3</td>
<td>6</td>
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<tr>
<td>GEOL</td>
<td>13</td>
<td>8</td>
<td>14</td>
<td>75%</td>
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*Excluding MEM specialization

### Undergrads

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<tr>
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<th>Fall 2018</th>
<th>Fall 2019</th>
<th>Fall 2020</th>
<th>Change ('19-'20)</th>
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<tbody>
<tr>
<td><strong>Applications</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>GRAD Programs*</td>
<td>33</td>
<td>29</td>
<td>35</td>
<td>+20%</td>
</tr>
<tr>
<td><strong>Acceptances</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAD Programs*</td>
<td>10</td>
<td>10</td>
<td>18</td>
<td>+80%</td>
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<tr>
<td><strong>Commits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAD Programs*</td>
<td>6</td>
<td>6</td>
<td>11 (1 pending)</td>
<td>+83%</td>
</tr>
</tbody>
</table>
Recruiting Efforts

Social Media: This week in lab...

Geomicrobiology

Surveying for Geological & Mining Engineers

Groundwater

Swag for Visiting Prospective Students

Social Media: This month in research...

Exhibit Booth GSA & AGU
Research Highlights

Ward (2020) **NSF:** Cascadia2020 Investigating subduction zone segmentation with a 3D high-resolution Vp model

**Nielsen, R.L., Ustunisik, G., et al., 2020**
Trace element and isotopic characteristics of plagioclase megacrysts in MORB plagioclases ultraphyric basalts (PUBs)

**Redoloza and Li (2020)**
Advances in Water Resources: Extremal optimization for well design

**Tukkaraja and Katzenstein** **NIOSH:** Ventilation in block cave mines

**Day and Duke** Field NIR spectroscopy white mica and metamorphism, Black Hills

**Masterlark (2020) USGS NEHRP**
library of earthquake deformation models for North America

**Keenan (2019)**
Biogeosciences Soil Stable Isotopic Changes After Decomposition
# FY 20 Geology & Geological Engineering (as of March 31, 2020)

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Type</th>
<th>Budget Start FY20</th>
<th>Budget Adjusted</th>
<th>% Remaining</th>
<th>Revenue Claim on Cash</th>
<th>NOTES</th>
</tr>
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<tbody>
<tr>
<td>4GGE02</td>
<td>O/H Recovery</td>
<td>O&amp;E</td>
<td>$5,000</td>
<td>$2499</td>
<td>99.93%</td>
<td>$7,525</td>
<td>$1,046 Covid -$2499</td>
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<tr>
<td>4GGE12</td>
<td>Equipment Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4GGE13</td>
<td>Geology Map Fund</td>
<td>O&amp;E</td>
<td>$75</td>
<td></td>
<td>100%</td>
<td>$203</td>
<td>$5,288</td>
</tr>
<tr>
<td>4GGE15</td>
<td>ESRI-ALC</td>
<td>Personal</td>
<td>$0</td>
<td>$2129</td>
<td>52%</td>
<td>$103,832</td>
<td>Covid -$1435</td>
</tr>
<tr>
<td>4GGE18</td>
<td>Tuition &amp; Fees</td>
<td>Personal</td>
<td>$1,205,642</td>
<td>$1,223,910</td>
<td>23.88%</td>
<td>$18,267</td>
<td>Moved O&amp;E to PS for TAs ($18,267)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Accounts for voluntary budget reduction of $1,800 for FY20; Covid –$467.26</td>
</tr>
<tr>
<td>4GGE28</td>
<td>ESRI Software</td>
<td>O&amp;E</td>
<td>$100</td>
<td></td>
<td>100%</td>
<td>$836</td>
<td></td>
</tr>
<tr>
<td>4GGE37</td>
<td>Special Disc Fee</td>
<td>Personal</td>
<td>$17,548</td>
<td></td>
<td>60%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4GGE39</td>
<td>Special Disc Fee</td>
<td>Personal</td>
<td>$213,265</td>
<td></td>
<td>24.34%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4GGE52</td>
<td>GIS Workshops</td>
<td>O&amp;E</td>
<td>$4,425</td>
<td>$6,153</td>
<td>20.66%</td>
<td>$5,802</td>
<td></td>
</tr>
</tbody>
</table>

*Typically rebudgeted to $1000 at end of FY*

*Budget increase $3000 in Jan; Covid*
FY21 Operating Budget

• Typical Expenditures ($34,917)
  • Rebudget to personal services to help cover TAs
  • Office operations
  • Office supplies
  • Field trips
  • Supplies/equipment for classes
  • Equipment rental for classes
  • Staff computers
  • Plotter rental and usage
  • Faculty travel for professional development
  • Guest speakers
  • Grad student recruiting at professional meetings

• Budget Model Impact on Strategic Initiatives (+$11,585)
  • Defray costs of GAs until Assistantship Budget Model implemented
  • Faculty searches
  • GGE teaching lab improvements: chairs, white boards, LCD projector upgrades
  • High Resolution GPS rentals
  • Online advertising of programs
  • Updates to new brand
Resource Needs

• FY21
  • Permission to search for 2 faculty members
    • to replace Dr. Sawyer, who plans to retire in June 2021
    • to replace Dr. Baran

• FY22
  • Hire faculty replacements for Drs. Sawyer and Baran
    • Partial start-up support

• Areas under discussion by faculty
  • Geologist with specialization in tectonics
    • Teach Structural Geology
    • Advise and fund graduate students in ...
  • Geological Engineer
    • Open specialization
    • Distribute soft-rock courses among existing (and new?) faculty members

• Salary Compression and Inversion
Black Hills Natural Sciences Field Station

**2018-19 in Numbers**
- Total number of courses offered: 21
- Number of Locations: 16
- Total number of Students: 276
- Total number of credits: 1378
- Total Revenue: $1.324 Million

<table>
<thead>
<tr>
<th>Year</th>
<th>Credit Hours Generated</th>
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<tbody>
<tr>
<td>2014</td>
<td>968</td>
</tr>
<tr>
<td>2015</td>
<td>1027</td>
</tr>
<tr>
<td>2016</td>
<td>1386</td>
</tr>
<tr>
<td>2017</td>
<td>1200</td>
</tr>
<tr>
<td>2018</td>
<td>1378</td>
</tr>
</tbody>
</table>
Museum of Geology FY19

Collections:
- 5 Federal Agencies Served; Bureau of Land Management, Bureau of Reclamation, National Park Service, Army Corps, Forest Service
- 6 RAs & 11 Student Workers

Student Projects
- 5 Senior Research/Indep. Studies
- 11 MS or PhD projects

Exhibit Hall:
- 24,380 visitors
- $69,160 sales and free-will donations

Outreach, Tours, Public Programs:
- 67 tours
- 138 fossil and rock ID requests

Volunteers PRL:
- 27 volunteers logged 2,383 hours in Prep Lab

Informal STEM Education Training
- 22 Museum Student Workers

Grant support:
- NSF DBI (2), BIO, GOLD
- Bureau Land Management
- US Army Corps of Engineers
- National Park Service
Museum Strategic Plan

Academic & Co-Curricular Excellence
• Initiative 1: Teach a new field methods course for GGE
• Initiative 2: Add field experiences to GGE graduate course

Research & Innovation
• Initiative 1: Achieve new grant funding (IMLS)
• Initiative 2: Hire Collections Manager/Associate Director

Outreach & Engagement
• Initiative 1: Achieve AAM accreditation
• Initiative 2: Increase outreach with Native American Community

Campus Culture
• Initiative 1: Field and ethics training for Paleo Club
• Initiative 2: Enhance security of Museum and PRL
## FY20 Operating Budget

### FY 20 Museum of Geology (as of March 31, 2020)

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Type</th>
<th>Budget Start FY20</th>
<th>Budget Adjusted</th>
<th>% Remaining</th>
<th>Revenue</th>
<th>Claim on Cash</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4MSM01</td>
<td>General Fund</td>
<td>Personal Services</td>
<td>$151,318</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4MSM03</td>
<td>O/H MSM</td>
<td>O&amp;E</td>
<td>$2,000</td>
<td>$1,000</td>
<td>100%</td>
<td>$1,079</td>
<td>$20,640</td>
<td>Covid -$1,000</td>
</tr>
<tr>
<td>4MSM06</td>
<td>Store</td>
<td>Personal Services</td>
<td>$10,022</td>
<td>$30,247</td>
<td>14%</td>
<td>$17,905</td>
<td>$16,640</td>
<td>$9,000 budget increase;</td>
</tr>
<tr>
<td>4MSM08</td>
<td>Fdn Clearing</td>
<td>Personal Services</td>
<td>$53,470</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4MSM12</td>
<td>Tuition &amp; Fees</td>
<td>Personal Services</td>
<td>$12,954</td>
<td>$18,059</td>
<td>32.9%</td>
<td></td>
<td></td>
<td>$5,106 moved O&amp;E to PS for student workers</td>
</tr>
<tr>
<td>4MSM12</td>
<td>Tuition &amp; Fees</td>
<td>O&amp;E</td>
<td>$27,179</td>
<td>$20,494</td>
<td>7.71%</td>
<td></td>
<td></td>
<td>Covid –$11,580</td>
</tr>
<tr>
<td>4MSM15</td>
<td>Curation Services</td>
<td>O&amp;E</td>
<td>$13,000</td>
<td>$6,500</td>
<td>100%</td>
<td></td>
<td>$17,905</td>
<td>Covid -$6,500</td>
</tr>
</tbody>
</table>

### Typical PRL Expenses
- Fossil preparation lab materials
- Curation materials
- 3 new laptops for collections work by students
- Students workers
- Software subscriptions for collections

### Exhibits Expenditures
- Merchandise for resale
- Signage, stands, and fabric for display improvements
- Marketing
- Student workers
Resource Needs

• **New Associate Director/Collections Manager: Nathaniel Fox**
  • PhD Environmental Systems, UC Merced (August 2020)
  • MS Geosciences, East TN State Univ
  • BS in Biology from U Mass Amherst
  • Museum experience
    • Mammoth Site
    • Denver Museum of Nature and Science
    • La Brea Tar Pits
  • **Mitigation paleontologist, SWCA Environmental Consultants**
  • Starting in August 2020
  • Duties:
    • Collections Management
    • Database Administration
    • Teaching/Training
    • Partnership Development
Revenue Positive Initiatives

- **Add security cameras** (9 @~$500 each; ~$4,500)
  - 4 in Exhibit Hall, 5 in PRL
  - Safety, theft, vandalism prevention, and liability mitigation
  - Allows back door of PRL to be open during business hours
  - More visitor access to PRL
  - Potential to exhibit higher value items

- **Radioactive room shielding** (~$20,000)
  - Health of staff and students
Thank You!