

Colorado School of Mines – GRADUATE COUNCIL MEETING AGENDA  
 January 17, 2024, 4:00 – 5:00 pm, via Zoom

**Attendees:**

**Voting Members:** 17 total (11 - majority needed for quorum). Quorum was present.

P	Soutir Bandyopadhyay (Chair)	P	Danielle Ostendorf (LB)	P	Andy Osborne (NSE)		Owen Hildreth (ME)
P	Adrienne Marshall (HSE)	P	Bettina Voelker (CH)		Jaeheon Lee (MN)		Jared Carbone (EB)
P	Yaoguo Li (GP)	P	Juan Lucena (EDS)		Jim Ranville (GC)		Pejman Tahmasebi (PE)
P	Suveen Mathaudhu (MME)		Zhexuan Gong (PH)	P	Ryan Venturelli (GE)	P	Dong Chen (CS)
P	Adrienne C. Kroepsch (HASS)	P	Nikki Farnsworth (CBE)	P	Rena Zhu (GSG)	P	Samy Wu Fung
		P	Yamuna Phal (EE)	P	Gabriel Walton (UCTE)	P	Uwe Griefe

**Other Regular Attendees and Guests**

P	Tim Barbari (OGS)		Carolyn Freedman (OGS)	P	Jenny Briggs (OGS)		Vibhuti Dave (UG)
	Wendy Adams (HNRS)	P	D. Scott Heath (RO)	P	Paul Myskiw (RO)		Roxane Aungst (OGS)
P	Sam Spiegel (Mines Online)		Suzanne Beach (Payne)		Jen Gagne (Grad Admissions)	P	Valerie Holt (AES)
	Jon Johnson (Mines Online)		Atef Elsherbeni (EE)		Richard Krahenbuhl (GP)	P	Kristeen Serracino (AA)
	Colin Schneider (RO)						

**Special Guest(s):** Doug Nychka, Ning Lu, Cadi Gillette, Sid Saleh

**Welcome**

Soutir Bandyopadhyay

**Briefings and Information Items**

*Office of Graduate Studies*

Tim Barbari

We are moving to a per credit tuition pricing model starting next year. I will have more details at one of the additional meetings that we added over the next few weeks about what that will look like and if there are any potential changes that need to be made policy-wise because of that. We are soliciting feedback. We've already been to the DH council. There are three DH's that are the working group for implementation, so we have had a decent amount of faculty input, but we are seeking more from also Graduate Council and Research Council before we come up with a recommendation to the Exec team about how this will roll out. I did want to give everyone a heads up on this matter.

*Registrar's Office*

Paul Myskiw

Not present.

*Graduate Student Government*

Rena Zhu

No updates at this time.

**Continued Business**

**1.1 Discussion on GSG proposal**

Rena Zhu

I am not ready to share an updated proposal at this time. I will present something during next week's meeting. As a reminder, the proposal includes RAs that are appointed on a 12-month basis whether there should be a more formal vacation policy.

**1.2 Elimination of 4xx Courses for Graduate Credit**

Tim Barbari

I am currently working on some slides and spreadsheets that emphasize the impact and where the impacts are for this change. I will present these during the next meeting.

**Question:** What happened during our last accreditation process? This policy was put forward because of a fear of losing accreditation.

**Answer:** It was more a fear of being dinged because we weren't following accreditation guidelines. That did not happen to us, although there were other universities in this area that did. I will have more information next week.

## **Curriculum Item(s) for Council Vote**

### **2.1 Proposal on PRG/PRU**

Paul Myskiw

As a reminder, this proposal would insert PRG on behalf of faculty as the default grade for research. Less than 1% of grades entered for the past couple of years were PRU's. According to OGS, of those with PRU's, very few are dismissed. If a faculty member wants to give a PRU, they will have to be pre-emptive and do so when grading opens. It is my understanding that faculty who would want to enter PRU's are much more aggressive about doing so than those with PRG's. Currently, of all the missing grades, 99% of them are from faculty research not entering PRG's, and we are hampered with completing end-of-term processing until we have all grades in place. This proposal will help us and provide some relief for faculty.

**Question:** Will you have any condition in place regarding a grade change? Let's say a faculty member wished to enter a PRU, but the default PRG is entered. Will there be any sort of timing constraint on their ability to submit a grade change request?

**Answer:** The grading policies remain unchanged. Faculty have up to one year to change a grade. If later than that, it would need to go to Tim and the Dean for approval. Because we are attaching default grades to the course itself, what faculty will want to do is enter a PRU as soon as grading opens. Once we begin rolling grades, they move to academic history. If the faculty catches any issue after they have rolled academic history, then they must do the grade change workflow to insert the new grade. We will include instructions to our graduate faculty for the first few semesters to remind them that if they want to enter PRU's, they must do so earlier rather than later so that they don't have to go through the grade change process.

**Question:** When would grading open? When would be the earliest faculty could enter grades?

**Answer:** We generally open grading around the last week of the semester. We will postpone rolling grades/academic history by a few days, which will be an internal shift we make.

**MOTION:** The motion to approve the proposal on PRG/PRU was moved by Soutir and seconded by Danielle. The proposal on PRG/PRU was approved with 16 approved, 0 opposed, and 2 abstentions.

### **2.2 Repeated Course and GPA Policy for Grad Students**

Tim Barbari

I have taken some of the comments and advisements and made the changes over the last couple of versions. The two things that were suggested as a council were that students cannot repeat forever. There should be some limit and the number of times students can repeat a course. We changed it to one repeat in terms of how it affects your GPA. The other suggestion was that students should not be able to repeat a B since our grade point average is a 3.0. Any course with a B- or higher cannot be repeated in terms of only levying the highest-grade count for the GPA calculation.

**Question:** Since a B- is a 2.7, shouldn't the language be changed to a B?

**Answer:** We have some programs that for their core courses, even though we considered a C still passing, they require a B- or better. This language is not too different from the undergraduate policy which states you can't repeat a C- even though that is below a 2.0. It also keeps it clean in terms of thinking of letter grades regardless of if it's on the plus or minus side.

- **Question:** Isn't the overall grade-point averaging the average of all the classes students have taken? So one course with a B- would theoretically be fine because, hopefully, they are not getting B's in all their classes?
- **Answer:** We actually do see people who end up having all B's and a B- so a class must be repeated in order to raise their GPA.

**MOTION:** A motion to amend the repeated course and GPA policy to repeat a course in which the students received a grade lower than a B- to a B by Uwe and seconded by Soutir. The motion to approve the repeated course and GPA policy with the amendments was approved with 15 approved, 0 opposed, and 3 abstentions.

## New Business

### 3.1

#### **GEOPHYSICS**

Yaoguo Li

[CIM 11/16]

#### **1 new course:**

CCUS598: CLASS VI WELL DESIGN AND PERMITTING

*This course is an addition to the CCUS graduate certificate program. As the CCUS certificate program is expanded into a potential stacked certificate or ultimately a master's degree, additional course content is needed. This course focuses on the development of Class VI wells used in CCUS projects. The course is being added as a request of the CCUS team to expand topics in the well construction area.*

I have spoken to Monika Prasad about this new course. I am not able to comment on this because this is not Geophysics. I think it was placed under Geophysics because it will be offered in the CCUS certificate program. We will invite Monika to the next meeting to present.

[CIM 11/30]

#### **2 course changes:**

CCUS525: BIOLOGICAL CARBON CAPTURE AND CONVERSION

*Added pre-requisites to course after discussion with Tina Voelker.*

CCUS530: THE KINETICS OF CARBON DIOXIDE REACTIONS

*Added pre-requisites to course after discussion with Tina Voelker.*

Tina is not familiar with these changes. We spoke about prerequisites back in October but there was no follow up. There is a bigger issue here that courses are proposed with a program, but they are not from our department. Erik Menke, who is a member of the Chemistry department, submitted these changes on CIM so we can reach out to him as well to present during the next meeting. Kristeen will be able to update that inside of CIM so that Geophysics is no longer attached to CCUS changes.

### 3.2

#### **CEE**

Lori Tunstall

[CIM 11/17]

#### **1 course change:**

CEEN542: DESIGN OF WOOD STRUCTURES

*Faculty decided to split wood and masonry design in order to cover more advanced wood design topics. There is a new faculty who will teach a new masonry design class.*

There will be no overlap with any other department except CEE, and the faculty has already approved this.

**3.3** **AMS** **Doug Nychka**

[CIM 11/21]

**1 course change:**

DSCI530: STATISTICAL METHODS I

*Changing the prerequisite requirement to the correct level of probability knowledge to succeed in this course. Updating the course description to reflect the course content more fully.*

We would like to require the Mines semester course in Probability (MATH334). We are also willing to take equivalent courses taken elsewhere, however, we wanted to make this explicit because we are getting a lot of students who feel like they have taken a Statistics and Probability class, but it does not cover Probability at the level that we need. We do not require a course in Statistics because we feel that DSCI530 will take care of that. In the course, the first module is called Review of Probability with lots of assignments and quizzes. We have found that a lot of students will drop after this first module because they think that they cannot keep up with the class due to not having the required Probability knowledge. If a student is taking 530 in the last 8 weeks, we allow them to enroll in the 16-233k MATH334 with the idea that by the time the 8-week 530 course starts, they will have enough probability to be up to speed.

**Question:** Is this prerequisite intended for undergraduates?

**Answer:** Yes. We would also require it there. 530 does not have a 430 companion so this is a full-on graduate course.

**3.4** **EDNS** **Sid Saleh**

[CIM 11/10]

**2 new courses:**

INNO544: INNOV8X CREATE DSCI

*This is a 1-credit hour course offered in collaboration with the Data Science program under the auspices of the McNeil Center for Entrepreneurship & Innovation. This course meets concurrently with the existing Innov8x Create course 544 for the first five weeks.*

INNO598: INNOV8X STUDIO

*Innov8x Studio is a safe demonstration space where startup teams engage potential beneficiaries and customers in solution design to address problems. This is a hands-on studio allowing students to practice launching an innovation initiative or startup and acquire their first beneficiary or paying customer (early adopters).*

**Question:** Is the 598 the permanent course number you are hoping to get because that could cause confusion?

**Answer:** We are waiting to assign a course number.

**Question:** What does the academic structure look like around the student startup idea so that it feels like a class instead of students just doing a startup on their own?

**Answer:** Students must go through a market process and achieve certain milestones. They will also have to reach out to people to try to test their product/service/idea. Students must fully develop the service/product so that they are ready for their first customer so there is a definite structure to it. Students need to iterate until they achieve the result they are looking for.

**Question:** How many credits is INNO598?

**Answer:** The request is for it to be variable between 1 and 3 credits. Some people just want to have it as a 1-credit course. They are allowed to spend less time than those who are spending 3 credits. Some want to put more time into it so it would be a 3-credit class.

**Comment:** It will be important to note the credit variability somewhere.

**Comment:** The reason it is important to give them credit for this is because, as you all know, 9 out of 10 startups fail. It is nice that they show that they have tried to do that because the experience in and of itself is extremely valuable in the industry.

**Question:** Since it is a variable credit course, will it be repeatable for credit

Answer: Yes. Students can repeat it because if they hit a milestone and are making traction, there is no reason stop it.

Question: Some programs may not want to allow more than 3 credits of this course counted towards their degree. Are you okay with a program limiting how many credits could count towards their degree?

Answer: Some students say that they are not taking the course because they need it counted toward their degree, but instead, they take it because it provides the structure to follow on their startup idea. Whether they receive credit toward their degree will be between the student and their program.

**3.5**                      **MECHANICAL ENGINEERING**    Owen Hildreth  
[CIM 11/18]  
**1 course change:**    MEGN517: NONLINEAR MATERIAL BEHAVIOR  
*Update catalog description and topics to align with curriculum being taught.*

**3.6**                      **GE**    Gabriel Walton  
[CIM 11/28]  
**1 new course:**    GEGN572: ENGINEERING GEOLOGY AND  
GEOTECHNICS  
*Create a 500-level version of 468 since graduate students will not be able to count 400-level courses starting next academic year.*

**1 program change:**    MEMSPHD-GEE: ME, MS, & PHD IN GEOLOGY &  
GEOLOGICAL ENGINEERING  
*Change master's language to clarify the number of required course credits (and to be consistent with the PhD language).*

**3.7**                      **CEE**    Lori Tunstall  
**3 new courses:**  
[CIM 12/8]    CEEN548: STRUCTURAL LOADS  
*Structural Engineers will learn about various loads and how they are applied to buildings. Many graduate students took "CEEN446: Structural Loads" as part of their degree requirements. A graduate level course is proposed that builds off this undergraduate offering.*

This course is to accommodate the switch of not being able to take 400-level courses for graduate level requirements. The course has been adapted with some changes to offer it as cross-listed with 448.

[CIM 1/10]    CEEN549: INTRODUCTION TO THE SEISMIC  
DESIGN OF STRUCTURES

*Mines needs to have a viable MS program in structural engineering. This class will be cross listed with CEEN 441, which has the same name. Originally, graduate students could take CEEN441 to count towards their MS and PhD degree, but now that is not allowed. Thus, this class needs to have a 5XX level cross- listing component.*

[CIM 12/8]

**CEEN532: UNDERGROUND INFRASTRUCTURE  
CONSTRUCTION MANAGEMENT**

*This course (delivered twice as CEEN598) is the third course in the Underground Construction and Tunnel Engineering Graduate Certificate Program. It is targeted to reach and connect Mines to working professionals through an online environment. The course will be offered Online. The course was initially developed and approved in 2021 as CEEN598; it was previously offered in Fall 2021 and Spring 2023.*

**Question:** Did we decide to do an expedited process for courses that were previously 400-level courses taught to graduate students counting as graduate content as minor course changes?

**Answer:** I am happy about the fact that departments are acting quickly on making the cross-listed courses to get pushed through to the next catalog. We are a little bit ahead of where we thought we would be to have an expedited process. We had planned to create a simple template to push these types of course changes through but they got ahead of us.

**Comment:** CE wants to try to streamline the process so that graduate students can take these courses in the fall for graduate credit.

**2 course change:**

[CIM 12/8]

**CEEN582: VADOSE ZONE HYDROLOGY**

*We are replacing an old, deactivated listing with this new course. Vadose Zone Hydrology provides the fundamental scientific principles governing hydrological processes in the earth's shallow subsurface environment. These principles will prepare graduate students for the needed life-long knowledge for advancing new knowledge and innovative solutions encountered in managing sustainable natural and built environment.*

This course used to be offered in geology but has not been taught for over a decade, and the faculty has sent left. It was discussed that we should open this course for our CE students as well as environment and hydrology students.

[CIM 12/11]

**CEEN591: EROSION CONTROL AND LAND  
RESTORATION**

*Replacing an old, deactivated listing to add grad level cross-listed course with CEEN491.*

**3.8**

**CSED**

Sabina Schill

[CIM 12/12]

**4 new courses:**

**CSED530: COMPUTER SCIENCE PRACTICES AND  
TECHNOLOGICAL IMPACTS ON SOCIETY**

*Providing Computer Science Teacher Education aligns with Mines@150 goals to produce differentiated and highly desired STEM education leaders and to become a leader in educating STEM students and professionals. Computer Science (CS) professionals are the most needed STEM professional in the workplace. Engineers, scientists, and mathematicians who know CS will be able to provide more effective expertise. Currently, Mines leads in Colorado innovatively providing needed pre-service teacher training for CS teacher*

educators. CS teachers with Mines degrees will be more likely to encourage students to attend Mines, creating a pipeline of students for the second most popular degree at Mines, CS. The proposed course will assist future CS teachers and engineers applying CS to understand the ethical implications of optimal and poor code. Students will also develop strategies to include ethical discussions in the software or engineering design cycle, as well as teach K-12 students CS professional practices and ethics. This is a residential course, meeting in-person 3 times each week.

#### CSED535: COMPUTER SCIENCE TEACHING TECHNIQUES

*As a new pre-service Teach@Mines course for master's students, CS Teaching Techniques aligns with Mines@150 plans regarding being an innovative STEM education leader, top of mind university, developing graduates who will have a profound and innovative impact on society. Currently, Mines offers the only CS undergraduate pre-service teacher licensure program in Colorado and one of the only programs nationally. In Colorado and nationally, an estimated 40 – 60% of all K-12 students have access to CS education. Our CS majors who pursue a Teaching minor with a focus on CS will be able to earn CS teaching licensure and also be academically qualified to teach K-12 math, science, and engineering. This is a residential course, meeting in-person 1 time each week.*

#### CSED564: CAPSTONE CURRICULUM DESIGN I – PRACTICUM

*Creating an opportunity for Mines students to become highly-qualified science, engineering, math, computer science or STEM teachers lies at the heart of the Mines@150 goals. Bringing students with technical backgrounds into our local classrooms allows these students to share their passion in a way that meets societal needs and at the same time builds their leadership and communication skills. Providing an option for Mines students to pursue teaching as a career will increase retention and recruitment, both by bringing in and retaining those who decide they want to teach as well as by placing informed Mines ambassadors into K-12 classrooms. Additionally, these courses are attractive to career changers who are looking to transition from technical careers into the teaching profession. This course is mixed face-to-face so that students may experience the classroom firsthand but can engage with their Mines' instructor virtually.*

#### CSED565: CAPSTONE CURRICULUM DESIGN II – STUDENT TEACHING

*Creating an opportunity for Mines students to become highly-qualified science, engineering, math, computer science or STEM teachers lies at the heart of the Mines@150 goals. Bringing students with technical backgrounds into our local classrooms allows these students to share their passion in a way that meets societal needs and at the same time builds their leadership and communication skills. Providing an option for Mines students to pursue teaching as a career will increase retention and recruitment, both by bringing in and retaining those who decide they want to teach as well as by placing informed Mines ambassadors into K-12 classrooms. Additionally, these courses are attractive to career changers who are looking to transition from technical careers into the teaching profession. This course is mixed face-to-face so that students may experience the classroom firsthand but engage with their Mines' instructor virtually.*

[CIM 12/12]

**1 course deactivation:**

MAED535: COMPUTER SCIENCE  
TEACHING TECHNIQUES

*We are also proposing some new Computer Science Education (CSED) courses that are currently being taught under the Math Science Education (MAED) course prefix. We are simply aiming to separate Computer Science from Math via a new course code prefix.*

**2 course change:**

MAED564: CAPSTONE CURRICULUM  
DESIGN I

*Updating pre- and co-requisite so that they match across T@M capstone courses in SCED, MAED, and CSED. Additionally, the original pre- and co-requisites anticipated students progressing through courses in a linear fashion; however, many students organize their schedules to take multiple T@M courses. These new pre- and co-requisites provide more flexibility to students to complete the courses in a way that fits their schedules and remain accurate as to the expected prior knowledge students need for these courses.*

[CIM 1/8]

MAED565: CAPSTONE CURRICULUM  
DESIGN II

*Updating pre- and co-requisite so that they match across T@M capstone courses in SCED, MAED, and CSED. Additionally, the original pre- and co-requisites anticipated students progressing through courses in a linear fashion; however, many students organize their schedules to take multiple T@M courses. These new pre- and co-requisites provide more flexibility to students to complete the courses in a way that fits their schedules and remain accurate as to the expected prior knowledge students need for these courses.*

**3.10**

**SCED**

Sabina Schill

[CIM 12/13]

**2 course change:**

SCED564: CAPSTONE CURRICULUM  
DESIGN I

*Updating pre- and co-requisite so that they match across T@M capstone courses in SCED, MAED, and CSED. Additionally, the original pre- and co-requisites anticipated students progressing through courses in a linear fashion; however, many students organize their schedules to take multiple T@M courses. These new pre- and co-requisites provide more flexibility to students to complete the courses in a way that fits their schedules and remain accurate as to the expected prior knowledge students need for these courses.*

[CIM 1/8]

SCED565: CAPSTONE CURRICULUM  
DESIGN II

*Updating pre- and co-requisite so that they match across T@M capstone courses in SCED, MAED, and CSED. Additionally, the original pre- and co-requisites anticipated students progressing through courses in a linear fashion; however, many students organize their schedules to take multiple T@M courses. These new pre- and co-requisites provide more flexibility to students to complete the courses in a way that fits their schedules and remain accurate as to the expected prior knowledge students need for these courses.*

**3.11**

**CSM**

Wendy Winter-Searcy

[CIM 12/21]

**1 new course:**

CSM550: NAVIGATING THE CAREER



## SEARCH FOR GRADUATE STUDENTS

*Professional development for graduate students is an imperative to provide a signature experience for graduate students electing to enroll at Mines. Evidence exists that graduate students would appreciate and benefit from a customized career-oriented course. The content from CSM 250 Engineering Your Career Path will be adapted for a graduate student audience, whether Masters Non-Thesis, Thesis, or PhD, with an emphasis on paths in industry, research, or academia. The undergraduate course has been offered successfully for the past eight years.*

### 3.12

[CIM 1/3]

#### 1 program change:

MSPHD-EE18: MS & PHD IN ELECTRICAL ENGINEERING

*Updated course prefix to EENG. Removed language about 400-level course allowance in graduate programs. Updated Energy and Power Systems to correct name: Power and Energy Systems.*

### 3.13

#### ENERGY

Valerie Holt

[CIM 1/9]

#### 1 new course:

ENGY693: AES GRADUATE STUDENT SEMINAR

*Adding PhD Seminar course to engage PhDs in research presentations.*

#### 1 program change:

MSPHD-AES: MS & PHD IN ADVANCED ENERGY SYSTEMS

*Minor program changes to clean up language. Adding PhD Seminar to engage PhDs in research presentation.*

### 3.14

#### QBE

Nanette Boyle

[CIM 1/10]

#### 1 program change:

MSPHD-IBIO: MS & PHD IN QUANTITATIVE BIOSCIENCES AND ENGINEERING

*The QBE department was unable to find an instructor for BIOL501 the students were told to register for physical biochemistry CHGN 598B. After a staff meeting, the department has decided to make this a permanent change. A new course number will need to be created once this goes through Grad Council.*

## Adjourn

Next meeting: January 24, 2024, 4:00-5:00 via Zoom. Please send all agenda items to Soutir Bandyopadhyay ([sbandyopadhyay@mines.edu](mailto:sbandyopadhyay@mines.edu)) and Kristeen Serracino ([kristeen.serracino@mines.edu](mailto:kristeen.serracino@mines.edu)) 1 week in advance

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

### 4.1

**Approval of Minutes** – December 6, 2023

Soutir Bandyopadhyay