

Colorado School of Mines – UNDERGRADUATE COUNCIL MEETING MINUTES
 January 25, 4:00 – 5:00 pm, via Zoom

Attendees:

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

P	Joseph Horan (chair)	P	Andrew Pederson (EB)	P	Mike Nicholas (AMS)	P	Chuck Stone (PH)
P	Michael Barankin (CBE)	P	Cortney Holles (HASS)	P	Corinne Packard (MME)	P	Nicole Smith (MN)
P	Dylan Domaille (CH)	P	Ge Jin (GP)	P	Rob Thompson (CS)	P	Dave Benson (GE)
P	Linda Battalora (PE)	P	*Shiling Pei (CEE) proxy for Hongyan Liu (CEE)	P	Oyvind Nilsen (ME)	P	Emmelia Ashton (USG)
P	Chelsea Salinas (EDS)	P	Brianna Buljung (LB)	P	Hisham Sager (EE)		

Other Regular Attendees and Guests

A	Sam Spiegel (Mines Online)	A	Dixie Cirillo (PA)	P	Mara Green (AA)	A	Kendra Stansbury (RO)
A	Karla Perez-Velez (CASA)	P	Vibhuti Dave (UGS)	P	Deb Jordan (Trefny Center)	P	Paul Myskiw (RO)
P	Katie Ludwin (CASA)	P	Danielle Boileau (CASA)	A	Cheryl Medford (GE)	A	Rachel McDonald (PE)
P	D. Scott Heath (RO)						

Special Guest(s): Cj McClelland (EDS), Derek Morgan (Dean of Students), Lakshmi Krishna (PH), Jessica Keefer (Director; Office of New Student and Transition Services), David Hansburg (Director of Athletics), Colin Terry (Assistant Vice President; Student Life)

Welcome

Joe Horan

Approval of Minutes – January 11, 2023

Joe Horan

MOTION: To approve the Undergraduate Council minutes of January 11, 2023 by Jin, seconded by Smith. 18 for, 1 abstention. Motion passed.

Briefings and Information Items

Office of Undergraduate Studies

Vibhuti Dave

Departments received round one of guidelines on how to respond and adjust their program to the new core. Visuals were provided on how continuing students and incoming students would be impacted with the Catalog changes. An option of a checklist would be created to ensure different programs have integrated the necessary changes to make the 2023-2024 Catalog. All changes should be submitted into the Curriculum Inventory Management (CIM) system by 3/1 to ensure it makes it into the 2023-2024 Catalog.

For departments that teach within the core, details will be provided on coordinating time and space. Dave to work with Trefny Center in providing resources and incentives to have all core course coordinators in one room to assist in coordination.

Dave scheduled meetings with HASS and CS to discuss impacts of external and transfer credits.

Myskiw noted that holistic changes to an institution’s core can have impacts on incoming and continuing

students. Myskiw to continue working closely with faculty in distribution of messaging to students impacted by these changes. Myskiw asked that new courses provide a description of what is being fulfilled; i.e., if a new course is fulfilling an old requirement, providing that detailing so the information can be transferred into the degree audit for students.

- **Question** on instructions being provided on how to update programs in CIM; Dave noted instructions will be provided on comparing what is currently in the Catalog to what will be changed with the new core. Instructions on changing curriculum tables within CIM can be accessed through Canvas or by contacting Mara Green (mgreen1@mines.edu).
- **Question** on new courses that have not been submitted in CIM for the new core, such as CASES/STFutures; Green and Myskiw asked new core courses to be submitted in plain text in the flowchart that the course should appear. If a new course has a course number, add the course number in CIM (will appear as “course not found” error) and CIM will automatically insert the new course once it has been submitted in CIM.

Councilor noted that a new course may not be approved, but it has been linked within several programs. Myskiw reported prior to publication the Catalog items will be brought back to Council for one final review.

Registrar’s Office

Paul Myskiw

Myskiw provided a brief report on items going through Graduate Council that may impact the Undergraduate Catalog. Proposal of updated Catalog language to fall in line with HLC “Assumed Practices” has been brought to Graduate Council. Previous language allowed undergraduate students to double count 400-level courses toward a graduate degree. The HLC Assumed Practices notes undergraduate students can take advanced coursework in graduate courses and double count toward a graduate degree, but not the other way around. Barbari has suggested language that undergraduate programs allow 500-level courses as technical electives; some undergraduate programs have language regarding double counting, but majority of language falls with the Graduate Catalog. The change would allow for a transition period of two to three years assuming current undergraduate students have been advised to use 500-level courses for double counting. Myskiw asked Councilors to take this information back to departments for continued discussion.

- **Question** on cross listing 400- and 500-level courses; Myskiw noted this is an option, but a 500-level syllabus would need to display graduate content is taught within the cross listed course.
- **Question** on the deadline for undergraduate students to apply to a 4+1 program; Myskiw reported there must be a semester of overlap prior to the student beginning the graduate program. Students should apply to their graduate program of choice prior to taking their last classes.

Student Life – Core Curriculum

Colin Terry

Terry introduced several memorandums for Council to review.

CSM101 and CSM201

Jessica Keefer

Keefer introduced changes to CSM101 and 201 in lieu of the new core. CSM101 is required of all new and incoming students; CSM201 is a free elective offered to transfer students. Both courses are looking to move away from the half credit to a full credit. Both courses meet the meeting parameters of a one credit course; meeting once a week for an hour every week through a full semester. Both courses offer

in- and out-of-class work.

CSM101 will have additional content from Fall 2024 moving forward. Keefer to take the course intensive through the Trefny Center and update learning outcomes; Keefer looking to move away from a lecture-based course and move toward an activity-based course. To fall in line with Mines@150, CSM101 will add professional development elements. CSM201 will remain the same but continues to evolve.

PAGN Requirements

David Hansburg

PAGN101 and 102 are no longer needed and all nineteen sections will be removed. The remaining PA classes provide students with enough options to fulfill their physical activity requirements. PA courses meet for fifty minutes a week and can raise credit from half to one credit.

Hansburg reported there are several options to waiver out of the PA requirement and these waivers will be eliminated except for the waiver for honorably discharged military. The rule that limits students to one PAGN course per semester will be eliminated to provide students with flexibility and the ability to enroll in multiple PAGN courses per semester. Current students will be allowed to opt out of the consecutive semester rule. All Varsity sports will remain as one credit.

Myskiw noted PAGN courses are listed as labs which is 3:1 contact hour; with increased enrollment, the PAGN courses now meet a 1:1 contact hour.

CSM202

Derek Morgan

CSM202 is a brand-new course that reflects the new core desire for a course on wellness. Terry reported the main underlying retention concern and main reason students leave Mines is due to wellness. Course has been designed through Dean Morgan's office and the Every Oredigger initiative to follow CSM101. About 750 students would enroll in the course per semester and be taught by trained faculty and staff members. Course is focused on wellness and proactive wellness.

Financial support has been provided. Course coordinator will manage course and consistently improve the course. Course has been vetted with Undergraduate Student Government. Students expected to take the course in spring of freshman year or fall of sophomore year.

- **Question** on wellness course learning objectives and method-based evidence approach; Dean Morgan confirmed and added there will be participation in the Trefny Foundation course design program to update objectives and create assessment activities. Dean Morgan encouraged questions to be sent directly.

Overview

Colin Terry

Terry reviewed the proposed changes for Council; Terry noted the Core Curriculum committee had endorsed a "Wellness and Success" three credit requirement within the core. Success would be fulfilled by CSM101 or CSM201 as a required course valued at one credit. Wellness would be fulfilled by CSM202 as a required course at one credit. Success and Wellness would be satisfied by students completing any of the following existing courses for final credit including: CSM250, CSM275, CSM350, or any one credit PAGN2XX course. Additional three credit options are being considered. The changes are presented without a grandfather clause.

- **Question** on swelling enrollments at the junior and senior year, especially for CSM202, and

CSCI436: HUMAN-ROBOT INTERACTION
CSCI437: INTRODUCTION TO COMPUTER VISION

Updating prob/stat prereq to align with new CS degree plan. Updated responsible faculty.

Prerequisites have been updated to include MATH201 and MATH334. In the future, the department would like to transition out MATH201 but will leave the course up for the time being.

2.2 **GEOLOGY & GEOLOGICAL ENGINEERING** David Benson

[CIM 1/9]

9 course changes: GEGN203: ENGINEERING TERRAIN ANALYSIS

This course has long had a separate but related lab class (GEGN205 - Advanced Physical Geology Laboratory) and we wish to combine the two to simplify the structure for students and remove the possibility of students not taking both the lecture and laboratory components

GEGN204: GEOLOGIC PRINCIPLES AND PROCESSES

We wish to add a laboratory to this class increasing from 2 to 3 credit hours to better strengthen student learning.

GEGN212: THE ROCK CYCLE

Remove prerequisites as they are no longer needed. GEGN217 is being removed as a co-requisite so that course can be offered every semester. Change offering to both fall and spring to better serve students. Change name to be more descriptive and attractive to students who are not geological engineers, also reduced confusion with the similarly named GEGN306; Petrology. Name change "Petrology for Geological Engineering" → "The Rock Cycle".

GEGN217: GEOLOGIC FIELD METHODS

We are changing the prerequisite to GEGN101 to make it easier for students to progress through our program if they take a pathway that doesn't perfectly match the flowchart. Also adjusting contact hours to match the actual hours.

GEGN316: FIELD GEOLOGY

The department has increased the field component of program in other courses and wants to reallocate one credit hour to the sophomore year course GEGN204. Reducing to five weeks also allows students to complete field camp earlier reduces the risk of burnout. GEGN205 is being removed as a prerequisite as it is being deactivated.

GEGN466: GROUNDWATER ENGINEERING

The fluid mechanics prerequisite (GEGN351 or MEGN351) is no longer required and frequently overridden, so we want to remove it.

GEOL309: STRUCTURAL GEOLOGY AND TECTONICS

Change prerequisites due to changes to 200-level courses in GE. Fixed syntax in contact and credit hours.

2.2.1 **1 course deactivation:** GEGN205: ADVANCED PHYSICAL GEOLOGY LABORATORY
We have submitted proposals to move this credit hour into GEGN203 as an associated lab, so the standalone GEGN205 is no longer needed.

Benson to cover for Bruce Trudgill during sabbatical.

GE currently has a set of courses GEGN203, 204, and 205 to satisfy the GP department where only two of the courses were taken. GP has decided to change what courses are needed for their students. GE has decided to take those five credits and turn it into a six-credit sequence of GEGN203 and GEGN204.

GEGN316 has been decreased from six credits to five credits.

Remaining changes are in reference to prerequisite changes now that GEGN205 has been removed.

GEGN466 has removed GEGN351/MEGN351 from its prerequisites.

- **Question** on removal of Fluid Mechanics from a Groundwater Engineering course and how this affects the curriculum; Benson noted that items like Darcy's Law are covered in GEGN466. Benson also noted that in the future fluid mechanics would be removed from the required curriculum with the requested reduction in credits.

2.3

UNIVERSITY HONORS PROGRAMS

Cj McClelland

[CIM 1/9; Provost 1/9]

2 new courses: HNRS150: ENTERING RESEARCH

This class was successfully piloted as 198 courses in 2018, 2019, 2021 and 2022 fall semesters. Special permission was obtained from the faculty senate to teach it during the fall 22 semester. It will continue to be an offering for the University Honors and Scholars Programs.

Krishna reported HNRS150 has been piloted three times and covers the basics of research and finding a mentor.

HNRS496: PAYNE SCHOLARS PROGRAM

The class has developed into a more traditional course with clearer objectives, research areas, and interactions between Payne fellows and students. Considering this, the Registrar has requested we no longer complete the Independent Study form and submit, but that the students register through the traditional processes.

Course has been offered as an independent study with the Payne Institute; Registrar's Office suggested formalization of the course to be offered every year.

2.3.1

[CIM 1/24]

2 course changes: HNRS105: INNOVATION AND DISCOVERY IN ENGINEERING, ARTS, AND SCIENCES I
HNRS115: INNOVATION AND DISCOVERY IN ENGINEERING, ARTS, AND SCIENCES II

Per the core revision, vetted and approved by faculty senate, first year honors is revising to align with only full credit-hour courses.

Thorson First Year Honors experience has been offered as a three and a half credit course; course has been revised to three credits. McClelland noted this change would not affect what has been offered in the course. Course is now two studio hours and one seminar hour for three credits in the fall and four in the spring.

MIN-RIS: Minor in Robotics and Intelligent Systems

Replace Intro to Stats with Intro to Prob.

MINASI-CS: Minor in Computer Science

Deactivating ASI. Currently zero students enrolled and ASIs are rarely utilized across campus. Further, due to prereqs a student completing the existing ASI would need 1 more course to complete the minor. Second version of minor being rolled into Minor in Computer Engineering.

3.2.1

[CIM 1/4; Provost 1/7]

1 new core course: CSCI128: COMPUTER SCIENCE FOR STEM

This course is considered part of the new Mines Core, and thus designated an essential class for all students studying at Mines. Increasingly each year, our society relies on computing technology to accomplish daily tasks. This is even more true for scientists and engineers in STEM fields. However, simply knowing how to use computers is not enough. Capable professionals must also know how to program computers to make the best use of them. This course will teach the basics of computer programming, targeting students with no prior experience. It will teach fundamentals that are necessary to program in any language, as well as data analysis techniques that will be applicable to all STEM students, regardless of their intended major. This is a residential course, meeting in-person 3 times each week.

3.2.2

2 new courses: CSCI195: CS@MINES BRIDGE SEMINAR COURSE

The CS@Mines Bridge Program is for students who have an undergraduate degree in a non-CS field and wish to pursue a CS Master's Degree. There is tremendous potential to have a positive impact on students as well as grow the graduate student pipeline within the Mines community and attract a diverse population of new students to enroll in Mines' CS programs. This Bridge Seminar course is required for all incoming Bridge Students, and has a direct connection to the Mines@150 mission to be a "top-of-mind and first-choice university for students" and expand the pathways into Mines, and Computer Science by offering opportunities for "professionally oriented pre and post graduate education". This course will be delivered in a residential manner, with weekly in-person sessions. There will be a mixture of course instructor lectures, guest speakers, in-class group discussions and exercises to reinforce weekly topics.

CSCI210: SYSTEMS PROGRAMMING

To prepare students for upper-level courses better, thorough coverage of the Linux operating system concepts, from command line skills to writing code to perform system level management, is needed. To achieve these goals, this proposed 3-credit course will extend the existing 1 credit CSCI 274 Introduction to the Linux Operating System course and absorb topics from CSCI 101/102 that are not covered in replacement CSCI 128.

3.2.3

[CIM 1/4]

17 course changes: CSCI200: FOUNDATIONAL PROGRAMMING CONCEPTS & DESIGN
Updating prereq for new Mines core computing course CSCI128.

CSCI220: DATA STRUCTURES AND ALGORITHMS

Adding countability content as prereq.

CSCI250: PYTHON-BASED COMPUTING: BUILDING A SENSOR SYSTEM

Updating responsible faculty and adding new Mines programming course as prereq.
 CSCI303: INTRODUCTION TO DATA SCIENCE

Adding new Mines core programming course as prereq.
 CSCI306: SOFTWARE ENGINEERING

Updating responsible faculty and adding CSCI210 as additional prereq to fit into new major flowchart following new Mines core curriculum.
 CSCI341: COMPUTER ORGANIZATION

Changing prereq from "CSCI200 or CSCI261, CSCI262" to "CSCI210".
 CSCI358: DISCRETE MATHEMATICS

Changing prereq from Calc III to Calc II.
 CSCI370: ADVANCED SOFTWARE ENGINEERING

Changing credit hours from 4.5 to 5.0 in response to no longer allowing half credit hours.
 CSCI400: PRINCIPLES OF PROGRAMMING LANGUAGES

Updating responsible faculty and modifying prereq to be CSCI358 or MATH300 to add flexibility for CS Minors.
 CSCI423: COMPUTER SIMULATION
 CSCI425: COMPILER DESIGN
 CSCI442: OPERATING SYSTEMS

Updating prereq to include new CSCI210 Systems Programming course in place of CSCI274 Intro to Linux OS.
 CSCI470: INTRODUCTION TO MACHINE LEARNING

Adding new Mines core programming course as prereq.
 CSCI471: COMPUTER NETWORKS I

Updating prereq to include new CSCI210 Systems Programming course in place of CSCI274 Intro to Linux OS.
 CSCI473: ROBOT PROGRAMMING AND PERCEPTION

Updating responsible faculty member, title, and description to accurately reflect course content.
 CSCI475: INFORMATION SECURITY AND PRIVACY

Changing prereq from "CSCI220 or CSCI262, CSCI341, CSCI274" to "(CSCI220 or CSCI262) and CSCI341 and (CSCI210 or CSCI274)".
 CSCI478: INTRODUCTION TO BIOINFORMATICS

Adding new Mines core programming course as prereq.

- 3.3 **QUANTITATIVE BIOSCIENCES AND ENGINEERING** Lauren Salinas
 [CIM 12/15]
1 program change: BS-QBE: BS in Quantitative Biosciences and Engineering
Update to technical electives list and removal of field session placeholder that was used in Summer of Junior year.
- 3.4 **CHEMICAL AND BIOLOGICAL ENGINEERING** Michael Barankin
 [CIM 1/3]
1 course change: CBEN420: MATHEMATICAL METHODS IN CHEMICAL
 ENGINEERING
Updating/aligning course description (with CBEN505) to match how the course is currently taught.

3.5

CHEMISTRY

Dylan Domaille

[CIM 1/6]

13 course changes: CHGN209: INTRODUCTION TO CHEMICAL THERMODYNAMICS
Updating pre-reqs. Removed CHGN121 because that pre-req will be met if students have taken CHGN122/CHGN125.

CHGN224: ORGANIC CHEMISTRY II LABORATORY
Removing CHGN221 as a pre-req because this will already be met if CHGN222 (another pre/co-req) is being taken/has been taken.

CHGN335: INSTRUMENTAL ANALYSIS
Updated to include CHGN125 as a suitable substitute for CHGN122.

CHGN336: ANALYTICAL CHEMISTRY
Updating pre-reqs to include CHGN125 as a suitable substitution for CHGN122.

CHGN351: PHYSICAL CHEMISTRY: A MOLECULAR PERSPECTIVE I
Updating pre-reqs to remove CHGN121 and CHGN122 because these are pre-reqs for the existing pre-reqs of CHGN209/CBEN210.

CHGN406: INTRODUCTION TO GEOCHEMISTRY
Updating pre-reqs to remove CHGN121 (which will be met if the existing CHGN122 pre-req is met) and to add CHGN125 as a suitable substitution for CHGN122.

CHGN410: SURFACE CHEMISTRY
Updated to include CBEN210 (chem. eng. thermo) as a suitable substitution for CHGN209 (chemistry thermo).

CHGN411: APPLIED RADIOCHEMISTRY
1) Removed the CHGN121 requirement because this will be met if the existing CHGN122 pre-req is met. 2) Added CHGN125 as a suitable substitution for CHGN122.

CHGN428: BIOCHEMISTRY
Adjusted pre-req to include concurrent enrollment of CHGN222 (Organic Chemistry II). This change is supported by the chemistry faculty, including those who teach CHGN428 (Posewitz, Morrison, Trewyn, Domaille).

CHGN431: INTRODUCTORY BIOCHEMISTRY LABORATORY
Clarified pre-reqs to CHGN428 or concurrent enrollment.

CHGN441: THE CHEMISTRY AND BIOCHEMISTRY OF PHARMACEUTICALS

CHGN445: CHEMICAL BIOLOGY
Removed CHGN221 pre-req because it will have been met if CHGN222 (current pre-req) is met.

CHGN490: CHEMISTRY FIELD SESSION
Updating pre-reqs to require Physical Chemistry I (CHGN351) but not Phys. Chem. II (CHGN353). This change was made because biochemistry majors do not have to take Phys. Chem. II, but do have to take field session. Not having had CHGN353 does not negatively impact students' ability to complete CHGN490 but does require a lot of course overrides. This change was voted on and supported by the chemistry faculty.

3.6

ECONOMICS AND BUSINESS

Becky LaFrancois

[CIM TBD]

1 program change: BS-BEMS: Business Engineering and Management Science
The data science and business analytics core for the BEMS degree was originally constructed with classes that already existed in the Department of Economics and

Business or elsewhere on campus. Now that the department has additional faculty depth in business analytics, the department wants to make sure that it is providing our students with the sequence of courses that will best serve their needs. Course proposals for the classes below have been submitted to CIM, and once those are approved, the program changes will be submitted to CIM.

3.6.1

[CIM 12/14; Provost 12/15]

5 new courses: EBG280: INTRODUCTION TO BUSINESS ANALYTICS
Business analytics implements a data-driven approach to the business world, leveraging statistics and data modeling to generate new business insights. Currently, many of the world's largest companies use business analytics. Due to the increasing demand for business analytics in different industries, an increasing number of schools now offer business analytics courses. This course contributes to Mines@150's mission by strengthening the students' business education.

EBGN351: INTRODUCTION TO DECISION SCIENCE
One of the key goals for Mines@150 is to have all students graduate with a good understanding of the business applications of their degrees. Running a business or working in a business primarily comes down to making decisions – strategic decisions, capital investment decisions, and operational decisions. Decision Science provides the framework needed to think one's way through complex problems and make good decisions.

EBGN381: PREDICTIVE BUSINESS ANALYTICS
Predictive analytics may be helpful and profitable in almost any industry, from the banking to the aerospace industry. Predictive models enable businesses to make data-driven decisions that minimize potential risks and maximize profitability. Predictive models are used to forecast inventory, manage resources, set ticket pricing, manage equipment maintenance, develop credit risk models, and much more. This course contributes to Mines@150's mission by strengthening the students' business education.

EBGN382: PRESCRIPTIVE BUSINESS ANALYTICS
The Prescriptive Analytics course provides skills on modeling business problems to obtain optimal decisions and insights, specifically in the business context. It contributes to Mines@150 Mission by contributing to the education in business, by providing skills to solve "the world's most pressing challenges".

EBGN490: BUSINESS ANALYTICS CAPSTONE
This course will serve as the culmination of the Business Analytics (data science) core within the Business Engineering and Management Science degree program. As part of the program proposal, we included a capstone experience for our students. This new course will serve as that capstone.

3.7

ENGINEERING, DESIGN, AND SOCIETY

Chelsea Salinas

[CIM 12/21]

1 program change: MIN-LSR: Minor in Leadership in Social Responsibility
Update to course elective list for LSR minor. The Engineering for Community Development HE minor in EDS also lists elective courses which should be consistent between the two offerings.

Miscellaneous Business

Horan asked Councilors to attend the 2/1 meeting to continue the remaining curriculum items and incoming core curriculum changes presented by Student Life and CS.

Adjourn

Joe Horan

Meeting adjourned: 5:00 pm.

Next meeting: February 1, 4:00-5:00 pm via Zoom. Please send agenda items to Mara Green (mgreen1@mines.edu) one week prior.