FACULTY SENATE MEETING MINUTES
April 12, 2:00 – 4:00 pm, via Zoom

Attendees:
Voting Members: 15 total (8 needed for quorum). Quorum was present

P	Sebnem Duzgun (Chair)	A	Ventzi Karaivanov (ME)	P	Linda Figueroa (CEE/MN)	P	Joseph Horan (HASS)
P	Jeff King (MME)	P	Yvette Kuiper (GE)	A	John McCray (CEE)	P	Cynthia Norrgran (CBE)
P	Bettina Voelker (CH)	P	Lawrence Wiencke (PH)	P	Pat Kohl (PH)	P	Brandon Dugan (GP)
A	Sid Saleh (EB)	P	Deb Carney (AMS)	A	Soutir Bandyopadhyay (AMS)		

Other Regular Attendees and Guests

P	Tracy Gardner (Trustee)	P	Rick Holz (AA)	A	Paul Myskiw (RO)	A	Colin Terry (Student Life)
P	Sam Spiegel (Trefny)	P	Ethan Lewellin (USG)	A	Maxwell Silver (GSG)	P	Mara Green (AA)
P	Vibhuti Dave (UGS)	A	Tim Barbari (OGS)	A	Lori Kester (EM)	A	Patricia Anderson (Library)
A	Karla Perez-Velez (CASA)	P	Deb Jordan (Trefny)	P	Tim Sorensen (PE)		

Special Guest(s): Kirsten Volpi (Executive Vice President and Chief Operating Officer), Megan Sanders (Senior Assessment Associate, Trefny), Justin Shaffer (CBE), Alina Handorean (EDS)

Welcome   Sebnem Duzgun

Academic Affairs   Rick Holz
Holz welcomed Senators and encouraged faculty to attend the upcoming award celebrations and commencement.

COVID-19 Updates
Ten residents are isolated with a total of twenty-eight active cases on campus; Mines to monitor situation carefully with the increase in cases in the United States. Mines to follow Jefferson County and CDC guidance. 89.6% of students and 86% of employees have reported vaccination.

American Society of Civil Engineers - Rocky Mountain Regional Conference
Conference was hosted by Mines 4/8-9. Students earned conference champion and did well on technical and non-technical papers. Mines CEE students placed first and second in mystery design, one student placed first in pre-design, and one student placed first in the UESI surveying challenge. Mines' team placed first in sustainable solutions; Mines was the bridge champion in the student steel bridge contest. The concrete canoe scored second place. Mines will progress to nationals.

Enrollment
Over the next four weeks students will begin to deposit; as of 4/12 1,147 students have deposited. Mines' overall yield reported 1.7% increase; over a two-year period, the yield has increased 5%. Mines anticipates reaching goal of 1,325 students for Fall 2022 and may exceed that. Mines to continue monitoring ethnical breakdown of classes.

Registrar's Office   Paul Myskiw
No updates from the Registrar's Office.

Approval of Minutes – March 8, 2022   Sebnem Duzgun

MOTION: To approve the Faculty Senate minutes of March 8, 2022 by Kuiper, seconded by Dugan. Motion passed unanimously.

Mines Finance   Kirsten Volpi

Mines' Strategic Budget Planning

Mines welcomed two new hires in Finance, Administration, and Operations for the Associate Vice President for Infrastructure and Operations and Title IX coordinator. Current search underway for Chief Information Officer; resumes reviewed and initial round of interviews completed, two finalists invited to campus. Will provide dedicated time for Faculty Senate executive committee and department heads to meet with candidates.

Implementation of new enterprise system underway. Banner had been used for finance and human resources, will be replaced with Workday by 2023. Equal Work for Equal Pay continuing through phases of assessment; Equal Work for Equal Pay to be a continuous process with assessment done each year.

Volpi provided overview of capital projects. Construction underway for Labriola Innovation Complex and Beck Venture Center with expected completion Summer 2023. The Energy and Minerals Research Facility would have joint occupancy between the United States Geological Survey (USGS) and Mines; USGS expected to bring additional occupants, Mines re-evaluating occupancy plan. Facility expected to break ground by 2023. Village at Mines Park expecting redevelopment and reinvention with access to recreation and dining and focus on sustainable community; the Village to be done in multiple phases with expected completion Fall 2024 with 500-600 more beds for junior, senior, and graduate students. Board of Trustees approved the 11,500 square foot Early Childhood Education Center expected to house 104 students with expected construction late 2022 or early 2023, opening date to be determined.

Mines expected to increase campus solar expansion primarily on rooftops. Planning in place for a parking garage and classroom building, more sophomore housing with additional dining and recreation, a research building to address the fifty percent increase in research activity over the past five years, and a master plan of the land to the south of 19th Street.

Volpi noted the budget committee meets all year and focuses on fiscal year 2023 and beyond. Current focuses of FY2023 include strategic investments, investments to address campus growth, and operational needs. Mines' two main revenue sources include tuition and state support. State support hard to predict, relies on financial performance of state and governor priorities. Governor has recommended minimizing tuition increases due to increased state support. Tuition rates adjusted for discounting, 2020 Mines' resident undergraduate net tuition fell below net institution with inflation, Mines experienced difficulty managing expenses with tuition rate not being kept up with inflation. Preliminary summary for FY2023 reported revenue projection of $270.7 million with more expenses than expected resulting in negative $6 million; Volpi noted the budget is not completed.

- **Question** on research bringing in revenue; $18.5 million in grants and contracts are indirect costs coming to the university as revenue for FY2023 preliminary budget. Volpi noted the expenses are higher than the revenue with research.
- **Question** on Mines' focus on teaching or research; Mines is a teaching and research university and does not conduct research for money. Mines requires balance between research and teaching. Volpi reported on university imbalances between expenses, indirect cost rate has federal cap on certain amount of expenses charged to university rate; federal cap does not allow for allocation of all expenses.

Comment made on Academic Affairs, Faculty Senate, and shareholder continued support of childcare services at Mines. Volpi made not of lack of centers in Golden with an eighteen-month wait in some areas. Backup care provided on ad hoc basis; childcare center designed with expansion in mind.

Comment made on student tuition not reflected in research indirect costs and is substantial.

Committee Updates
<u>Taskforce on Instruction Effectiveness</u>

Alina Handorean
Megan Sanders
Justin Shaffer

Taskforce established Fall 2018, Handorean co-chair with Shaffer while working closely with Sanders and other faculty and staff. Taskforce charged with defining effective instruction at Mines, what should be evaluated, and identifying tools for assessment of instruction outcomes. Taskforce outlined four pillars for highly effective teaching: supportive of students, focused on learning, reflective, and intentionally designed; all pillars can be found linked on the Trefny Center site ([click here](#)). Taskforce determined what can/should be evaluated to determine instruction effectiveness based on the definition of effective teaching. This is done through students' midterm and end of course evaluations, midterm peer observation, and an end of course self-reflection.

The end of course evaluation was revised and adopted Spring 2020 with FDRs for this cycle using the new form data. Peer observations were developed by the Trefny Center and piloted Fall 2019 and Fall 2021 where faculty were paired as observer and observed; process takes around three hours for the observer and one hour for observed faculty. Midterm evaluations piloted in 2020 and sent out starting Fall 2021 as an optional survey; the frame had been sent to Faculty Senate. End of course self-reflections have a template form created but have not been piloted.

Taskforce recommended, following consult with Academic Affairs, department heads, faculty, and other stakeholders; that the committee should be charged with planning how to fully implement these tools. The tools have been piloted at a small scale. Taskforce recommended embedding the optional midcourse student survey in Canvas courses where faculty can choose to distribute. Taskforce recommended finalizing and standardizing end of course evaluation questions and implement the revised evaluation in online course starting Fall 2022 with scheduled communications to encourage faculty use of the optional surveys.

Comment made on issues of providing anonymous platform that may encourage abusive language toward faculty; Shaffer suggested prompts for student language, Silver noted removal of the anonymity may result in less participation and constructive feedback from students.

- **Question** on ability to track down inappropriate language; threatening language to be reported to Spiegel, Dean of Students, and department. Shaffer reiterated importance of peer observation.
- **Question** on more objective tool to measure teaching effectiveness; Shaffer noted peer evaluation as a method of feedback with no desire for an additional evaluative tool. Feedback used to document instructors' improvements over time.

Comment made on continued training and support for department heads and the use of evaluations in teaching. Taskforce charge to be drafted.

Briefings, Informational Items, and Updates

<u>Online Education</u>   Sam Spiegel

Spiegel provided high-level overview of the faculty survey on online education; survey focused on perceptions of online education in general, misconceptions, preconceptions, and experiences. Mines Online and Faculty Senate commissioned external evaluators with questions framed around what colleagues were hearing. Overall conclusion leant more negative with confusion regarding remote versus online. 197 faculty completed the survey with a majority being senior faculty. Campus chatter negative regarding online. Mines Online was viewed in a more negative light, faculty were unaware of key policies and rationale regarding online teaching, concerns raised regarding course rigor and quality, success, and positive comments present in survey, as well. Comments expressed positivity toward flexibility of teaching online, reaching a broader population, course structure and design, and working with Online Learning Experience Designer (OLED) team.

Respondents provided recommendations including increased transparency on the Standards committee (who is in it, meeting minutes, reports), provide faculty with a summary of best practices and research related to decisions made by Mines Online, survey and/or interview students and faculty on their experiences in online courses, and study learning outcomes for online versus face-to-face courses.

Spiegel reported on Mines Online current work. Mines Online to meet with departments, program liaisons, and create a more transparent process through flowcharts and educational resources, conduct research on online teaching and learning, compare online versus comparable residential courses over the summer, and work with Faculty Senate Standards Committee and enhance faculty awareness.

Faculty Senate Executive Committee developed recommendations, expected to provide report with recommendations to Senators for review and vote.

-   **Question** on where policies are located or enumerated for view; Spiegel stated some policies and procedures being developed and worked on, procedures can be provided by Mines Online through flowcharts.
-   **Question** on where the eight-week structure is enumerated and the differences between asynchronous and synchronous teaching; Spiegel reported semester structure policies identical for online and residential, online can utilize asynchronous and synchronous teaching. Students should be made aware of synchronous teaching, departments expressed concern regarding synchronous teaching.
-   **Question** on eight-week model and students combining sixteen- and eight-week courses, if the model is worth rethinking; Spiegel noted the model is regularly reconsidered and analyzed. The predominate confusion reported by residential students taking eight-week courses, campus to continue educating students on rigor of eight-week courses.

Comment made on condensing content in three-credit courses causing students to struggle; Spiegel noted cases of courses being broken up due to projects needing more than eight-weeks to progress.

Request made for elaboration to Engineering and Facilitating Online Learning (EFOL) course changes. Spiegel noted accreditation purposes require faculty training and documentation; EFOL is five weeks with an expectation of ten hours a week. Next session May 2022 with successful completion resulting in $2,500 in Rd/PD account. Starting August 2022, new faculty required to complete fifty hours of

professional development around course design with Trefny and online as part of on-boarding, without payment associated. Content will remain the same, organized differently.

Concern raised on time commitment for new faculty. Spiegel reported this format will be tested; accreditation is required to design and teach an online course.

Undergraduate Council   Jeff King
<u>New courses, deactivations, and changes approved by Undergraduate Council have been listed at the bottom of the minutes.</u>

Programs for Vote – presented to Faculty Senate 3/2/22

1.1   **GEOPHYSICS**
             [CIM 12/21; UGC 2/23]
             1 program change: BS-GPE: BS in Geophysical Engineering
             Recent student feedback indicates that the current single semester Applied Geophysics course is insufficient to cover applied geophysics methods in the necessary depth. To better prepare the students for their future careers and prepare them for the geophysics summer camp, we propose to extend the Applied Geophysics to two-semester courses: GPGN318 Applied Geophysics I and GPGN319 Applied Geophysics II. The two courses will be offered synchronically with the two other current courses, GPGN 328 Physics of the Earth I and GPGN329 Physics of the Earth II, with one series (328/329) focusing on theories and the other (318/319) focusing on applications. Removal of GPGN350.

MOTION: To approve the program change in Geophysics to BS-GPE: BS in Geophysical Engineering by King, seconded by Horan. Motion passed unanimously.

Programs for Presentation – for vote on 4/26/22

1.2   **COMPUTER SCIENCE**
             [CIM 1/26; UGC 3/9]
             5 program changes: BS-CS: BS in Computer Science
                                         MIN-COMPE: Minor in Computer Engineering
                                         MIN-DSCI: Minor in Data Science
                                         MIN-RIS: Minor in Robotics and Intelligent Systems
                                         MINASI-CS: Minor/ASI in Computer Science
             Updating courses to align with creation of new course sequence of CSCI 200 -> CSCI 220 in place of CSCI 261 → CSCI 262.

1.3   **ENGINEERING, DESIGN, AND SOCIETY**
             [CIM 1/24; UGC 3/9]
             3 program changes: BS-EGN: BS in Engineering
             The Bachelor of Science in Engineering Program supports students with a disciplinary background in Design Engineering through multi-disciplinary educational opportunities. Students within the program are required to take design courses every semester through the EDS department. Engineering Fundamentals courses together with more specific Engineering Elective courses deepen technical knowledge for the students. Focus Area electives provide an opportunity for the students to advance their knowledge in

fields/areas of which they are most passionate. The focus on design engineering and the multi-disciplinary technical background of the students supports the Mines@150 mission through hands-on, active learning, engineering design, and multi-disciplinary teamwork.

MIN-ECD: Minor in Engineering for Community Development
MIN-LSR: Minor in Leadership in Social Responsibility

To facilitate pathway to graduation, use existing faculty courses more effectively, and maintain the two distinctive flavors of our minors, we proposed an updated structure to the two minors (see CIM page/agenda item).

1.4   **HUMANITIES, ARTS, AND SOCIAL SCIENCE**
[CIM 1/24; UGC 3/9]
1 program change: MIN-CCC: Minor in Culture, Creativity, and Communication
Course numbers have changed—they have been updated in the course lists for HASS303 (changed from HASS201 Spring2022), HASS 302 (changed from HASS300 Spring 2022).

Graduate Council   Tina Voelker
New courses, deactivations, and changes approved by Graduate Council have been listed at the bottom of the minutes.

Programs for Vote – Presented to Faculty Senate on 3/2/22

2.1   **MECHANICAL ENGINEERING**
[CIM 2/1; GC 3/2]
1 program change: CERTMS-ADVMAN: CERT & MS – Additive Manufacturing
Changing the name of the MSNT program to Additive Manufacturing as recommended by advisory committee and in keeping with student feedback and interest.

Revising the MSNT Core Courses to reflect the focus on Additive Manufacturing.

2.2   **PETROLEUM ENGINEERING**
[CIM 1/31; GC 3/2]
1 program deactivation: MP-PMPRS: Professional Masters in Petroleum Reservoir
                                              Systems
The Professional Masters in Petroleum Reservoir Systems is recommended to be sun-setted. The program has attracted low applicant numbers primarily because the Petroleum industry does not generally support the Professional Masters degree. Also, while the Professional Masters program was intended for working professionals, many of the applicants are not employed and those who enroll generally want to convert to a thesis-based MS once they begin the program. Due to the low enrollment in the program, the required classes draw low registration.

The participating departments, Geology and Geological Engineering, Geophysics and Petroleum Engineering are all in agreement on the sun-setting of the program. Currently enrolled students (4) will be supported until the completion of their program.

2.3   **MINING ENGINEERING**
[CIM 2/17; GC 3/2 (Consent Agenda)]
1 program change: MP-MEM: MP – Mining Engineering and Management

Minor cosmetic changes to the program language.

2.4   **ELECTRICAL ENGINEERING**
         [CIM 2/18; GC 3/2 (Consent Agenda)]
         1 program change: MSPHD-EE: MS & PhD – Electrical Engineering
         Updated the "EPSE" track name to "PES" (Power and Energy Systems).

MOTION: To approve the curriculum items 2.1 through 2.4 in an omnibus Senate vote by King, seconded by Horan. Motion passed unanimously.

Programs for Presentation – for vote on 4/26/22

2.5   **ECONOMICS AND BUSINESS**
         [CIM 2/17; GC 4/6]
         1 program change: MSPHD-ECO: MS & PhD – Mineral & Energy Economics
         Adding language to the program to encourage applicants to the Mineral and Energy Economics (MEE) program by facilitating applications from Western Colorado University's Bachelors of Energy Management program. The program will allow these students to complete the non-thesis Masters in MEE in one year by setting specific course requirements at Western Colorado University.

2.6   **MECHANICAL ENGINEERING**
         [CIM 2/16; GC 4/6]
         1 program change: MSPHD-MECH: MS & PhD – Mechanical Engineering
         Adding Online Modality to support an Online Mechanical Engineering Masters Non-Thesis degree. Actual start date would be Spring 2023, but not available as an option for the drop-down menu.

- **Question** on residential students' ability to take online courses; Petrella reported residential students will have access to online sections as the initial plan, ME does not see the need to place restrictions at the time.
- **Question** on asynchronous or synchronous courses; Petrella reported all online sections will follow the asynchronous model for online.

Comment made on residential students mixing online and residential courses and experiencing difficulty; Petrella noted students that find the online section too difficult should refrain from registering. Residential courses are not being changed, online sections are being added. Students not forced to move from one format or schedule.

- **Question** if faculty are teaching online and residential sections in one semester; Petrella noted this will not be the case. Faculty have been teaching two sections, most tenured, with expectation to hire new faculty as program grows.
- **Question** on how the department will handle twelve additional sections; Petrella stated nine or ten sections are covered with adjuncts covering the other two sections.
- **Question** on long-term maintenance of similarity of online and residential sections; some sections will not be taught by different instructors, though Petrella advocated against instructor teaching online eight-week and residential sixteen-week within the same semester. Larger strategy to maintain consistency and quality through use of a Director of Online Programs;

director to check designing and management of process and learning outcomes. Petrella to currently fill position.
- **Question** on Director of Online Programs' authority related to online standards, fair compensation, and role with other stakeholders; Petrella written detailed job description with advocation for appropriate compensation and communication between departments and stakeholders.
- **Question** on analysis of revenue, and if the program is revenue neutral; Petrella reported on financial model called 25% Gross Margin Model for Online from which strategic investment is given back to the program. Spiegel noted the business model for online has a planned positive revenue stream, requirement from Board of Trustees is show of reasonable return on investment.

Adjourn   Sebnem Duzgun

Meeting adjourned: 4:01 pm.
Next meeting: April 26, 2:00-4:00 pm Brown 206 and Zoom.

Undergraduate Council approved new courses
BIOL301: Introduction to Quantitative Biology II
CBEN455: International Genetic Engineered Machine Seminar
CSCI220: Data Structures and Algorithms
ENGY475: Introduction to Nuclear Engineering

Undergraduate Council approved course changes
CSCI274: Introduction to Linux Operating System – *Addition of prerequisite: CSCI200 or CSCI261*
CSCI290: Programming Challenges I – *Addition of prerequisite: CSCI200 or CSCI261*
CSCI303: Introduction to Data Science – *Addition of prerequisite: CSCI200*
CSCI306: Software Engineering – *Addition of prerequisite: CSCI220 with a grade of C- or higher OR CSCI262 with a grade of C- or higher*
CSCI341: Computer Organization - *Addition of prerequisite: CSCI200 or CSCI261 AND co-requisite CSCI262*
CSCI403: Data Base Management – *Addition of prerequisite: CSCI200 with a grade of C- or higher OR CSCI262 with a C- or higher*
CSCI404: Artificial Intelligence – *Addition of prerequisite: CSCI220 with a grade of C- or higher OR CSCI262 with a grade of C- or higher*
CSCI406: Algorithms – *Addition of prerequisite: CSCI220 with a grade of C- or higher OR CSCI262 with a grade of C- or higher AND MATH213*
CSCI432: Robot Ethics – *Addition of prerequisite: CSCI200 or CSCI262*
CSCI436: Human-Robot Interaction – *Addition of prerequisite: CSCI200 or CSCI262, and MATH201*
CSCI437: Introduction to Computer Vision – *Addition of prerequisite: CSCI200*
CSCI440: Parallel Computing for Scientists and Engineers – *Addition of prerequisite: CSCI200 with a grade of C- or higher OR CSCI262 with a grade of C- or higher, AND CSCI431*
CSCI441: Computer Graphics – *Addition of prerequisite: CSCI220 OR CSCI262 with a grade of C- or higher*
CSCI442: Operating Systems – *Addition of prerequisite: CSCI220 with a grade of C- or higher OR CSCI262 with a grade of C- or higher, AND CSCI274, AND CSCI341*
CSCI446: Web Applications – *Addition of Prerequisite: CSCI220*
CSCI470: Introduction to Machine Learning – *Addition of prerequisite: CSCI200 or CSCI261*
CSCI471: Computer Networks I – *Addition of prerequisite: CSCI220 or CSCI262, and CSCI274*
CSCI473: Human-Centered Robotics – *Addition of prerequisite: CSCI220 or CSCI262*

CSCI474: Introduction to Cryptography – *Addition of prerequisite: CSCI220 or CSCI262, and CSCI358 and MATH334 or MATH335 or MATH201*
CSCI475: Information Security and Privacy – *Addition of prerequisite: CSCI220 or CSCI262*
CSCI478: Introduction to Bioinformatics – *Addition of prerequisite: CSCI200*
DSCI403: Introduction to Data Science – *Update to prerequisites to align with changes to CSCI303 (cross-listed course)*
DSCI470: Introduction to Machine Learning – *Update to prerequisites to align with CSCI470 (cross-listed course)*
EDNS191: Introduction to Integrative Design – *Update to course name (Integrative Design Studio IA) and course description for more clarity on course topics and content. No substantial changes to course.*
EDNS192: Design and Human Values – *Update to course name (Integrative Design Studio IB) and course description for more clarity on course topics and content. No substantial changes to course.*
EDNS200: Design Communications – *Update to course name (Communication) and course description for more clarity on course topics and content. No substantial changes to course.*
EDNS291: Design Unleashed – *Update to course name (Integrative Design Studio IIA) and course description for more clarity on course topics and content. No substantial changes to course.*
EDNS292: Design for Globalized World – *Update to course name (Integrative Design Studio IIB) and course description for more clarity on course topics and content. No substantial changes to course.*
EDNS391: Design & Modeling of Integrated Systems – *Update to course name (Integrative Design Studio IIIA) and course description for more clarity on course topics and content. No substantial changes to course.*
EDNS392: Synthesize Design Identity – *Update to course name (Integrative Design Studio IIIB) and course description for more clarity on course topics and content. No substantial changes to course.*
MATH201: Introduction to Statistics – *Change to course description, reduce prerequisites to MATH112*
MATH424: Introduction to Applied Statistics – *Addition of prerequisite: MATH335*
MATH432: Spatial Statistics – *Addition of prerequisite: MATH332 and MATH335*
MATH436: Advanced Statistical Modeling – *Addition of prerequisite: MATH332*
MATH437: Multivariate Analysis – *Addition of prerequisite: MATH201, MATH332, MATH342, MATH424*
MATH438: Stochastic Models – *Addition of prerequisite: MATH332*

Graduate Council approved course changes
GEGN582: Integrated Surface Water Hydrology – *Removal of GEGN466/467 from prerequisites list and moved to co-requisites*
PHGN566: Modern Optical Engineering – *Removal of PHGN462 from prerequisites*
EBGN559: Supply Chain Analytics – *Name change from Supply Chain Management → Supply Chain Analytics*