Colorado School of Mines – GRADUATE COUNCIL MEETING MINUTES
January 19, 4:00 – 5:00 pm, via Zoom

Attendees:

Voting Members: 22 total (12 - majority needed for quorum). Quorum was present

<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td>Bettina Voelker</td>
<td>Chair</td>
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<td>Eric Anderson</td>
<td>HSE</td>
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<td>Ebru Bozdag</td>
<td>GP</td>
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<td>Geoff Brennecka</td>
<td>ML</td>
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<td>Elizabeth Davis</td>
<td>HASS</td>
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<td>Christine Morrison</td>
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<td>Christine Baker</td>
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<td>Karin Leiderman</td>
<td>AMS</td>
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<td>Juan Lucena</td>
<td>EDS</td>
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<td>Jeramy Zimmerman</td>
<td>PH</td>
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<td>Dave Marr</td>
<td>CBE</td>
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<td>Salman Mohagheghi</td>
<td>EE</td>
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Other Regular Attendees and Guests

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<tr>
<th>Name</th>
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<tr>
<td>Tim Barbari</td>
<td>OGS</td>
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<td>Carolyn Freedman</td>
<td>OGS</td>
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<td>Jennie Kenney</td>
<td>AA</td>
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<td>Denise Winn-Bower</td>
<td>PE</td>
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<td>Deb Jordan</td>
<td>Trefny</td>
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<td>Jane Ko</td>
<td>AA</td>
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<td>Paul Myskiw</td>
<td>RO</td>
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<td>Mara Green</td>
<td>AA</td>
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<td>Kendra Stansbury</td>
<td>RO</td>
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Special Guest(s): Charles Durfee (PH), Ning Wu (CBE)

Welcome
Tina Voelker
Zhexuan Gong was introduced to Graduate Council as the Physics representative while Zimmerman is on sabbatical for Spring 2022.

Briefings and Information Items
Office of Graduate Studies
Tim Barbari

Catalog Change – 300-level courses in the Graduate Catalog
Counselor brought forward current Catalog language referencing graduate students’ ability to apply department recommended 300-level courses to some degree requirements; Barbari proposed removal and replacement with up-to-date language on 400-level coursework exceptions. Only one program mentions allowance of 300-level courses explicitly.

Registrar’s Office
Paul Myskiw

Catalog Change – Graduate and Undergraduate Course Numbering and Footnotes
Myskiw brought forward footnote language on 12/15. The language would make clear that some graduate programs may allow graduate students to enroll in 400-499 level courses. Counselor had noted that the current Catalog listed 500-599 courses as “Masters Level” and suggested the use of “Graduate Level” as some PhD programs allow for 500-level courses. Council discussed combining 500-699 as “Graduate Level”.

Note: The following footnotes are to be added to “Senior Level**” and “Graduate Level***” course numbering in the Catalog:

**Some graduate programs may allow graduate students to enroll in 400-499 level courses as a part of their program.

**Undergraduates may take 500 level courses and may apply these courses toward the undergraduate degree and GPA. Undergraduates in combined undergraduate/graduate programs will have a transcript notation on the graduate transcript notating the double counted courses.”

COLORADO SCHOOL OF MINES
EARTH | ENERGY | ENVIRONMENT
**MOTION:** To approve the proposed course numbering level name changes and addition of footnotes to clarify 400-level and 500-level coursework exceptions by Rostami, seconded by Brennecka. 16 for, 2 abstentions. **APPROVED.**

**Graduate Student Government**
Maxwell Silver
Silver reported on the status of a large population of graduate students that were affected by the shooting in Lakewood, 12/27. Silver asked faculty to remain sensitive to advised students and graduate students in courses that were directly affected; also asked to consider reaching out to graduate students if help or support is needed. Councilor asked regarding graduate students affected by the Marshall fires; Silver noted there are students that live there with and without families but complaints have not been expressed.

Curriculum Item(s) for Council Vote – from 12/1/21

1.1 **PHYSICS**
Charles Durfee

[CIM 12/8; Provost 12/9]

**1 new program:** CRTG-OPTICS: Optics for Engineering

Optics for Engineering is an interdisciplinary program that seeks to equip students for careers in industries that make use of optics, imaging and lasers. It encompasses a wide range of disciplines that include physics, materials science, computer science, electrical and mechanical engineering, chemistry and mathematics, and is necessarily a collaborative effort among many Mines departments. The “Optics for Engineering” graduate certificate program is aimed at providing students with a range of technical backgrounds the tools they need to succeed in today’s optics-related industries. Optics and lasers are key enabling technologies in many industries, including some recent applications like automotive lidar, advanced manufacturing and quantum computing. At the same time, the design of optical systems requires input from many disciplines: electrical and mechanical engineering, computer programming, materials and chemistry. It is therefore critical for students trained in those areas to learn how their background can be applied to the engineering of optical, imaging or laser systems.

Offline correspondence confirmed that the Analytical Spectroscopy course listed in the certificate electives has not been taught by the chemistry department and has been removed.

Councilor asked if the certificate is residential; Durfee stated that the prerequisite course is offered online but the certificate is residential.

**MOTION:** To approve the new program in Physics CRTG-OPTICS: Optics for Engineering by Brennecka, seconded by Morrison. 17 for, 2 abstentions. **APPROVED.**

1.2 **CHEMICAL & BIOLOGICAL ENGINEERING**
David Marr

[CIM 11/19]

**1 program change:** MSPHD-CBE: MS & PhD – Chemical and Biological Engineering

In the current catalog, both Ph.D. and master students are required to register every semester for CBEN605 Colloquium; however, it is not currently specified how many colloquium credits can be counted towards each degree. Here, we are applying a three-
credit maximum for counting towards the degree requirements.

**MOTION:** To approve the program change in Chemical and Biological Engineering to MSPHD-CBE: MS & PhD – Chemical and Biological Engineering by Brennecka, seconded by Morrison. 17 for, 1 abstention. **APPROVED.**

1.3 **GEOLOGY & GEOLOGICAL ENGINEERING**  
Danica Roth  
[CIM 11/18]  
1 program change: MPMEMSPHD-GE: MP, ME, MS & PhD – Geology & Geological Engineering  

*Updating GEGN Ph.D. catalog language - the current language is unnecessarily vague about the number of course credits required as part of the program. I suggest we change "At least 24 of the hours must be research credit hours" to "At least 24 of the hours must be research credit hours, and at least 24 of the hours must be earned through completion of coursework".*  
The GEOL PhD language will be discussed at a faculty meeting later.

**MOTION:** To approve the program change in Geology and Geological Engineering to MPMEMSPHD-GE: MP, ME, MS & PhD – Geology & Geological Engineering by Morrison, seconded by Brennecka. Motion passed unanimously. **APPROVED.**

1.4 **HUMANITIES, ARTS, AND SOCIAL SCIENCES**  
Elizabeth Davis  
[CIM 11/29; Provost 11/29]  
2 new courses:  

HASS526: INTERCULTURAL COMMUNICATION  
By providing a forum for students to study current and emerging intercultural communication issues, this course will make Mines more attractive to qualified students from all backgrounds (including groups that are currently underrepresented in the Mines student body), particularly students interested in researching how intercultural communication is contoured by issues of globalization, history, and power.  

This course has been well received among undergraduates and would add value to the graduate offerings since no other single course covers the same content. It was cross listed as HASS 425 and 598 in Fall 2021.

HASS527: RISK COMMUNICATION  
By providing a forum for students to study current and emerging risk communication issues, this course will make Mines more attractive to qualified students from all backgrounds (including groups that are currently underrepresented in the Mines student body), particularly students interested in researching how fairly a given risk is distributed systemically.

This course was initially piloted as an undergraduate course in the McBride Honors Program in Spring 2018, then taught as a regular HASS course (427), most recently in Spring 2021. The course is scheduled for Spring 2022, cross listed as HASS 427 and 598.

**MOTION:** To approve the two new courses in Humanities, Arts, and Social Sciences HASS526: Intercultural Communication and HASS527: Risk Communication by Rostami, seconded by Morrison. Motion passed unanimously. **APPROVED.**

*Colorado School of Mines  
Earth Energy Environment*
1.4.1 1 program change: MS-NREP: Natural Resources & Energy Policy
Addition of thesis option to the existing MS program.

**MOTION:** To approve the program change in Humanities, Arts, and Social Sciences to MS-NREP: Natural Resources & Energy Policy by Brennecka, seconded by Morrison. Motion passed unanimously. **APPROVED.**

New Curriculum Item(s)

2.2 CHEMICAL & BIOLOGICAL ENGINEERING Ning Wu

[CIM 1/7; Provost 1/7]

1 new program: XCRTG-EPSE: Energy Production, Storage, and Environment Remediation

This program addresses specifically several Mines@150 goals by (1) fostering the education of engineering solutions in the societal context of producing use-inspired research and innovation to address industrial and societal challenges, (2) nurturing differentiated and desired STEM-educated leaders, and (3) providing STEM education for students and professionals in the area of energy production, storage, and associated environmental remediation. We sent out surveys to alumni from the Departments of Chemical Engineering and Petroleum Engineering in June 2021. The proposed online certificate program and its associated courses are well-received based on the feedback. This online certificate program is developed by leveraging existing and new online courses taught in the Department of Chemical & Biological Engineering and a course already approved by the online CCUS certificate program.

This Certificate program aims to provide students with much-needed working knowledge in addressing challenges in energy production (oil & gas), storage (electrochemical systems such as batteries), and associated environmental remediation (CO2 capture & storage). It is a subject that receives a wide range of interests from companies producing energy based on both conventional and renewable resources. Therefore, this program will provide both enhanced understanding and new career opportunities for students working in the relevant industry.

The online certificate is made up of three courses: Chemical Engineering Flow Assurance, Advanced Electrochemical Engineering, and Non-Geologic CCUS: Capture & Utilization. The courses were selected based on the results of a survey sent to alumni of the Chemical and Biological Engineering (CBE) and Petroleum Engineering (PE); the survey asked alumni what kind of online certificate would be seen as most beneficial.

Councilor asked if these courses require any prerequisites or engineering background; Wu noted that the Chemical Engineering Flow Assurance course listed Chemical Engineering Thermodynamics as a prerequisite. Prerequisites could be waived, potentially, depending on the students' background. Expected students are those who have graduated or are from industry.

Council participant noted the title of the certificate containing areas of interest for individual degrees; concern raised on choosing courses for the certificate at random to meet demand. Wu provided
background on the survey and process for identifying the certificate title; the survey had been split between conventional and renewable energy and faculty have conveyed interest in leading for both. Councilor suggested consideration of an alternative title to provide flexibility for certificate courses in the future.

Councilor noted the intersection with the certificate in Carbon Capture, Utilization, and Storage (CCUS) and if any concerns were raised; Prasad is aware of the integration of the non-geologic CCUS course in the online certificate.

2.3 GEOLOGY & GEOLOGICAL ENGINEERING

Danica Roth

1 course change: GEOL558: EARTH RESOURCE DATA SCIENCE 2: APPLICATIONS AND MACHINE LEARNING

Adding prerequisites to the course: GEOL557 and DSCI403 (or CSCI303).

Concern raised on the inclusion of DSCI403 in a range of existing programs on campus and how this will affect registration and class sizes; feedback will be brought to the department to address any concerns.

New Business

Advisor/Advisee Expectations Final Document

Christine Morrison

Geoff Brennecka

The final document has been disseminated to Councilors and will be available through the Office of Graduate Studies (OGS) for university-wide use. The document is not a set of rules but intended to provide a discussion starter for both students and advisors. Morrison noted that a large discussed was had in the early meetings for this document on work week expectations; the document has made this area as broad as possible and removed mention of specific hours or numbers.

Brennecka stated that this document does not discuss policies but conversations for advisors and advisees to have up front.

Catalog Language Continuity – Credits vs Semester Hours vs Credit Hours

Tim Barbari

The use of credits, credit hours, semester hours, and semester credits are used interchangeably throughout the Catalog. Barbari sought Council interest in doing a broad search and replace. Mines uses the term “credit”. The use of normalized terminology will assist in eight week and shorter courses.

Policies and Guidelines for Finals Week/Testing

Geoff Brennecka

Faculty sought confirmation that communications for undergraduates and undergraduate courses’ testing during finals week were for undergraduate only and do not apply to graduate courses. Barbari noted that the Graduate Catalog does not make note of testing policies. Faculty member wanted to know if the last test can be done on the last day of class which is not explicitly forbidden.

Adjourn

Tina Voelker

Meeting adjourned: 5:00 pm
Next meeting: February 2, 4:00-5:00 pm via Zoom.

Consent Agenda The following proposals will not be discussed unless specifically requested by Council. Please review the following items. With no objections, approval is implied and items will be processed.
accordingly.

3.1 Approval of Minutes – December 15, 2021

Tina Voelker