

Colorado School of Mines – UNDERGRADUATE COUNCIL MEETING MINUTES
January 26, 4:00 – 5:00 pm, via Zoom

Attendees:

Voting Members: 19 total (11 - majority needed for quorum). Quorum was present

P	Jeff King (chair)	A	Becky Lafrancois (EB)	P	Mike Nicholas (AMS)	P	Mona El Helbawy (EE)
P	Michael Barankin (CBE)	P	Jay Straker (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	Ethan Lewellin (USG)
P	Gyasi Evans (LB)	P	Chelsea Salinas (EDS)	P	Tim Ohno (PH)		

Other Regular Attendees and Guests

A	Fran Aguilar (MS)	P	Dixie Cirillo (PA)	A	Jennie Kenney (AA)	A	Kendra Stansbury (RO)
P	Karla Perez-Velez (CASA)	P	Vibhuti Dave (UGS)	P	Mara Green (AA)	P	Paul Myskiw (RO)
P	Deb Jordan (Trefny)	A	Josh Ramey (QBE)	A	Cheryl Medford (GE)	A	Terri Snyder (PE)
P	Katie Ludwin (CASA)						

Special Guest(s): Jurgen Brune (MN), Ian Lange (EB), Masami Nakagawa (MN)

Welcome

Jeff King

Approval of Minutes – January 12, 2022

Jeff King

MOTION: To approve the Undergraduate Council minutes of January 12, 2022 by Barankin, seconded by Liu. Motion passed unanimously. APPROVED.

Briefings and Information Items

Office of Undergraduate Studies

Vibhuti Dave

No updates from the Office of Undergraduate Studies.

Registrar’s Office

Paul Myskiw

Add/Drop Dates

Myskiw reviewed feedback from departments on changes to current add and drop dates at Mines. CEE proposed keeping the two week drop date and condensing the add date to a week into the semester. CS agreed that the late add date causes disruptions, but maintaining a late drop date would be fine. Physics agreed with the proposal by CEE and noted courses with space limitations will experience issues if students are limited to a week into the semester to add courses. Councilor noted there might be an impact on financial aid. If a student has dropped a course following the add date, an override process can be done through the Registrar’s Office. The self-service system would not allow for instructors to approve a late add to a course.

Curriculum Item(s) for Vote – From 12/8/21

Significant Curriculum Changes

1.1 **MECHANICAL ENGINEERING**

Oyvind Nilsen

[CIM 11/17]

2 program changes: BS-MECH: BS in Mechanical Engineering

CHANGE 1 → To allow Mechanical Engineering Students to better select the courses/topics of interest they want and also market them when applying for job, ME plan to implement 4-cours

tracks in 8 different topic areas, that will appear on the student's transcripts. The new tracks will each consist of one (1) ME Advanced Engineering Science elective and three (3) approved ME Electives. In summary, the tracks are; Aerospace, Automation & Controls, Automotive, Biomechanics, Energy, Manufacturing, Materials, and Nuclear.

CHANGE 2 → A second change, giving Mechanical Engineering students more choice (after "request" from our Industrial Advisory Board), is to remove EENG Feedback Control from the required course list and replace it with a ME elective. (EEGN will remain a ME elective).

MOTION: To approve the two program changes in Mechanical Engineering to BS-MECH: BS in Mechanical Engineering by Barankin, seconded by Jin. 17 for, 2 abstentions. APPROVED.

1.2 COMPUTER SCIENCE

Jeffrey Paone

[CIM 11/29; Provost 11/30]

1 new course: CSCI200: FOUNDATIONAL PROGRAMMING CONCEPTS & DESIGN
Last academic year, CSCI 101 was added as a prerequisite to CSCI 261. This change caused approximately two-thirds of the CSCI 261 material to become redundant and a repeat of the material from CSCI 101 with the only change being the programming language used (C++ instead of Python). By reducing the time spent on the language translation, a significant amount of new content can be introduced into the course.

CSCI 200 and CSCI 261 have less than 40% overlap of content and CSCI 200 is a much more rigorous introduction & application of foundational programming concepts and design. With the combination of CSCI 101 and CSCI 200, students will have a stronger foundation of programming after two classes as opposed to the current arrangement of needing three classes. Students will be better served with the necessary knowledge to fully succeed in their degree program (CS or otherwise).

This new course is the beginning of a larger CS curricular redesign by better aligning content through the existing CSCI 261-262-306 sequence. We are working towards the common goal of having an introductory programming course in the Mines core for all students.

MOTION: To approve the new course in Computer Science, CSCI200: Foundational Programming Concepts & Design by Paone, seconded by Barankin. Motion passed unanimously. APPROVED.

Minor Curriculum Changes –

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

1.3 MECHANICAL ENGINEERING

Oyvind Nilsen

[CIM 11/8]

2 course changes: MEGN330: INTRODUCTION TO BIOMECHANICAL ENGINEERING
MEGN212 added as prerequisite.

MEGN413: AEROSPACE STRUCTURES

This course has been offered as a 498 for the last two years. Course will be an essential part of the Mechanical Engineering Aerospace Minor and aerospace focus areas at CSM. It is also a Mechanical Engineering technical elective.

[CIM 11/9; Provost 11/9]
1.3.1 **1 new course:** ORWE481: OPTIMIZATION MODELS IN MANUFACTURING
*Helps with the OR MS-NT program and provides an elective within the Advanced Manufacturing Certificate and MS Program. the course delivery is on-line.
This course was offered as a 498 option in the fall of 2020.*

1.4 **GEOLOGY & GEOLOGICAL ENGINEERING** Chery Medford
[CIM 11/16]
1 course change: GEGN403: MINERAL EXPLORATION DESIGN
Changing the EDNS 251 prereq to EDNS 264 as this is correct in our Exploration and Engineering flowcharts.

1.5 **HUMANITIES, ARTS, AND SOCIAL SCIENCES** Elizabeth Davis
[CIM 11/29]
1 course deactivation: HASS492: ENERGY AND SECURITY POLICY
There is no longer an instructor for this course.

1.6 **MINING ENGINEERING** Nicole Smith
[CIM 11/29; Provost 11/29]
7 new courses: MNGN251: METALLURGICAL AND MATERIALS THERMODYNAMICS
New course created for cross listing with MTGN251.

MNGN334: CHEMICAL PROCESSING OF MATERIALS
New course created for cross listing with MTGN334.

MNGN426: HYDRO- AND ELECTRO-METALLURGY
New course created for cross listing with MTGN431.

MNGN430: PHYSICAL CHEMISTRY OF IRON AND STEELMAKING
New course created for cross listing with MTGN430.

MNGN432: PYROMETALLURGY
New course created for cross listing with MTGN432.

MNGN461: TRANSPORT PHENOMENA AND REACTOR DESIGN FOR
METALLURGICAL AND MATERIALS ENGINEERS
New course created for cross listing with MTGN461.

MNGN462: SOLID WASTE MINIMIZATION AND RECYCLING
New course created for cross listing with MTGN462.

MNGN and MTGN course cross-listings have been approved by MT.

MOTION: To approve the minor curriculum changes in items 1.3 through 1.6 in an omnibus Council vote by Nilsen, seconded by Barankin. Motion passed unanimously. APPROVED.

New Curriculum Item(s)
Significant Curriculum Changes

2.1

MINING ENGINEERING

Jurgen Brune

[CIM 1/12; Provost 1/12]

1 new course: MNGN318: STATICS AND DYNAMICS COMBINED FOR MN
The Mining Engineering curriculum was adapted in 2019 to reduce the total number of credit hours from 139.5 to 132.5. This required a reduction in core course hours. Mining Engineering chose to teach the required elements of Dynamics as a 1-CR course MNGN317. DYNAMICS FOR MINING ENGINEERS. (1.0 Semester Hr. (II) For mining engineering majors only. Absolute and relative motions, kinetics, work-energy, impulse-momentum, and angular impulse-momentum.) MN is now moving to combine a 3-CR Statics course with MNGN317 to offer a 4-CR, Statics+Dynamics experience to the Mining Engineering students that includes realistic mining engineering problems, such as statics and dynamics of hoists, conveyor belts, mills, ground support elements, etc.

The course is being proposed due to the reduced number of credit hours in Mining Engineering. Brune reported that the dynamics course taught by Mechanical Engineering had elements unnecessary for mining engineers. Mining has offered a one credit dynamics course for several years and has decided to combine statics and dynamics in a compact four credit course. The course was taught as a 398 special topics course for two years. Additional reasoning provided was for the ABET push for subject-specific content in general engineering courses.

Councilor commented on the resource management issue of department specific general courses and the workload implication; for mining engineers ABET has outlined specific program requirements for chemistry and physics to provide subject-specific examples.

Undergraduate Council had approved the Space Mining minor where students would gain from the subject-specific statics and dynamics combined.

Minor Curriculum Changes –

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

2.2

GEOPHYSICS

Ge Jin

[CIM 12/21]

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.

2.2.1

1 course deactivation: GPGN314: APPLIED GEOPHYSICS

2.2.2

2 new courses: GPGN318: APPLIED GEOPHYSICS I

GPGN319: APPLIED GEOPHYSICS II

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.

2.3

BUSINESS AND ECONOMICS

Becky Lafrancois

[CIM 1/17; Provost 1/18]

2 new courses: EBGN307: BUSINESS COMMUNICATIONS

Business Communications is a core class in the Business Engineering and Management Science degree program. The BEMS degree was developed to support the Mines@150 goal of increasing business education.

EBGN308: PRINCIPLES OF MARKETING

Principles of Marketing is a core class in the Business Engineering and Management Science degree program. The BEMS degree was developed to support the Mines@150 goal of increasing business education.

Continuing Curriculum Item(s) – From 1/12/22

Significant Curriculum Changes

3.1 **CHEMICAL & BIOLOGICAL ENGINEERING**

Michael Barankin

[CIM 12/7]

1 program change: BS-CHE: BS in Chemical Engineering

In the current catalog, double counting of the four core courses required for the combined BS/MS program is not allowed. This causes unnecessary confusion among students. Change request to remove this constraint.

3.2 **GEOLOGY & GEOLOGICAL ENGINEERING**

Bruce Trudgill

[CIM 12/2]

3 course changes: GEGN330: GEOSCIENTISTS THERMODYNAMICS

Changes to GEGN330 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 our 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. Our 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 our curriculum.

GEOL314: STRATIGRAPHY

Changes to GEOL314 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 our 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. Our new

curriculum has the same number of total credits as the current curriculum.

GEOL321: MINERALOGY AND MINERAL CHARACTERIZATION

Changes to GEOL321 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 our 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. Our 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 our curriculum.

Minor Curriculum Changes –

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

3.2 GEOLOGY & GEOLOGICAL ENGINEERING

Cheryl Medford

[CIM 12/15; Provost 12/15]

1 new course: GEOL440: PLATE TECTONICS

This is a face to face course for our majors at the undergraduate level. An online graduate level version with different assignments is under construction and will be launched as GEOL598 in Spring 2022. This request is for the undergraduate level course only.

3.2.1 [CIM 12/15]

1 course deactivation: GEOL201: PLATE TECTONICS

This course was added a few years ago before the curriculum was changed. The course does not exist (has not been taught).

3.3 PHYSICS

Chuck Stone

[CIM 12/6; Provost 12/7]

1 new course: PHGN461: ELEMENTS OF MODERN OPTICS

This course is designed to prepare students for a variety of goals including enrollment in advanced optics courses at Mines, graduate research opportunities in physics and other closely-related engineering disciplines, and industrial careers in applied optics. Course topics will provide foundational skills vital to all areas of optics, one of the more rapidly growing areas in Colorado's Front Range as well as around the nation.

3.4 COMPUTER SCIENCE

Jeff Paone

[CIM 12/15]

1 course change: CSCI445: WEB PROGRAMMING

Changing the prerequisite from CSCI262 to CSCI306. Students will learn event-driven programming in CSCI306 which is critical for designing a user interface, which is at the core of web interaction.

This course is an elective course taken largely by CS seniors and juniors. Students are required to take CSCI306 and would have done so by their junior year.

Subcommittee Updates

Common Exam and other Exam Scheduling

Mike Nicholas

Feedback was provided from Chemistry and Computer Science (CS). Chemistry noted the challenge of moving common exams into the day due to teaching chemistry labs at 8 a.m. Consensus in CS for a type of threshold to qualify to reduce the number of requests; larger, multi-section courses felt common exams are critical and should remain.

Tracks and Emphasis Definitions

Vibhuti Dave

Subcommittee sought feedback from departments. Mechanical Engineering (ME) agreed with what was proposed; commented on the length of “concentration areas”. Dave noted the subcommittee may seek a better term. Dave asked for feedback on the use of credits as a threshold for the different proposed categories. The subcommittee will review any additional feedback and begin work on a formal proposal.

Course Learning Outcomes

Vibhuti Dave

Subcommittee discussed the use of repository to collect course learning outcomes (CLO). Providing a central area for CLOs may:

- Allow faculty to review core curriculum of various courses
- Assist the prerequisite chain for departments
 - o Faculty teaching advanced courses can review prerequisite CLO to understand student backgrounds in the course content
- Assist in new faculty onboarding by providing examples of existing CLO
- Assist departments developing courses by allowing for review of other versions of a course and finding overlaps in content

Councilor noted a repository may assist multi-section courses in consistency. Subcommittee discussed piloting the initiative through the revised core curriculum and keeping CLOs for core curriculum in one area.

King noted the importance of broader representation across campus to receive additional feedback; CLOs may become a firm requirement in every Curriculum Inventory Management (CIM) entry and if these could be available through the Catalog for students to view. ME makes use of course coordinators that keep records for a class and could be responsible for uploading changes to syllabi or CLO; course coordinator duties vary across departments and courses.

Question on whether a syllabus is tied to a course number or section and instructor; Jordan stated the syllabi should be connected but the Trefny Center is aware that this is a process. A syllabus template is available through the Trefny Center ([click here](#)).

Miscellaneous / New Business

Request for Additional Steering Committee Members

Jeff King

The Steering Committee requested volunteers to review curriculum items on the off-weeks of Council.

Volunteers:

- Michael Barankin (CBE)
- Linda Battalora (PE)

BS in Petroleum Engineering – HASS200 Faculty Senate Discussion

Council passed a program change to the BS in Petroleum Engineering that moved HASS200 from sophomore to junior year in the degree flowchart; an objection was raised at Faculty Senate and has

been tabled for offline discussion between HASS and PE.

Adjourn

Meeting adjourned: 5:02 pm.

Next meeting: February 9, 4:00-5:00 pm via Zoom.

Jeff King