

Colorado School of Mines – UNDERGRADUATE COUNCIL MEETING MINUTES
February 24, 4:00 – 5:00 pm, via Zoom

Attendees:

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

P	Jeff King (chair)	P	Becky LaFrancois (EB)	P	Mike Nicholas (AMS)	P	Chuck Stone (PH)
P	Michael Barankin(CBE)	P	Derrick Hudson (HASS)	P	Corinne Packard (MME)	P	Nicole Smith (MN)
P	Dylan Domaille (CH)	P	Ge Jin (GP)	P	Jeff Paone (CS)	P	Bruce Trudgill (GE)
P	Linda Battalora (PE)	P	Hongyan Liu (CEE)	P	Oyvind Nilsen (ME)	P	Sydney Marchando (USG)
P	Gyasi Evans (LB)	P	Carrie McClelland (EDS)	P	Randy Haupt (EE)		

Other Regular Attendees and Guests

A	Fran Aguilar (MS)	P	Dixie Cirillo (PA)	A	Jennie Kenney (AA)	P	Mara Green
A	Amy Argyris (CASA)	P	Vibhuti Dave (UGS)	A	Jane Ko (AA)	P	Paul Myskiw (RO)
A	Justin Bush (CEE)	A	Jen Drumm (CASA)	A	Cheryl Medford (GE)	P	Terri Snyder (PE)
P	Karla Perez-Velez (CASA)	P	Katie Ludwin (CASA)				

Welcome

Jeff King

Approval of Minutes – February 10, 2021

Jeff King

MOTION: To approve the Undergraduate Council Minutes from February 10, 2021 by Hudson, seconded by Liu. 1 abstention. APPROVED.

Briefings and Information Items

Office of Undergraduate Studies

Vibhuti Dave

No updates from the Office of Undergraduate Studies.

Registrar’s Office

Paul Myskiw

Myskiw recounts feedback provided by Faculty on the 500-level course registration for undergraduate students; a suggestion was made to make the course available through permission of the instructor rather than having these courses open to seniors.

Myskiw states this as counter to the initial proposal looking to relieve the administrative burden for students needing to go through departments.

Faculty are still able to note instructor permission for courses, but Myskiw advises against this on normal 500-level courses as graduate students will then be required to request permission as well.

Curriculum Items for Council Vote

Major Curriculum Items – Request for Council Vote (from 1/27/21)

1.1 INTERDISCIPLINARY

Corinne Packard

[status: CIM 1/15; Provost: 1/15]

1 new program: Minor in Quantum Engineering
(requires CIM code assignment)

This internationally distinguished program will differentiate our undergraduates by giving them substantive background in chemistry, computer science, electrical engineering, mathematics,

materials science, and physics for quantum computing, communication, and sensing. Students with disparate backgrounds will gain experience with quantum hardware and theory that will prepare them for careers in rapidly evolving quantum engineering industries. This minor will build directly upon the opportunities, infrastructure and industry partnerships that have made the Quantum Engineering MS program so successful in its first year.

MOTION: To approve the new minor program in Quantum Engineering by Packard, seconded by Barankin. No abstentions. APPROVED.

1.2 ENGINEERING, DESIGN, AND SOCIETY

Carrie McClelland

[status: CIM 1/19]

1 program change: BS-EGN: BS in Engineering

Changing credit hours for EDNS191 to reflect credit hour changes made to streamline equivalencies with EDNS151 and HASS100. Changed program outcomes from ABET a-k to ABET 1-7. Edited the introductory overview to reflect current messaging, grammatical error correction, and provide additional specification (no substantial changes). Changed credit hours required for EDNS191 and EDNS192 to reflect course change requests made to better align with EDNS151/NHV100 which can substitute EDNS191/192 for students who enter the program in their freshman year. Added STEM teaching focus area which is unique to Mines.

[status: CIM 1/18]

7 course changes: EDNS191: Integrative Design Studio IA
EDNS192: Integrative Design Studio IB
EDNS291: Integrative Design Studio IIA
EDNS292: Integrative Design Studio IIB
EDNS391: Integrative Design Studio IIIA
EDNS392: Integrative Design Studio IIIB

Course description changes to better reflect course content; no substantive changes to curricula.

MOTION: To approve the Engineering, Design and Society changes to the BS in Engineering and 7 courses by McClelland, seconded by Barankin. No abstentions. APPROVED.

1.3 GEOLOGY and GEOLOGICAL ENGINEERING

Cheryl Medford

[status: CIM 1/20]

1 program change: BS-GLE: BS in Geological Engineering

Program changes reflect updates to the BS curriculum in GE agreed upon by the faculty in the department. The faculty evaluated our program objectives, the sequencing of classes, and the connections among learning outcomes in the 200 and 300-level courses. The outcomes of that analysis include eliminating GEGN206, incorporating select learning outcomes from GEGN206 into GEGN212, adding a new course GEGN217 and reducing credits for GEGN317. New curriculum is the same number of total credits as the current curriculum.

MOTION: To approve the program change to the BS in Geological Engineering by Trudgill, seconded by McClelland. No abstentions. APPROVED.

1.4 ECONOMICS and BUSINESS

Becky Lafrancois

[status: CIM 1/19]

1 program change: MIN-BUEN: Minor in Business and Entrepreneurship

This edit to the minor adds 3 classes to the list of classes students may choose from to incorporate recent new course additions in Business.

MOTION: To approve the program change to the Minor in Business and Entrepreneurship by Lafrancois, seconded by McClelland. No abstentions. APPROVED.

1.5 **COMPUTER SCIENCE**

Jeffrey Paone

[status: CIM 1/20]

1 course change: CSCI261: Programming Concepts

Adding CSCI 101 as a prerequisite.

MOTION: To approve the course change in CSCI261 by Paone, seconded by Barankin. 4 objections; 3 abstentions. APPROVED.

1.6 **APPLIED MATHEMATICS and STATISTICS**

Mike Nicholas

[status: CIM 1/18; Provost: 1/19]

1 new course: MATH431: Mathematical Biology

This course will serve as an intermediate modeling course and the capstone (484) will remain as the advanced modeling course. Course number change 331 → 431.

1 deactivation: MATH331: Mathematical Biology

MOTION: To approve the new course and course deactivation in Applied Mathematics and Statistics by Barankin, seconded by McClelland. No abstentions. APPROVED.

Minor Curriculum Changes

The following minor course changes will not be discussed unless specifically requested by Council.

1.7 **MECHANICAL ENGINEERING**

Carolyn Freedman

[status: CIM 1/17; Provost: 1/17]

1 new course: AMFG423: Design and Analysis of Experiments

This online course provides innovative state-of-the-art experiment methods to best characterize and optimize systems/processes in most any domain, though particularly so for Mines@150 S&T frontiers (Materials and Advanced Manufacturing, Earth and Space Exploration/Technology/Engineering, Energy and Water)

This course is cross listed with AMFG523 and has previously been offered as an AMFG Special Topics Course.

1.8 **CHEMICAL and BIOLOGICAL ENGINEERING**

Michael Barankin

[status: CIM 1/20]

3 course changes: CBEN401: Process of Optimization

Changes to prerequisites; addition of CBEN375 and CBEN402. Removal of CBEN375. This course is a practical follow-up to chemical engineering design, and relies on many of the objectives attained in CBEN402.

CBEN408: Natural Gas Processing

CBEN409: Petroleum Processes

Removal of redundant prerequisites.

1.9 **CIVIL and ENVIRONMENTAL ENGINEERING**

Hongyan Liu

[status: CIM 1/19]

1 new course: CEEN442: Timber and Masonry Design

Course number change. 440 → 442.

12 course changes: CEEN267: Design II: Civil Engineering
Change to title “Epics II: Civil Engineering” to “Design II”; updates to course description.

CEEN303: Environmental Engineering Laboratory
CEEN401: Life Cycle Assessment
CEEN402: Project Engineering
CEEN406: Finite Element Methods for Engineers
CEEN410: Advanced Soil Mechanics
CEEN446: Structural Loads
CEEN461: Fundamentals of Ecology
CEEN473: Hydraulic Problems
CEEN475: Site Remediation Engineering
CEEN480: Chemical Fate and Transport in the Environment

Editorial changes to responsible faculty and catalog authors as well as syntax; course offering dates.

CEEN411: Unsaturated Soil Mechanics

Department faculty decision to modify CEEN411 Soil Dynamics to CEEN411 Unsaturated Soil Mechanics to match the cross-list with the graduate course CEEN511 Unsaturated Soil Mechanics. CEEN 412 Soil Mechanics will be deactivated.

4 deactivations: CEEN412: Unsaturated Soil Mechanics
CEEN474: Solid Waste Minimization and Recycling
CEEN476: Pollution Prevention: Fundamentals and Practice
CEEN440: Timber and Masonry Design

1.10 **COMPUTER SCIENCE**

Jeffrey Paone

[status: CIM 1/19; Provost: 1/19]

1 new course: CSCI425: Compiler Design

This course will promote Mines as a producer of high-quality professionals in the field of computer science and a leader in secondary STEM education. This course will be taught using Formal Learning Groups which promotes collaboration, openness and responsibility. Residential (>50% online) or online. This course can be delivered either 100% online or 100% residential.

1.11 **ECONOMICS and BUSINESS**

Becky Lafrancois

[status: CIM 1/19; Provost: 1/20]

1 new course: EBG444: Innovate X

Innov8x fills an entrepreneurship and innovation gap in EB curricula in the area of problem definition: the investigation and framing of a wicked problem in the context of ambiguity, uncertainty, and complexity and hands-on, and the iterative process of solving problems creatively. The course provides professionally oriented pre- and post-graduate education options and is already attracting new students to Mines. It has been piloted using face-to-face, remote, and hybrid modalities expanding the delivery capabilities.

1.12 **ENGINEERING, DESIGN, AND SOCIETY**

Carrie McClelland

[status: CIM 1/18]

1 course change: EDNS479: Community-Based Research

Pre- and corequisite changes needed to allow graduate students in Humanitarian Engineering and Sciences program to take the course without submitting paperwork with the Registrar.

1.13 **GEOLOGY and GEOLOGICAL ENGINEERING**

Cheryl Medford

[status: CIM 1/15-20]

2 course changes: GEGN212: Petrology for Geological Engineers

Changes to GEGN212 reflect updates to the BS curriculum in GE agreed upon by the faculty in the department. Outcomes of the analysis include: eliminating GEGN 206, incorporating select learning outcomes from GEGN 206 into GEGN 212, adding a new course → GEGN217 and reducing GEGN 317 credits.

GEGN317: Geologic Field Skills

Geologic Field Methods is moving to Spring of the Sophomore Year (GEGN217). Current GEGN317 needs to be revised and changed to a one-credit class that focuses on developing our GE majors mapping skillset and fully preparing them for GEGN316 (Field Camp).

1 new course: GEGN217: Geologic Field Methods

GE faculty have recognized that the GE majors are currently missing a field-based course to act as a crucial steppingstone between the GEGN203, 204, and 205 sequence (Fall of sophomore year) and GEOL309 and subsequent courses taken in the junior year. This new course, taught in the Spring semester of sophomore year fills that critical gap by fully preparing GE majors for subsequent geology courses in their junior year. In starting the development of student field-skills earlier, students will also be able to build those skills in preparation for Field Camp.

1 deactivation: GEGN206: Earth Materials

1.14 HONORS

Carrie McClelland

[status: CIM 1/14]

1 course change: HNRS115: Innovation and Discovery in Engineering, Arts, and Sciences II
Changing prerequisites to move on to HNRS115 to a C- or better in HNRS105.

1.15 UNIVERSITY HONORS

Wendy Adams

[status: CIM 1/19; Provost: 1/20]

5 new courses: MAED405: Mathematical Practices and the Social Context of Mathematics

This course provides teacher candidates an opportunity to develop the skills to promote students' mathematical identity and their understand of mathematical practices and processes – mathematics is a community of inquiry – as articulated in the Colorado Academic Standards and Common Core.

MAED425: Pre-Algebra and Algebra Teaching Techniques

In this course teacher candidates will be exposed to evidence-based instructional practices to support students' learning of pre-algebra and algebra and modeling meaningful learning opportunities, common misconceptions and ways of thinking, and students' learning progressions.

MAED435: Computer Science Teaching Techniques

This course provides teacher candidates an opportunity to develop the skills to promote students' computer science (CS) identity and their understanding CS practices and processes – including computational thinking – as articulated in (1) the Computer Science Teachers Association and (2) the Colorado Academic Standards.

MAED464: Capstone Curriculum Design I

MAED465: Capstone Curriculum Design II

This course provides Mines students an intensive teaching experience in a K-12 mathematics or computer science classroom. The goal of this course is for the student to develop and demonstrate competencies in the areas of planning, instructional methods, assessments, creating effective

learning environments for all learnings, classroom management and organization, content knowledge, and professionalism.

[status: CIM 1/19; Provost: 1/20]

6 new courses: SCED333: Education Psychology and Assessment

The purpose of this course is to present this new science of learning so that educators can creatively translate the science into exceptional practice. This course covers field-defining learning theories ranging from behaviorism to cognitive psychology to social psychology and some lesser known theories exceptionally relevant to the practice, such as arousal theory.

SCED363: Dynamic Teaching: Motivation, Classroom Management, and Differentiation of Instruction

The purpose of this course is to prepare future educators to be able to motivate students, manage classroom behavior, and differentiate their instruction so that all students can learn.

SCED415: Scientific Practices vs Engineering Design and the Nature of Science

The goal of this course is to prepare students to integrate knowledge of scientific and engineering practices into their teaching as articulated in the Colorado Academic Standards and the Next Generation Science Standards, including asking questions, defining problems, developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, obtaining, evaluating and communication information.

SCED445: Physics and Chemistry Teaching Techniques

In this course students will engage as learners of physics and chemistry through evidence-based teaching strategies. After each unit of instructions, students will reflect on the practices used during the unit and why these practices were effective techniques for teaching science.

SCED464: Capstone Curriculum Design I

SCED465: Capstone Curriculum Design II

This course provides Mines students an immersive teaching experience in a K-12 science, engineering, or STEM classroom. The goal of this course is for the student to develop and demonstrate competencies in the areas of planning, instructional methods, assessments, creating effective learning environments for all learnings, classroom management and organization, content knowledge, and professionalism.

1.16 **MECHANICAL ENGINEERING**

Oyvind Nilsen

[status: CIM 1/18]

3 course changes: MEGN300: Instrumentation & Automation
MEGN301: Mechanical Integration & Design

Add C- to requirements for prerequisites to be consistent with other ME courses.

MEGN412: Advanced Mechanics of Materials

Changes to course description and updates to student learning outcomes. The topic of Elasticity was moved to MEGN510 and changes this course's details.

1.17 **METALLURGICAL and MATERIALS ENGINEERING**

Corrinne Packard

[status: CIM 1/12]

1 course change: MTGN219: Art and Science of Glassblowing

Changes to course description regarding limited capacity of course.

- 1.18 **PHYSICS** Todd Ruskell
[status: 1/19]
1 new course: PHGN417: Fundamentals of Quantum Information
This course will be part of the new Quantum Engineering minor, and more broadly increase quantum literacy across campus. This is an undergraduate-level version of PHGN519, Fundamentals of Quantum Information. The courses have the same title, catalog description, and textbook. The class meetings themselves will be the same. The undergraduate version will be shorter with less difficult homework assignments.

MOTION: To approve the minor curriculum items listed from 1.7 to 1.18 by Hudson, seconded by Lafrancois. No abstentions. APPROVED.

Administrative Curriculum Changes

The following proposals will not be discussed unless specifically requested by Council. These items will be an omnibus vote.

- 1.19 **CHEMISTRY** Megan Rose
[status: CIM 2/22]
1 course change: CHGN341: Inorganic Chemistry I
CHGN210 listed as course prerequisite, course does not exist—typo corrected with CBEN210.
- 1.20 **HUMANITIES, ARTS, and SOCIAL SCIENCES** Karin Murray
[status: CIM 2/22]
6 course changes: HNRS198A: Special Topics
 HNRS199A: Independent Study
 HNRS298A: Special Topics
 HNRS299A: Independent Study
 HNRS398A: Special Topics in the University Honors and Scholars Program
 HNRS399A: Independent Study
Reflection of McBride being listed under the UHSP. McBride → UHSP in course descriptions to avoid student confusion.

MOTION: To approve the administrative curriculum items listed from 1.19 to 1.20 by Barankin, seconded by McClelland. No abstentions. APPROVED.

New Curriculum Items

Minor Curriculum Changes

The following minor course changes will not be discussed unless specifically requested by Council.

- 2.1 **ELECTRICAL ENGINEERING** Randy Haupt
[status: CIM 2/17]
6 course changes: EENG281: Introduction to Electrical Circuits, Electronics and Power
 EENG284: Digital Logic
 EENG307: Introduction to Feedback Control Systems
Change to course offered notation within course description; previously stated only Fall and Spring, offered in Summer as well.

EENG427: Wireless Communications

Course is offered Spring only; Catalog entry listed Fall, Spring and Summer availability.

EENG475: Interconnection of Renewable Energy, Integrated Power Electronics, Power Systems, and Power Quality

Course offered on demand; Catalog entry listed Fall, Spring and Summer availability.

2.2 **GEOLOGY and GEOLOGICAL ENGINEERING**

Bruce Trudgill

[status: CIM 2/17]

2 course changes: GEGN316: Field Geology

Changes to GEGN316 reflect updates to the BS curriculum in GE agreed upon by the faculty in the Department. The faculty evaluated program objectives, the sequencing of classes, and the connections among learning outcomes in 200 and 300- level courses. The outcomes of that analysis include eliminating GEGN 206, incorporating select learning outcomes from GEGN 206 into GEGN 212, adding a new course, GEGN 217, and reducing credits for GEGN 317. The new curriculum has the same number of total credits as the current curriculum.

GEOL309: Structural Geology and Tectonics

Changes to GEOL309 reflect updates to the BS curriculum in GE agreed upon by the faculty in the Department. The faculty evaluated program objectives, the sequencing of classes, and the connections among learning outcomes in 200 and 300- level courses. The outcomes of that analysis include eliminating GEGN 206, incorporating select learning outcomes from GEGN 206 into GEGN 212, adding a new course, GEGN 217, and reducing credits for GEGN 317. The new curriculum has the same number of total credits as the current curriculum. This proposed change, removing the GEGN 206 pre-requisite, reflects the removal of GEGN 206 from the curriculum.

Curriculum Items in Progress

Major Curriculum Items – for vote 3/10/21

3.1 **PETROLEUM ENGINEERING**

Linda Battalora

[status: CIM 2/2]

1 program change: MINASI-PE: Petroleum Engineering

Update to course list to reflect approved new courses and course changes. [Replacement of deactivated course PEGN102 with PEGN201].

Minor Curriculum Changes - for vote 3/10/21

The following minor course changes will not be discussed unless specifically requested by Council.

3.2 **PHYSICAL EDUCATION and ATHLETICS**

Dixie Cirillo

[status: CIM 1/25; Provost: 1/25]

3 new courses: PAGN245: Slackline

PAGN298A A change PAGN245

A student approached the department with his desire for this class, he did the research determining the students' interest in class, located the alumnus instructor and it has been very successfully taught for two semesters. This class meets for 8 weeks, first 8 weeks of fall and last weeks of spring to accommodate the weather. It fits great into the Mines@150 goals for wellness and student mental health.

PAGN286: SRC – Group Fitness

PAGN287: SRC – Workouts

PAGN298A B & C change to PAGN 286 and 287

Requesting the creation of these two courses, SRC Group Fitness and SRC Workout, to support the Mines@150 goals for wellness and student mental health. Both of these classes utilize the great work of the student recreation center and need for flexibility for the students to have classes that work into the busy schedules. Both of the classes are arranged to allow for students to complete them on their own and work into any student schedule. They have been great assets these last two difficult semesters.

Other Business

500-Level Policies – Request for Council Vote

Paul Myskiw

MOTION: To approve the Catalog change to the undergraduate 500-level course policies by Barankin, seconded by Nilsen. 1 abstention. APPROVED.

PE Midstream Program Suspension

Linda Battalora

This will be placed on the Faculty Senate agenda for discussion; Council will vote in the following meeting.

McBride GPA Catalog Language – Reintroduction of new language

Karin Murray

For vote 3/10.

Academic Policy Subcommittees:

Student Workload Guidance

Mike Nicholas

Nicholas covers topics addressed in the subcommittee's first meeting: policy associated with review week and finals week workload and a drafted revision to the review week and finals week policy. The draft will be finalized and presented to Council.

King suggests addressing larger scale assignments due during finals week—Nicholas states the drafted revision mentioning not having two different major assessments due during finals week but rather a project or a final.

Consistency in Grading

Chuck Stone

Stone shares a drafted document of best practices on consistency in grading in which four points listed A-D are addressing academic freedom, student stress, and important recommendations from the subcommittee.

The plus minus grading system has been referenced as causing less stress from a student standpoint. The largest takeaway presented by the subcommittee is to ensure that sections of the same course agree upon using the same grading system to avoid students section browsing for "easier" classes due to grading system.

Feedback had been provided by a Faculty member that did not understand the plus system in letter grades except for A. Council discusses the point of a GPA higher than 4.0, the stress this then causes and the increased incentivization for cheating.

Adjourn

Meeting adjourned at 4:59pm.

Next Meeting: March 10, 4:00 – 5:00 pm, via Zoom.

Jeff King