Colorado School of Mines – UNDERGRADUATE COUNCIL MEETING MINUTES
February 12, 4:00 – 5:00 pm, via Zoom

Attendees:

Voting Members: 19 total (10 needed for quorum). Quorum was present.

P	Ventzi Karaivanov (chair)	P	Erik Menke (CH)	P	Adam Olsen (LB)	P	Rennie Kaunda (MN)
P	Jason Ganley (CBE)	P	Becky Lafrancois for Jeremy Suiter (EB)	P	Emmanuel De Moor (MME)	P	Mathias Burisch-Hassel (GE)
P	Rob Thompson (CS)	P	Ge Jin (GP)	P	Jeff Wheeler (ME)	P	Eliza Buhrer (HASS)
P	Linda Battalora (PE)	P	Hongyan Liu (CEE)	P	Hisham Sager (EE)	P	Tom Powell (USG)
P	Jack Bringardner (EDS)	P	Gus Greivel (AMS)	P	Laith Haddad (PH)		

Other Regular Attendees and Guests

	Sam Spiegel (Mines Online)	P	Vibhuti Dave (UGS)	P	Kristeen Serracino (AA)	P	Paul Myskiw (RO)
P	Karla Pérez-Vélez (CASA)		Danielle Boileau (CASA)		Cheryl Medford (GE)	P	D. Scott Heath (RO)
	Katie Ludwin (CASA)	P	Megan Sanders (Trefny Center)		Colin Terry (SL)		
	Luke Contreras (UA)		Julia Cable (UA)				

Special Guest(s): Becky Lafrancois, Christian Beren, Kadri Degdelen, Lakshmi Krishna, Micha Barankin, Chelsea Salinas

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Welcome Ventzi Karaivanov

Approval of Minutes –*January 22, 2025* Ventzi Karaivanov

MOTION: The motion to approve the previous meeting minutes was moved by M. Burisch-Hassel and seconded by H. Sager. The motion to approve the previous meeting minutes was approved 12 approved, 0 opposed, and 3 abstentions.

Briefings and Information Items

Registrar's Office Paul Myskiw\

For the Spring 2025 registration cycle, students began their registration window 10 minutes before the hour. This was done in response to faculty wanting less disruption during courses that were experienced in previous terms. As registration is gearing up for Summar and Fall, the Registrar asked for feedback. Did you notice any differences?

- **Question:** V. Karaivanov asked, where do we expect students to be 10 minutes before the hour?
- **Answer:** P. Myskiw answered that students are in between classes.
- **Comment:** E. Buhrer added that there was less disruption in HASS classes.
- **Comment:** V. Karaivanov added that there were still some disruptions, but they were due to the software being very slow or not working.
- **Comment:** P. Myskiw added there were some issues with the Amazon Cloud services but were resolved quickly.

Undergraduate Studies Vibhuti Dave/
OUS/Trefny Update Megan Sander

OUS is working on four projects to share with the UG Council. V. Dave encouraged Councilors to share these with faculty and engage in these topics. First, the catalog reorganization was introduced back in

August 2024. The idea was to clean up the catalog because of how cluttered it has become. The catalog taskforce has made some headway this Spring but is still looking for faculty representation to provide additional input and feedback. If you would like to participate, please reach out to V. Dave.

The taskforce is seeking to streamline the catalog and ensure that it serves its primary purpose, which is to be a resource to students, academic advisors, faculty, Registrar so there is a clear understanding of what is required to complete a degree at Mines. The secondary purpose of the catalog is to list policies and statements to be in legal and accreditation compliance. The taskforce would like to repurpose the navigation bar (on the left) and have a more streamlined approach to how programs are presented in the catalog. The current navigation bar is organized by undergraduate and graduate programs. However, under the undergraduate catalog, additional information about housing, dining, and tuition which can be taken out and instead live on an external webpage. Also, finding degree requirements required multi-click navigation so another change will be to list the UG degree programs alphabetically with a similar approach for minors and other complementary programs. Another big change is to revamp the program pages for more consistency and update the program tabs to include an Overview, Degree Requirements, Track Requirements, 4+1 Requirements, and Courses (instead of Faculty, Major, Minor). A Program Overview template has been developed and shared to the Council via Canvas to include a description of the program, educational objectives, learning outcomes, and accreditation status as applicable. The Degree Requirements would give a snapshot of what it takes to get a degree at Mines including credits hours to graduation and GPA requirements. Track Requirements would include track descriptions, summer field session requirements, and capstone requirements. 4+1 Requirements would include shared content between the undergraduate and graduate catalog.

Content changes would include removal of duplicate and outdate content, updating language and clarity, and migrating content (Student Life, Academic Calendar, Facilities and Building information) to an external webpage. Anticipated changes include updating outdated policy and identifying policy gaps and design policies where needed. The taskforce is also brainstorming interdisciplinary programs placement such as programs that are academic in nature but are currently not in the catalog as they do not have a traditional structure (ex. Sustainable Energy). All changes will be implemented starting in the 2026-2027 catalog.

Another big initiative from OUS is an institutional assessment plan. During the previous ABET and HLC visits, there was some concern raised about a lack of structure at an institutional level for assessment. ABET received 12 self-study reports for different programs and they noticed that data collection and the way the data is used was not consistent. ABET said this is something that needs to be fixed with organization at the top level as well as standardization across department to collect data and establish a continuous improvement process where whatever changes that were being made are connected to the data or the attainment of the learning outcomes. HLC also noticed that there is no process in place for non-accredited programs to do assessment. OUS would like to create an institutional framework and structure to assess the undergraduate degree programs at Mines that are also integrated into regular practice to make decisions based on clear, measurable outcomes. This would ensure curricula and student outcomes align with industry needs, accreditation standards, and professional organizations. OUS and Trefny have created a template to help programs develop an assessment plan (and meet accreditation standards for ABET). OUS and Trefny will offer a 4-day summer stipended workshop to provide programs time and support to build a well-formed assessment plan. Plans will then be collected to provide feedback and then can be revised in Fall 2025. Spring can be used to collect data and see how the plan is working out in execution. The existing University Assessment Committee will be utilized to provide additional feedback, promote cross-departmental dialogue, and build a bench of assessment experts. This will help to break up

the amount of work required for developing assessment plans so that it is done efficiently and over time instead of at the last minute. Please encourage your department's assessment lead to participate. Additionally, OUS and Trefny is working on establishing other summer workshops such as faculty working groups focused on courses with large enrollments (taught over multiple sections) and supporting four faculty members in attending a KEEN Foundation workshop on using AI in the classroom.

These changes will be implemented in the Faculty Handbook, Section 12 (presented at the Handbook Forum last week). The idea is to have a body on campus that can have conversations about curricula and learning outcomes to ensure that the institution as a whole has a cohesive curriculum that is meeting industry and accreditation standards as well as management a comprehensive assessment process and promote best practices. An additional change is to require a quorum of eight members to conduct business.

Lastly, OUS/Trefny is proposing an AI summit to be held on the day of the Faculty Conference (August 22nd after New Faculty Introductions). It would be a two to three-hour event. Information on the agenda topics will be shared no later than April. A keynote speaker will be invited to address how AI is going to impact pedagogy, the type of assessment used in the classroom, and the skills that will be taught to students.

Interdisciplinary Energy Minor Kathleen Hancock

In the interdisciplinary Energy minor program, there are four core courses taught. However, the program is run into a challenge in that the Physics department has been hiring adjunct faculty to teach these courses. After this semester, they will no longer be able to do so, therefore, the program does not have anyone to teach the Introduction to Energy or Renewal Energy courses. To avoid dropping these critical core courses or dropping the minor altogether, the program is seeking faculty/department to participate/teach in this program (two adjunct per year and/or TAs). This program is one of the very few interdisciplinary programs that focus on energy. Please discuss with your departments if there is any interest in helping the Energy minor program. A document has been shared on Canvas that provides additional background information.

1 Curriculum Item(s) for Council Vote

***Please complete Canvas voting for the following curriculum item(s) by February 12th at 3:00 pm.**

1.1

EE		Hisham Sager
CIM 12/6		
1 program change:	BS-EE: BS IN ELECTRICAL ENGINEERING	
	1) Updated language, 2) Added EENG484 as a new EE elective: this course was recently approved as a new course, based on the special topics course were previously allowed to count as an EE elective (EENG498: Adv. Embedded Systems), 3) Added MEGN465 as a new EE elective: When this was a special topics course last year, we approved it as an EE elective by way of course exceptions. Since the contents and learning objectives have remained the same with the new course code, we would like to officially make this an approved EE elective, and 4) Moved EBGN321 from the sophomore year to junior year, which required swapping EBNG321 with MATH332 on the	

	flowchart.
5 course deactivations:	EENG390: ENERGY, ELECTRICITY, RENEWAL ENERGY, AND ELECTRIC POWER GRID
	Course has not been offered in several years and there are no plans to offer this course again. Deactivating this course will create opportunity for development of new EE electives.
	EENG413: ANALOG AND DIGITAL COMMUNICATION SYSTEMS
	Course has not been offered in several years and there are no plans to offer this course again. Deactivating this course will create opportunity for development of new EE electives.
	EENG481: ANALYSIS AND DESIGN OF ADVANCED ENERGY SYSTEMS
	Course has not been offered in several years and there are no plans to offer this course again. Deactivating this course will create opportunity for development of new EE electives.
	EENG486: ELECTROMAGNETIC FIELDS AND WAVES
	Course has not been offered in several years and there are no plans to offer this course again. Deactivating this course will create opportunity for development of new EE electives.
	EENG489: COMPUTATIONAL METHODS IN ENERGY SYSTEMS AND POWER ELECTRONICS
	Course has not been offered in several years and there are no plans to offer this course again. Deactivating this course will create opportunity for development of new EE electives.
1 course change:	EENG393: FE ON INTEGRATED CIRCUITS AND ELECTRONICS PRACTICUM
	Update course delivery to include online.
1 new course:	EENG424: ELECTROMAGNETIC FIELDS AND WAVES
	We are updating the course number for EM FIELDS & WAVES to more accurately reflect the correct sequence of the AWC courses. The course code used to be EENG486. To make this number change, we deactivated the old course (as advised by Kristeen Serracino) and proposed a new course with this new number. This new course number also allows for the course to match a cross-listed GR course (EENG524); the EE dept is currently working on developing a proposal for that new GR course.

Canvas Voting Results:
BS-EE: 13 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EENG 390, 413, 481, 486, 489: 11 approved, 0 opposed, 0 abstentions, 0 add'l discussion needed
EENG393: 12 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EENG424: 13 approved, 0 opposed, 0 abstentions, 0 additional discussion needed

1.2

CS		Rob Thompson
CIM 12/9		
1 course change:	DSCI403: INTRODUCTION TO DATA SCIENCE	
	Replaced prerequisites with CSCI128 with a grade of C- or higher, MATH201 or MATH334	
CIM 12/30		
1 program change:	BS-CS: BS IN COMPUTER SCIENCE	
	Replaced HASS200 Global Studies with HASS215 FUTURES Moved the CS Elective and Free Elective present in every track to part of the CS Core for simplicity when viewing track requirements. CS General: Grouped into more accurate categories CS + Business: Replaced CSCI303 with CSCI413, updated list of eligible EBGN courses and grouped into more accurate categories CS + Computer Engineering: updated list of eligible EENG courses and grouped into more accurate categories CS + Data Science: Replaced CSCI303 with CSCI413, updated list of eligible MATH courses and grouped into more accurate categories CS + Entrepreneurship & Innovation: new proposed track to align with university E&I initiatives CS + Research Honors: discontinuing, to be replaced with university-wide "+ Honors" distinction when approved CS + Robotics & Intelligent Systems: updated list of eligible EENG/MEGN courses and grouped into more accurate categories CS + Space: updated list of eligible EENG/MEGN courses and grouped into more accurate categories	

Canvas Voting Results:
DSCI403: 11 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
BS-CS: 13 approved, 0 opposed, 0 abstentions, 0 additional discussion needed

1.3

EB		Jeremy Suiter
CIM 12/16		
1 program deactivation:	BS-ECO: BS IN ECONOMICS	
	Program deactivation.	
7 course deactivations:	EBGN230: INTRODUCTION TO BUSINESS	
	The topics of this course are covered in EBGN360, Introduction to Entrepreneurship. The department is now offering a broad range of introductory level business courses focused on topical areas (entrepreneurship, management, marketing, communication, accounting).	

	EBGN306: MANAGERIAL ACCOUNTING
	Changed the title and learning outcomes of EBGN305 in a previous catalog to Survey of Accounting. EBGN305 now has topics from both Financial and Managerial Accounting and separate classes are not necessary.
	EBGN401: ADVANCED TOPICS IN ECONOMICS
	This class has not been offered in many years.
	EBGN409: MATHEMATICAL ECONOMICS
	This class is not required at the undergraduate level anymore, and anyone who is interested should take the 500-level version. Not needed for Economics or BEMS programs.
	EBGN425: BUSINESS ANALYTICS
	This course has been replaced in the curriculum by EBGN280, Introduction to Business Analytics.
	EBGN444: INNOV8X
	This class is now taught with the INNO course prefix outside of the EB department.
	EBGN496: PAYNE SCHOLARS PROGRAM
	This course is not well subscribed and is alternately available with the HNRS prefix.

Canvas Voting Results:
BS-ECO: 12 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EBGN230, 306, 401, 409, 425, 444, 496: 12 approved, 0 opposed, 0 abstentions, 0 add'l discussion needed

1.4

QBE		Christian Beren
CIM 12/16		
1 program change:	BS-IBIO: BS IN QUANTITATIVE BIOSCIENCES AND ENGINEERING	
	The addition of the Honors track will provide QBE students with the opportunity to further their education and attain a higher degree of recognition in the process. We are expanding the entrepreneurship by taking it from 1 to 3 credit hours and encouraging students to undertake Senior Design projects as a means of honing their practical skills.	

Canvas Voting Results:
BS-IBIO: 13 approved, 0 opposed, 0 abstentions, 0 additional discussion needed

1.5

EDS		Chelsea Salinas/ Jack Bringardner
CIM 12/17		
1 program change:	BS-DSGN: BS IN DESIGN ENGINEERING	
	After Advisory Board and ABET reviews of the Design Engineering program, along with a request from the Dean to review our credit hour requirement, our undergraduate committee approved to update the Design Engineering program curriculum - reducing our credit hours to 126. We aimed to retain ABET required math/science and technical engineering content while expanding our upper-level Design Engineering elective structure, as recommended by our various constituents (advisory board, students, faculty, alumni). We also put forth in this proposal the removal of the Focus Area identification and transcription. The majority of our students choose the Individualized Focus Area currently. With this data confirming the projection of our students into the workplace, recommendations by our constituents and creation of a more streamlined assessment process for ABET, our undergraduate committee and departmental faculty approve the removal of defined Focus Areas. In lieu of the Focus Areas, we have proposed reallocation of the various elective courses taken to fulfill breadth and depth. We now propose three categories for Design Engineering Electives, Engineering Electives and Thematic Electives (advisor approved). Our undergraduate committee believes the new elective structure will maintain the degree flexibility sought through the Design Engineering program while providing organization and structure with a stronger focus on program coursework. We have updated course codes and titles of our Integrative Design Studio courses in an effort to align more closely with other disciplines on campus as they have outlined their programming structure.	
2 course deactivations:	EDNS191: INTRODUCTION TO INTEGRATIVE DESIGN	
	The Design Engineering undergraduate program committee has recently proposed a restructuring of the program curricula and has determined it best for students to follow the core curriculum as closely as possible. ENDS 191 and EDNS 192 would be redundant courses for EDNS 151 and HASS 100, therefore, we recommend deactivating EDNS 191 and 192 to avoid confusion for students and to align better with the course curriculum.	
	EDNS192: DESIGN AND HUMAN VALUES	
	The Design Engineering undergraduate program committee has recently proposed a restructuring of the program curricula and has determined it best for students to follow the core curriculum as closely as possible. ENDS 191 and EDNS 192 would be redundant courses for EDNS 151 and HASS 100, therefore, we recommend deactivating EDNS 191 and 192 to avoid confusion for students and to align better with the course curriculum.	

2 new courses:	EDNS445: PRODUCT REDESIGN
	After Advisory Board and ABET reviews of the Design Engineering program, our undergraduate committee sought to incorporate upper-level Design Engineering courses into the program to provide breadth and depth in the field of study for majors and non-majors wanting to explore design theory, methods and practice. Based upon research in the field, advisory board recommendations and student feedback, our undergraduate committee determined two areas of advanced studies in design practice. This proposed class will feature applications of new software, innovative exploration in building and impactful team-based projects. The proposed class will be a required upper-level design elective under program updates targeting the Fall 2025 catalog.
	EDNS450: DESIGN FOR THE BUILT ENVIRONMENT
	After Advisory Board and ABET reviews of the Design Engineering program, our undergraduate committee sought to incorporate upper-level Design Engineering courses into the program to provide breadth and depth in the field of study for majors and non-majors wanting to explore design theory, methods and practice. Based upon research in the field, advisory board recommendations and student feedback, our undergraduate committee determined two areas of advanced studies in design practice. This proposed class will feature applications of new software, innovative exploration in building and impactful team-based projects. The proposed class will be a required upper-level design elective under program updates targeting the Fall 2025 catalog.
6 course changes:	EDNS200: INTRODUCTION TO DESIGN ENGINEERING
	After Advisory Board and ABET reviews of the Design Engineering program, our undergraduate committee sought to update course catalog listings to streamline course sequencing, removing HASS200 as co-requisite.
	EDNS210: PHYSICAL PROTOTYPING
	After Advisory Board and ABET reviews of the Design Engineering program, our undergraduate committee sought to update course catalog listings to streamline course sequencing, add HASS100 & EDNS151 or HRNS115 or HNRS120 as a prerequisite; adding EDNS200 and PHGN200 as a co-requisite.
	EDNS220: PROBLEM FRAMING & STAKEHOLDER ENGAGEMENT
	After Advisory Board and ABET reviews of the Design Engineering program, our undergraduate committee sought to update course catalog listings to streamline course sequencing, removing EDNS291 and adding EDNS210 as a pre-requisite.
	EDNS310: SYSTEMS MODELING & DESIGN
	After Advisory Board and ABET reviews of the Design Engineering program, our undergraduate committee sought to update course catalog listings to streamline course sequencing, removing EDNS292 and

	adding EDNS200 as a pre-requisite; adding MATH225 as a co-requisite.
	EDNS320: ENGINEERING JUDGMENT
	After Advisory Board and ABET reviews of the Design Engineering program, our undergraduate committee sought to update course catalog listings to streamline course sequencing, removing EDNS391 and adding EDNS310 as a prerequisite.

Canvas Voting Results:
BS-DSGN: 12 approved, 0 opposed, 0 abstentions, 1 additional discussion needed
EDNS191, 192: 10 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EDNS445: 12 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EDNS450: 11 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EDNS200: 11 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EDNS210: 10 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EDNS220: 10 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EDNS310: 10 approved, 0 opposed, 0 abstentions, 0 additional discussion needed
EDNS320: 11 approved, 0 opposed, 0 abstentions, 0 additional discussion needed

- **Question:** E. Buhrer asked, when reviewing the BS-DSGN program requirements description, there were only six credits of CAS electives (one upper and one middle level) when there needs to be nine credits (one upper, two middle level in addition to HASS100, HASS215, and EBGN31).
- **Answer:** J. Bringardner answered that it was not an intended change for the CAS elective so it should not have changed. C. Salinas added that the program change includes HASS200 or EDNS292 as mid-level CAS electives.
- **Comment:** V. Dave added that this may need to be a larger conversation since there is a desire to move away from having 200-level courses count as mid-level electives. For the transitionary period (HASS200 to HASS215), this may be fine but will need to be addressed in the near future.

Postpone vote for BS-DSGN program change for additional discussion on CAS mid-level elective.

1.6

GE		Mathias Burisch Hassel
CIM 12/19		
1 program change:	BS-GLE: BS IN GEOLOGICAL ENGINEERING	
	Modifications to the tracks within our degree will better match the industries where our students are employed, the graduate programs they enter, and the long-term trends in geoscience and geological engineering education. Moreover, the modifications include removal of GEGN 204 in order to address the university-level directive to reduce overall course hours in our curriculum. Based on an analysis of our program learning objectives, coupled with a review of the syllabi for each of our sophomore-level courses, we have decided that the critical course content in GEGN 204 can be adequately addressed in other classes, and we can remove that course from our curriculum.	

Canvas Voting Results:

BS-GLE: 10 approved, 0 opposed, 0 abstentions, 2 additional discussion needed

- **Question:** H. Liu asked, when this program change was discussed in the previous meeting, there was concern that the course deletion would affect other programs. Is that still the case?
- **Answer:** V. Karaivanov answered that the concern brought up during the last meeting was regarding whether the program change was submitted along with the course change.

1.7

CEE		Hongyan Liu
CIM 12/19		
1 course deactivation:	CEEN491: EROSION CONTROL AND LAND RESTORATION	
	The professor teaching this course cannot offer this course in person and online modality offering was denied by the dean.	

Canvas Voting Results:
CEEN491: 10 approved, 0 opposed, 0 abstentions, 0 additional discussion needed

1.8

CBE		Jason Ganley
CIM 12/19		
1 program change:	BS-CHE: BS IN CHEMICAL ENGINEERING	
	CBEN424 isn't listed as an approved elective for the CBE Process Track (which it should be). Also, moving Combined BS/MS language to end of program desc.	

Canvas Voting Results:
BS-CHE: 13 approved, 0 opposed, 0 abstentions, 0 additional discussion needed

1.9

ME		Jeff Wheeler Kristoph Kinzli
CIM 1/3		
2 new courses:	CAPD491: CAPSTONE DESIGN I	
	A non-departmental capstone prefix reflects the multidisciplinary nature of this capstone program and the participation of all engineering departments in the course.	
	CAPD492: CAPSTONE DESIGN II	
	A non-departmental capstone prefix reflects the multidisciplinary nature of this capstone program and the participation of all engineering departments in the course.	

Canvas Voting Results:
CAPD491: 9 approved, 0 opposed, 1 abstention, 0 additional discussion needed
CAPD492: 9 approved, 0 opposed, 1 abstention, 0 additional discussion needed

MOTION: The motion to approve the CAPD491 new course was moved by J. Wheeler and seconded by L. Battalora. The motion to approve the CAPD491 new course was approved with 15 approved, 0 opposed, and 3 abstentions.

MOTION: The motion to approve the CAPD492 new course was moved by J. Wheeler and seconded by R. Thompson. The motion to approve the CAPD491 new course was approved with 15 approved, 0 opposed, and 3 abstentions.

4:30-4:45 pm

2 Continued Business

2.1

MN		Rennie Kaunda
CIM 1/6; Provost 1/6		
3 new courses:	MNGN209: DATA ANALYTICS FOR MINING ENGINEERS	
	The mining industry has adopted various technologies requiring systematic data collection and analysis. Every mining phase in the mine life cycle, from exploration to closure, relies on data collection analysis to improve efficiency, reduce costs, enhance safety, and minimize environmental impact. As the industry adopts more automated and digital technologies, the ability to analyze and interpret vast amounts of data becomes crucial. Mining engineers must be proficient in traditional engineering skills and in managing and analyzing data to make informed decisions that align with business objectives and regulatory standards.	
	MNGN320: MINING AND SUSTAINABILITY	
	The course is residential. It is prepared and was piloted in Fall semester 2024 as a special topics course (398). It will be a required course in our mining engineering undergraduate curriculum and will differentiate our program from others globally, as there are no others that have a required sustainability course. When the course was piloted, it had students from Mining Engineering, as well as Civil and Environmental Engineering, Geology, and Petroleum Engineering. In addition, it will provide an opportunity for undergraduate students in other departments to learn about key sustainability issues related to the extractive industries. The course will be offered again in Fall 2025.	
	MNGN412: MINE WATER, WASTE AND CLOSURE	
	Mine water, waste, and closure are important aspects to consider for responsible mining. In addition to the ore deposit, water is essential to a mining project. Water supply must be balanced among local and regional water users and managed as a sustainable resource. Large quantities of waste rock, tailings, spent ore residues, and other types of waste are generated during mining and processing, and must be managed or stored in dedicated facilities. These facilities have the potential to adversely impact surface water and groundwater resources, ecological environments and surrounding communities. Mine closure is perhaps the most significant action a mining operation can perform to limit its long-term negative impact on the environment and provide a long-term beneficial end use after mining operations cease. This course	

	will address fundamentals and future trends related to water, tailings and mine waste, and mine closure, with significant emphasis on environmental, social, technical, and economic risk management.
3 course changes:	MNGN433: OPERATIONS RESEARCH AND STRATEGIC PLANNING AND OPTIMATZATION TECHNIQUE IN MINING
	1 credit hour reduction to make room for another course in MN curriculum. Updated course title.
	MNGN438: GEOSTATISTICS
	Curriculum revision - updated contact hours, added MNGN209, MNGN312 and MNGN316 as prereqs; removed MATH112 prereq.
	MNGN482: RISK AND PROJECT MANAGEMENT
	This course is revised to improve students' understanding of risk associated with mining projects and project management as part of the overall required mining engineering undergraduate curriculum offerings by updating course description.

2.2

CS		Rob Thompson
CIM 1/8		
2 course change:	CSCI403: DATA BASE MANAGEMENT	
	Removing historical prereq of CSCI262 (which no longer exists) and listing strictly CSCI200.	
	CSCI341: COMPUTER ORGANIZATION	
	Correcting prereqs – remove CSCI200 and CSCI261	

2.3

CH		Erik Menke
CIM 1/9; Provost 1/9		
1 new course:	CHGN413: CHEMISTRY OF THE LANTHANIDES AND ACTINIDES	
	The production of energy with a small carbon footprint is one of the core components of both Mines' teaching and research missions. This course focuses on the chemistry and properties of the elements used in nuclear energy production as well as in many critical materials, e.g. the rare earths, used in almost all modern technologies. Course will meet with a graduate version, CHGN 513, which will be proposed in graduate council parallel to this proposal.	

2.4

CBE		Jason Ganley
CIM 1/10		
4 course changes:	CBEN320: CELL BIOLOGY AND PHYSIOLOGY	
	Course instructors have found that a basic background of organic	

	chemistry is necessary to effectively deliver all course learning objectives to the students in Cell Biology and Physiology – added CHGN221 as a prerequisite.
	CBEN321: GENETICS
	The faculty teaching these courses and believe the "Intro to..." should be dropped in the following courses: CBEN 311, CBEN 321, and CBEN 412. The current course names led to our students' transcripts having way too many "Intro to..." In addition, as there are no "Advanced" versions of these courses, they should stand alone with their direct topical name. Prerequisite addition of Organic Chemistry I, CHGN221. Course instructors have found that a basic background of organic chemistry is necessary to effectively deliver all course learning objectives to the students in Genetics.
	CBEN311: NEUROSCIENCE
	The faculty teaching these courses and believe the "Intro to..." should be dropped in the following courses: CBEN 311, CBEN 321, and CBEN 412. The current course names led to our students' transcripts having way too many "Intro to..." In addition, as there are no "Advanced" versions of these courses, they should stand alone with their direct topical name.
	CBEN412: PHARMACOLOGY
	The faculty teaching these courses and believe the "Intro to..." should be dropped in the following courses: CBEN 311, CBEN 321, and CBEN 412. The current course names led to our students' transcripts having way too many "Intro to..." In addition, as there are no "Advanced" versions of these courses, they should stand alone with their direct topical name.

2.5

GE		Mathias Burisch Hassel
CIM 1/13		
1 course deactivation:	GEGN204: GEOLOGICAL PRINCIPLES AND PROCESSES	
	Based on an analysis of our program learning objectives, coupled with a review of the syllabi for each of our sophomore-level courses, we have decided that the critical course content in GEGN 204 can be adequately addressed in other classes and we can remove that course from our curriculum. Furthermore, this addresses a university-level directive to reduce overall course hours in our curriculum.	

- **Question:** H. Liu asked, will deactivating this course affect any other programs?
- **Answer:** M. Burisch-Hassel answered no, this only affects the GE department.

2.6

QBE		Christian Beren
CIM 1/14; Provost 1/14		

4 new courses:	BIOL410: ENTREPRENEURSHIP IN THE BIOLOGICAL SCIENCES SEMINAR
	We are now offering a 3-credit version of bio-entrepreneurship. These changes will align the 1-credit seminar version with the newly offered 3-credit version. The 3-credit course builds on the current 1-credit version, offering students an expanded opportunity to explore the biosciences, a field rich with discovery and innovation. It encourages students to deepen their understanding and curiosity, fostering an environment for exploration and learning within this dynamic discipline.
	BIOL412: ENTREPRENEURSHIP IN THE BIOLOGICAL SCIENCES
	This course builds on the current 1-credit version, offering students an expanded opportunity to explore the biosciences, a field rich with discovery and innovation. It encourages students to deepen their understanding and curiosity, fostering an environment for exploration and learning within this dynamic discipline.
	BIOL490: QUANTITATIVE BIOSCIENCES & ENGINEERING UNDERGRADUATE SEMINAR
	QBE is offering a new undergraduate honors track, which will require undergraduate students to perform research and to attend research seminars for increased exposure to diverse areas of ongoing research. This course offering will allow QBE students to earn credit by attending seminars given by QBE professionals, develop an enhanced understanding of the breadth of quantitative bioscience disciplines, and present their research projects.
	BIOL491: QBE CAPSTONE DESIGN
	QBE Capstone Design will expand options for open-ended, client-centered design projects at Mines. As a cross-listed course, this will be available for QBE undergraduate students in their final year and QBE graduate students. This supports the Mines@150 mission to expand offerings for professionally oriented pre- and post-graduate education. Scientific inquiry and collaboration with external clients through this design course will grow the scale and impact of research in biosciences at Mines while diversifying potential funding sources. External clients engaged through this Capstone Design experience will form the basis of private investment in future Mines endeavors. The research conducted through QBE Capstone Design will be team-oriented, advancing Mines@150 values of developing a more social research culture.
2 course changes:	BIOL300: QUANTITATIVE BIOLOGY I
	Remove “Introduction to” from the course title since there is no advanced version of this course.
	BIOL301: QUANTITIVE BIOLOGY II

	Remove “Introduction to” from the course title since there is no advanced version of this course.

2.7

CEE		Hongyan Liu
CIM 1/14; Provost 1/14		
1 new course:	CEEN361: CONSTRUCTION METHODS	
	The proposed construction methods course directly supports the Colorado School of Mines’ mission, vision, and strategic plans by providing students with a deep understanding of the essential construction techniques and their impacts on project success. As Mines continues to advance its commitment to producing highly skilled engineers who can tackle global challenges, this course emphasizes practical, hands-on problem-solving skills essential to real-world construction projects. The construction methods course equips students with critical knowledge of how various construction methods—such as earthwork, excavation, and material handling—interact with the properties of materials and affect the overall design, safety, cost, and durability of the construction projects. In addition, this course will specifically prepare students to navigate the complexities of construction logistics, ensuring that they can make informed decisions that align with both engineering principles and real-world constraints. Understanding the relationship between materials and methods is crucial to ensuring the stability, safety, and efficiency of construction projects. The course content will include industry standards, codes, and regulations, emphasizing Mines’ focus on quality assurance, safety, and ethical responsibility in engineering practices. At last, the inclusion of construction industry engagement allows students to learn from professionals, providing them with the insights to make sound, practical decisions as they advance in their careers. The course supports Mines’ strategic objectives of fostering interdisciplinary knowledge and encouraging collaboration across fields. The construction methods course will not only ensure Mines graduates possess a solid foundation of engineering knowledge but also prepare them to become leaders who can address the dynamic challenges in current construction industry, contributing to Mines' vision of developing innovative, sustainable, and impactful solutions for the built environment. Provide detail about how the course will be delivered: Residential (less than 50% of course delivered online) or Online. If online is listed, cite date of Mines Online development course. The course will be delivered 100% in person. The proposed course has been piloted in the Spring and Fall of 2024.	

2.8

ME		Jeff Wheeler

CIM 1/15	
4 course changes:	MEGN315: DYNAMICS
	Differential equations are used at the end of the course and can be taken (MATH225) as a coreq instead of a prereq.
	MEGN391: INTRODUCTION TO AUTOMOTIVE DESIGN
	Updating prereqs to make the class more accessible as an elective to non-ME students.
	MEGN417: VEHICLE DYNAMICS & POWERTRAIN SYSTEMS
	Updating prereqs to simplify the requirements to take this course, MEGN491 Intro to Automotive Design is sufficient; removed MEGN3115, MEGN324, MEGN261.
	MEGN466: INTRODUCTION TO INTERNAL COMBUSTION ENGINES
	Removed MEGN471 Heat Transfer coreq to make the course more accessible to students before their senior year.

2.9

UHSP		Jack Bringardner/ Lakshmi Krishma
CIM 1/15; Provost 1/15		
4 new courses:	HNRS155: VERTICALLY INTEGRATED PROJECTS FOR EXPERIENTIAL RESEARCH	
	HNRS255: VERTICALLY INTEGRATED PROJECTS FOR EXPERIENTIAL RESEARCH	
	HNRS355: VERTICALLY INTEGRATED PROJECTS FOR EXPERIENTIAL RESEARCH	
	HNRS455: VERTICALLY INTEGRATED PROJECTS FOR EXPERIENTIAL RESEARCH	
	In Vertically Integrated Projects for Experiential Research (VIPER), teams of undergraduate students from various years, disciplines, and backgrounds work with faculty and graduate students on their efforts in scholarship and exploration. The teams are multidisciplinary – drawing students from the disciplines needed by each project; vertically integrated – maintaining a mix of undergraduate and graduate students from different cohorts; large-scale – often with more than 10 undergraduates per team; and long-term – undergraduates can earn academic credit in VIPER for up to four years, and the projects last for many years, even decades. This team structure provides sufficient time, the compelling context, and meaningful mentoring needed for students to learn and practice both technical and professional skills, from joining and learning about a team/project, through making significant contributions to the team/project, to leading part of or the entire team/project. The essence of Vertically Integrated Projects for Experiential Research (VIPER) at Mines transcends traditional academic boundaries, merging	

	technical expertise, business acumen, and a deep sense of passion and context. This multidisciplinary approach allows students to dive into authentic research and design experiences, fostering a unique sense of community, affinity, and belonging. Such projects encourage students to explore their areas of interest in depth and bring their ideas to reality, offering a platform for leadership development and a deeper understanding of societal and entrepreneurial challenges.

- **Question:** H. Liu asked, how is the teaching load distributed for the faculty teaching these courses? Will students enrolled in the course be advised who are not in a VIPER group?
- **Answer:** J. Bringardner answered there is no policy towards these courses counting towards the teaching load. Since it is not a traditional course, it is treated like an independent study course. Right now, they would apply in the domains of research and service for evaluation. The courses are closed enrollment so faculty will place students in the course after they apply to be a part of the VIPER program so these students enrolled are only students that have been accepted by the faculty member into their research lab.

4:45-5:00 pm

3 New Business

3.1

CS		Rob Thompson
CIM 1/15		
4 course changes:	CSCI220: DATA STRUCTURE AND ALGORITHMS	
	Added CSCI358 or MATH334 as a prerequisite.	
	CSCI400: PRINCIPLES OF PROGRAMMING LANGUAGES	
	Added CSCI358 or MATH300 prerequisites.	
	CSCI423: COMPUTER SIMULATION	
	Added (CSCI210 or CSCI274) AND CSCI306 AND (MATH201 or MATH334 as prerequisites.	
	CSCI445: WEB PROGRAMMING	
	Added Online modality.	

These course changes include adding a math prerequisite requirement, which adds flexibility in choosing courses.

3.2

MN		Rennie Kaunda/ Kadri Dagdelen
CIM 2/6		
1 program change:	BS-MNE: BS IN MINING ENGINEERING	
	Updating MN curriculum in CIM according to faculty approved revisions.	

This program change has been tabled. The MN department will re-submit in the Fall for the 2026-2027 catalog.

3.3

EDS		Jack Bringardner
CIM 2/6		
2 course deactivations:	INNO244: INNOV8X IGNITE	
	At the provost's request, we are removing the INNO prefix and reinstating the ENDS prefix for Innov8x.	
	INNO444: INNOV8X CREATE	
	At the provost's request, we are removing the INNO prefix and reinstating the ENDS prefix for Innov8x.	
1 course change:	EDNS444: INNOV8X	
	At the provost's request, we are removing the INNO prefix and reinstating the ENDS prefix for Innov8x.	

These course deactivations and course change stems from the provost as the INNO prefix will be reverted to the EDNS prefix for Innov8x. The vote for these will be expedited and held during the next meeting and would only need to be approved by UG Council (not Senate).

3.4

AMS		Gus Greivel
CIM 2/6		
1 course change:	MATH301: INTRODUCTION TO ANALYSIS	
	Modifying the prerequisites to read MATH300 or CSCI358 in order to make this course more accessible to students.	

5:00 pm **Adjourn** at 5:11 pm Ventzi Karaivanov

Next meeting: February 26th, 4:00-5:00 pm via Zoom. Please send agenda items to Ventzi Karaivanov (vkaraiva@mines.edu) and Kristeen Serracino (kristeen.serracino@mines.edu) one week prior.