

Colorado School of Mines – UNDERGRADUATE COUNCIL MEETING MINUTES
December 13, 4:00 – 5:00 pm, via Zoom

Attendees:

Voting Members: 15 total (10 needed for quorum). Quorum was present.

P	Ventzi Karaivanov (chair)	P	Andrew Pederson (EB)	P	Mike Nicholas (AMS)	P	Chuck Stone (PH)
P	Michael Barankin (CBE)	P	Jay Straker (HASS)	P	Gerald Bourne (MME)	P	Rennie Kaunda (MN)
P	Dylan Domaille (CH)	P	Ge Jin (GP)	P	Zibo Wang (CS)	p	Mathias Burisch Hassel (GE)
P	Linda Battalora (PE)	P	Hongyan Liu (CEE)	P	Jeff Wheeler (ME)		Mark Bowen (USG)
P	Jack Bringardner (EDS)	P	Brianna Buljung (LB)		Hisham Sager (EE)		

Other Regular Attendees and Guests

P	Sam Spiegel (Mines Online)		Dixie Cirillo (PA)	P	Kristeen Serracino (AA)	P	Paul Myskiw (RO)
P	Karla Perez-Velez (CASA)	P	Vibhuti Dave (UGS)	P	Deb Jordan (Trefny Center)		Kendra Stansbury (RO)
	Katie Ludwin (CASA)	P	Danielle Boileau (CASA)		Cheryl Medford (GE)	P	D. Scott Heath (RO)
		P	Colin Terry (SL)				

Special Guest(s): Allyce Horan

Welcome

Ventzi Karaivanov

Considering the number of course submissions that we've seen in the past few days, I think we will have busy January meetings. We have two meetings in January: January 10th and January 24th. If we have too many course submissions, we may have another meeting sometime. In the meantime, we will keep the schedule as is.

Approval of Minutes – November 8, 2023

Ventzi Karaivanov

MOTION: Motion to approve previous minutes were moved by Michael and seconded by Ge Jin. Minutes were approved with 14 approved, 0 opposed, and 2 abstentions from those present.

Briefings and Information Items

Registrar's Office

Paul Myskiw

Last year, Undergraduate faculty did an amazing job of turning grades in on time. Let's keep up with that. Please remind faculty that grades are due on Monday. It's important that we have grades turned in on time so that the Registrar's Office can start the end-of-term processes before the holiday break. There was a question regarding exams if they happen at the same time for finals and commons. The Handbook was not updated when the policy was changed so the policy on the final exam schedule is the most current version of 3 or more exams. We will be sure to update that.

Our incoming class for fall 2024 is expected to be 1,550 students. That is about 100 more than we had this year, and we know the strain that we all felt with the number of sections that needed to be built. Please keep that in mind as you begin thinking about the fall and the request for schedule building that comes out of that so that we build the appropriate number of sections for that class size. Also, in addition to thinking about the fall semester, please also keep in mind the first-year experience, keeping in mind that the 4-year plans are based upon the 4-year model. We have only about 400 students coming in with no prior courses and 500-600 students with 30-plus credits. We no longer have true

freshman like we did just a few years ago, which is a cause and effect of the explosion of AP and dual enrollment across the nation in high schools. We attract the top students anyway so it's natural to have students with a lot of AP credits. We have found numerous freshmen with 30-40 credits that are ready to take next-level courses, but there aren't seats available for them at the 200 and 300-level. Please remember to keep only necessary prerequisites in place because if they miss one, they are off by a year.

- **Question:** Are these students that are coming in with over 30 credits expecting to be done with their entire first year? There are certain core requirements that they can't satisfy with AP credits.
- **Answer:** Yes, we are seeing a lot of students coming in with Calc II, Calc III, chemistry, biology, and physics. Because of this, these students are taking technical electives and courses within the major that are in the second year, causing a lot of bottleneck issues.
- **Question:** Does the fall 2024 incoming student number include transfer students or just "true freshman" students?
- **Answer:** This includes only true freshmen and international students. The number of transfer students last year was around 130.
- **Question:** Is there a 14-week summer session?
- **Answer:** Yes, the summer session for 2024 is 14 weeks. There is a proposal before the Calendar Committee starting for the summer of 2026 to move to a 12-week summer session to provide some reprieve between the end of summer and start of fall. Currently, grades for summer are due on the first day of fall.
 - o **Question:** We run 2 field sessions over the summer. Would this prevent that issue?
 - o **Answer:** If they are 6 weeks each then no.
 - o **Question:** This is the second major change that the Calendar Committee has made that doesn't require UGC approval. What is the process and why is the Calendar Committee making such major changes?
 - o **Answer:** Once the Calendar Committee has recommendations, it would run through the UGC Council. There's a representative from UGC on the committee so any changes will go through UGC Council.
 - o **Question:** There were a few policies, the non-assessment classroom days policy and Career Days policy, that had been mandated, and I do not recall approving that in this body.
 - **Comment:** We will investigate it and discuss it further.

Open Announcements

Vibhuti Dave

I want to remind everyone to update their 4-year plans to include EBG321 somewhere in the junior year if it is in the first or second year. The number of credit hours required to take the class is 60, so ideally it should fit somewhere in the junior or senior year.

Curriculum Item(s) for Council Vote

1.1

AMS		Mike Nicholas
CIM 10/09/23		
1 Course Change:	MATH440 : PARALLEL SCIENTIFIC COMPUTING	
	Just adding a programming prereq to the class. CS200 is needed since the class is taught in C++	

MOTION: Motion to approve the MATH440 course change was moved by Michael and seconded by Linda. The MATH440 course change was approved unanimously with 16 approved.

1.2

Geophysics (GP)		Ge Jin
CIM 10/12/23		
1 Course Change:	GPGN318 : APPLIED GEOPHYSICS I	
	<p>We would like to change from the current format of 3 lecture hours + 3 lab hours per week to 2 lecture hours + 3 lab hours per week. This adjustment will align the course load more accurately with a 3-credit course and, in fact, reflects how the courses are currently being taught.</p> <p>Additional prereq modifications that were not adjusted the last time are being adjusted.</p> <p>Prerequisites MATH213, MATH225.</p> <p>Co-requisites GPGN328.</p>	

MOTION: Motion to approve the GPGN318 course change was moved by Michael and seconded by Gerald. The GPGN318 course change was approved unanimously with 16 approved.

1.3

Geophysics (GP)		Ge Jin
CIM 10/04/23		
1 Course Change:	GPGN319 : APPLIED GEOPHYSICS II	
	<p>We would like to change from the current format of 3 lecture hours + 3 lab hours per week to 2 lecture hours + 3 lab hours per week. This adjustment will align the course load more accurately with a 3-credit course and, in fact, reflects how the courses are currently being taught.</p> <p>Additionally, previous changes to the prereqs were not completed, so those are updated as well.</p> <p>Prerequisites MATH213, MATH225.</p> <p>Co-requisites GPGN329.</p>	

MOTION: Motion to approve the GPGN319 course change was moved by Michael and seconded by Gerald. The GPGN319 course change was approved unanimously with 16 approved.

1.4

Geophysics (GP)		Ge Jin
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CIM 10/12/23	
1 New Course:	GPGN410 : MACHINE LEARNING INVERSION IN APPLIED GEOSCIENCE
	<p>To keep up to date with technology in the field of geosciences, we are adding and modifying curriculum to include aspects of AI and ML.</p> <p>This course presents the fundamentals of formulating and solving inverse problems when the models to be recovered are functions in applied geosciences. The emphases are on the basic strategies for solving linear and nonlinear inverse problems and on the practical methodologies for constructing models that can be directly used in subsequent simulations and interpretations. The course will cover model construction and uncertainty quantification using Tikhonov regularization, machine learning (ML), and generative artificial intelligence. The course will and integration of information the data to be inverted and the information in the complementary data that are conceptual in nature.</p>

MOTION: Motion to approve the GPGN410 new change was moved by Michael and seconded by Gerald. The GPGN410 new course was approved unanimously with 16 approved.

2. New Curriculum Item(s)

2.1

CSM		Allyce Horan
CIM 12/1/23		
1 Course Change:	CSM102: INTRODUCTION TO TECHNICAL WRITING	
	<p>We are requesting that CSM102 count as a 1.0 credit toward the new core curriculum's success and wellness category instead of a free elective. CSM102 provides foundational skills in technical writing that apply to a wide range of STEM disciplines. By exposing students to a variety of genres within technical writing, they will be able to more confidently and quickly understand the discipline-specific communication skills needed in their upper-level classes, giving them a stronger foundation for academic success. Furthermore, this class provides both writing and oral communication skills that are transferable to their internships and jobs post-graduation, promotion professional success as well. By taking this class, students will gain valuable communication skills that support the Mines@150 goal of creating differentiated and highly desired STEM-educated leaders.</p>	

2.2

EDNS		Sid Saleh
CIM 11/10/23		
1 Course Change:	EDNS444: INNOV8X CREATE	

2.3

	Changing name of course, adding the word “Create” to distinguish from new Innov8x introductory course. Correcting name of course description as Innov8x, not Innovate X. Also request change to course prefix INNO.
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EDNS		Sid Saleh
CIM 11/10/23		
1 New Course:	INNO298: INNOV8X IGNITE	
	<p>This is an introductory course to our popular Innov8x course, allowing underclassmen the opportunity to learn about problem solving through innovation, thus triggering and developing their entrepreneurial mindset early.</p> <p>This aligns with the following Mines@150 goals:</p> <ul style="list-style-type: none"> * Expand offerings and diversify delivery, in particular for professionally oriented pre and post graduate education. * Strengthen affinity for Mines among our students, alumni and external partners. * Be more innovative and entrepreneurial, especially in the use of our resources. 	

- **Question:** Do you have an example of what a lower-level class project would look like in this course compared to an upper-level Innov8x course?
- **Answer:** Through the various pilots we’ve tried, we give students local campus-based projects or smaller problems to work on as opposed to industry-driven problems in the upper-level courses. The focus of the Ignite course is to introduce the language and basic concepts so that they may learn more advanced material in the higher-level courses.
- **Question:** Is the Ignite course a prerequisite for Create?
- **Answer:** We do not want to require Ignite as a prerequisite yet. However, if we have critical mass, then yes. But right now, the vision from the president and Mines@150 is to allow as many students as possible to experience entrepreneurship in one level or another so we do not want to make it a hard prerequisite. Ideally, it would be, but we are not there yet.
- **Question:** The course prefix 298 designates a special topics or pilot course. Should this be an actual number?
- **Answer:** Yes, we will get that changed on CIM.

2.4

QBE		Josh Ramey
CIM 11/10/23		
1 Program Change:	BS-IBIO: BS IN QUANTATIVE BIOSCIENCES AND ENGINEERING	
	Adding EDNS444/544 Innov8X as a Technical Elective, permitting undergraduate QBE students to have a hands-on learning experience for credit. Approved by Dr. Josh Ramey and the uQBE faculty during standing faculty meetings.	

2.5

GE		Mathias Burisch Hassel
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CIM 12/5/23	
1 Course Change:	GEGN470: GROUND-WATER ENGINEERING DESIGN
	Updates to prerequisites (GEGN134 to GEGN466 and GEGN466L; added GEGN351 or CEEN310 or MEGN351) due to changes made earlier in the GE program. Updated contact hours to 2 lecture and 3 lab and weekly meeting hours to 5.

2.6

MECH		Jeff Wheeler
CIM 11/9/23		
1 Course Change:	MEGN479: OPTIMIZATION MODELS IN MANUFACTURING	
	This class is now an approved online course and only offered online. Updating catalog to reflect the new modality.	

- **Question:** If it's only online, is this a required course or an elective?
- **Answer:** It is an elective.

2.7

HASS		Jay Straker
CIM 12/6/23		
1 New Course	HASS430: PSYCHOLOGY FOR ENGINEERS	
	Expand offerings and diversify delivery for professionally oriented pre and post graduate education. This course contextualizes the study of humans to the learning and careers relevant to Mines students. Regularly, termed Engineering+++, Mines Student's majors are continually applied and examined through the lenses of this course.	

2.9 **Minor Changes – to be considered as a single vote.**

CEE		Hongyan Liu
CIM N/A		
1 Course Change:	CEEN491: EROSION CONTROL AND LAND RESTORATION	
	Course number was changed from 478 to 491 to be consistent with CEE policies.	
CBE		Michael Barankin
CIM N/A		
1 Program Change:	MIN-BMEDE: MINOR IN BIOMEDICAL ENGINEERING	
	Added CHGN431 to the non-engineering electives list.	
CBE		Michael Barankin
CIM 11/16/23		
1 Course Change:	CBEN472: INTRODUCTION TO ENERGY TECHNOLOGIES	

	Semester varies
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3. Continuing Curriculum Item(s) – from 11/8/23

3.1

AMS		Mike Nicholas
CIM 10/25/23		
1 Course Change:	MATH213 : CALCULUS FOR SCIENTISTS AND ENGINEERS III	
	Adding CSCI102 alongside CSCI128 as coreq for Calc III for students on older catalog.	

3.2

AMS		Mike Nicholas
CIM 10/25/23		
1 Course Change:	MATH225 : DIFFERENTIAL EQUATIONS	
	Adding the new CS course, CS128, as a co-req, including the older CS102 as a possibility as well for students on older catalogs.	

3.3

AMS		Mike Nicholas
CIM 10/24/23		
1 Course Change:	MATH310 : INTRODUCTION TO MATHEMATICAL MODELING	
	Adding a CS128 prereq to be able to leverage that course. This shouldn't affect many students since almost all students will be taking CS128 well before they reach MATH310.	

3.4

AMS		Mike Nicholas
CIM 10/25/23		
1 Course Change:	MATH334 : INTRODUCTION TO PROBABILITY.	
	Adding the new CS course, CS128, as a prereq, including CSCI102 for students on older catalog.	

Questions regarding these courses were addressed in UGC and Faculty Senate. These questions included why have prerequisites on MATH310 and MATH334 if the students are going to take the course as a corequisites with MATH213 or MATH225. The idea is some students come in with MATH213 and MATH225 already. There was also discussion about prerequisite stacking but that is not the case because students can get to the subsequent course. Additionally, there has been discussion regarding sizes of incoming classes and whether this is feasible. It seems to be well within the range of feasible from the numbers that we've seen from the Registrar's Office.

Last time, there was also a question of flow charts, primarily in chemistry where CSCI128 had been pushed into the second semester Sophomore year. This would require chemistry to swap CSCI128 with something else in their flow chart.

- **Comment:** Chemistry is currently looking into that. We may swap CSCI128 for Design. 151 is not a prerequisite for any of our subsequent courses so I am optimistic that it will work. The only potential wrinkle I could see is for students taking honors 105/115 courses that substitute in for HASS100 and EDNS151. It's a small number of students, but it would require a bespoke schedule for them to still meet those requirements. Discussion in Chemistry is ongoing, and we're getting close to updating our flow chart.
- **Comment:** I understand why Math would leverage CSCI128 which is now in the core and leverage that knowledge into these advanced math classes. My concern is that it adds more constraints to the student schedules. Based on what I've heard from CASA and the Registrar's Office, getting students into these classes has become increasingly difficult because of how rigid the sequencing has become in our curriculum.
 - o **Comment:** The issue is that there are very few courses that don't have prerequisites and we end up putting freshmen in a lot of those because that is what is left. Another issue we need to address with corequisites is if a student isn't doing well in one of these classes and must drop the other, so we must be mindful of those implications.
 - **Question:** Do we see many students that have to drop the corequisite courses due to withdrawing from the other? Do we have numbers on this?
 - **Answer:** I don't have the exact number, but it does happen. Every semester, a handful of students must drop out of a corequisite course. Our approach has been telling them to drop both courses or, if it's late enough in the semester past midterms, get permission from the instructor that they can stay in the course and drop the corequisite as an exception.
- **Question:** These courses say that CSCI102 would be a corequisite for students of the older catalog. There will be students that need to take MATH213 and MATH225 from the old catalogues who won't be taking CSCI102. How will you handle that?
- **Answer:** There are only a few students that fit into that scenario so we would handle it with course exceptions.
 - o **Comment:** All the MME students won't be doing it and only the freshman will start taking CSCI128 in that fall.
 - o **Comment:** I think there are more students that fall into this scenario than we think. When we change prerequisites for a future course, we should consider the students will fall into it differently. We can build rules to accommodate those students, but we would explicitly want Math to say, the student who are currently under the old catalog do not need the corequisite.
 - **Question:** Why add CSCI102 at all?
 - **Answer:** We feel it improves calculus instruction which benefits all students on campus.
 - **Question:** If, for example, a sophomore hasn't taken MATH213 or MATH225 yet and will not have taken CSCI102, would you do a registration action override for that student? Wouldn't the expectation of the instructor be that that student has seen that content when in fact they have not?
 - **Answer:** There will be a transition period for some students. If we removed the CSCI102, that would create a similar issue for a different subset of students.
 - **Comment:** There are a couple paths forward. We can identify the students who have not taken MATH213 or MATH225 yet and let them know which math

courses are for continuing students only, or we can provide supplemental material (programming for Calc III) for the student to review to be successful in the modules that are in MATH213. We could also give them the option to take the courses in the order that is in the older catalog that doesn't dive into programming.

- **Question:** Is it possible to teach these courses without the prerequisites in place and have two versions of the class, one with programming content and one without until students under the older catalog have graduated? At that point, we could sunset the older catalog course.
- **Answer:** I think that would be possible, or we could delay this a year.
 - o **Comment:** Why don't we start with some numbers of the students who have not taken MATH213, MATH225, or MATH310.
 - o **Question:** Would the Math department prefer to delay a year rather than run two parallel courses, one with a requirement and one without?
 - o **Answer:** I would have to speak to the Math department as this suggestion has not come up before.

4. Adjourn

Meeting adjourned: 5:02 pm.

Next meeting: January 10, 4:00-5:00 pm via Zoom. Please send agenda items to Ventzi Karaivanov (vkaraiva@mines.edu) and Kristeen Serracino (kristeen.serracino@mines.edu) one week prior.