

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

Attendees:

Voting Members: 14 total (10 needed for quorum). Quorum was present.

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

Other Regular Attendees and Guests

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

Special Guest(s): Brandon Dugan, Chelsea Salinas, Yaoguo Li

Welcome

Ventzi Karaivanov

Approval of Minutes – October 11, 2023

Ventzi Karaivanov

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

Briefings and Information Items

Registrar’s Office

Paul Myskiw

Mara’s replacement, Kristeen Serracino, will start on October 30th. We are turning on the schedule of classes on Friday (10/27/23) and going live on Monday (10/30/23). Currently, the schedule is turned on two weeks prior to registration. We could turn it on earlier but then schedules would have to be ready three to weeks prior.

- **Question:** Do you see an issue of only having two weeks of the schedule being turned on prior to registration?
- **Comment:** Follow up on the discussion regarding ABET requirements to list the program education objectives and catalog program outcomes.
- **Answer:** After reviewing all programs in the catalog, only a few courses have program outcomes listed. Due to a compliance issue, all ABET-approved programs have the same program outcomes, so they will be inserted into the overview tab of the catalog. No additional work is required unless the outcomes are specific to a particular program. As a department, please review the overview tab which should give an overview of the programs. Perhaps we can create a template for everyone to follow to ensure consistency with content and formatting.

- **Comment:** Program educational objectives should be unique to each program. ABET student outcomes are consistent across campus.
- **Answer:** We will go through the catalog to ensure uniformity with student outcomes and possibly insert a URL on every program for the specific educational objectives.

1.1 Updated Changes to Absence Policy

Ventzi Karaivanov

We received some feedback from three departments regarding the changes in language to the absence policy. There is a question if we need more time to discuss this matter. A poll was conducted to see if the committee would like to further discuss or if we are ready to vote.

- **Poll Results:** Majority polled to further discuss and vote in two weeks.

1.2 CHEMISTRY

Dylan Domaille

[CIM 9/25/2023]

1 New Course: CHGN 435 - Physical Biochemistry

This course stresses the importance of an interdisciplinary approach to science, discussing biological topics from the perspective of a physical chemist. It will expand and diversify the course offerings in the chemistry department, with a particular focus on serving the growing population of biochemistry and QBE students.

Supporting information is posted on Canvas.

MOTION: Motion to approve the new course CHGN 435 was moved by Brandon and seconded by Linda. Motion to approve the new course was approved by all present. Zero opposed and zero abstentions

1.3.1 CEE

Hongyan Liu

[CIM 9/21/2023]

1 Course change: CEEN442/542 - Timber and Masonry Design

Change: CEEN442 - Design of Wood Structures.

Supporting information is posted on Canvas.

MOTION: Motion to approve the course change for CEEN 442 was moved by Brandon and seconded by Linda. Motion to approve course change was approved by all present. Zero opposed and zero abstentions.

1.3.2 [CIM 9/27/2023]

1 New Course: CEEN478/578 - Erosion control and land restoration

This course was previously offered as 498/498 and now needs a new number.

Supporting information is posted on Canvas.

MOTION: Motion to approve the new course CEEN 478/578 was moved by Brandon and seconded by Linda. Motion to approve the new course was approved by all present. Zero opposed and zero

abstentions.

1.4 Economics and Business

Andrew Pederson

[CIM N/A]

1 Program change: Business Engineering and Management Science degree

Proposing the following changes to the BEMS curriculum:

- Require students to take EBG201 or equivalent
- Reduce free electives from 12 credit hours to 9 credit hours

This results in a net zero change in total credit hours, keeping the BEMS program at 122 credit hours.

Supporting information is posted on Canvas.

MOTION: Motion to approve the program change for Business Engineering and Management Science degree was moved by Brandon and seconded by Linda. Motion to approve program change was approved by all present. Zero opposed and zero abstentions.

1.5 Minor Course Changes – from the 9/27 meeting.

MEGN		Jeff Wheeler
CIM N/A		
1 Course Change:	MEGN200 - Intro to ME Programming and Hardware Interface	
	Add PHGN200 (Physics II) as a co-req to ensure students have some experience prototyping electronic circuits on a breadboard	
MEGN		Jeff Wheeler
CIM N/A		
1 Course Change:	MEGN300 - Instrumentation and Automation	
	Remove MEGN 201 (Intro to ME Design and Fabrication) as a pre-req, Add MEGN 201 as a co-req to increase the flexibility for students to make up a semester in the ME design sequence.	
MEGN		Jeff Wheeler
CIM N/A		
1 Course Change:	MEGN301 - Mechanical Integration and Design	
	Add MEGN 381 (Manufacturing Processes) as a co-req as the course content synergizes and students should have manufacturing knowledge before Capstone Design.	
MEGN		Jeff Wheeler
CIM N/A		
1 Course Change:	MEGN417 - Vehicle Systems	
	Remove MEGN 315 and MEGN 324 as prereqs. Retain MEGN 391 as the prereq. MEGN 324 isn't needed as a prereq after a course revision and	

	MEGN 315 is a prereq for MEGN 391. Therefore, having it listed as a prereq for MEGN 417 is redundant.
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MOTION: Motion to approve all minor course changes was moved by Brandon and seconded by Hisham. Motion to approve all minor course changes were approved by all present. Zero opposed and zero abstentions.

New Curriculum Item(s)

HASS		Jay Straker
CIM 10/04/23		
1 New Course:	HASS125-: BEGINNING DRAWING AND PAINTING	
	<p>1. Expand offerings and diversify delivery: at best, Mines has offered one-off opportunities for students to develop their visual arts skills. This course will be the first of its kind at Mines.</p> <p>2. Encourage interdisciplinarity by incorporating issues and considerations from a variety of intellectual approaches. This course will help students improve their communication skills by tapping into their visual IQ and imagination.</p> <p>3. Strengthen affinity for Mines among our students, alumni, and external partners given the enthusiasm for the course, it cannot help but build affinity from students and alumni, and it presents new opportunities to work with external partners.</p> <p>This course is designed to be a friendly, practical introduction to drawing, painting, charcoal, and mixed media approaches to creating art. In this class students learn basic approaches to creating visual art, which include color theory, composition, observation, and different kinds of subjects, e.g., landscape. The class is open to all skill levels but is designed for beginners.</p> <p>Hoping for a vote today so it could be put in the Spring semester offerings and bypass the one meeting hold for a vote for HASS125 and HASS329. Both courses have been offered in the past.</p> <p>MOTION: Motion to approve the new course was moved by Brandon and seconded by Hisham. Motion to approve the new course was approved by all present. Zero opposed and zero abstentions.</p>	

HASS		Jay Straker
CIM 9/26/23		
1 New Course:	HASS 329 – REEVALUATION OF DESIGN AND SUSTAINABLE FUTURE OF MUSICAL INSTRUMENT	

	<p>Sustainability is an issue confronting the society these days, and the Mines will do its part in solving this huge puzzle one by one. This course will challenge each student to become an entrepreneur and disrupt the music industry by advancing brand-new designs and sourcing materials ethically. This class will inspire students from all backgrounds to work collaboratively and find the practical solution.</p> <p>The history of musical instruments will be surveyed with particular emphasis on their evolution of designs, materials, and engineering. Musical instruments of choice will be built by each small group of students reflecting their own solution to current design issues identified through their research. Special consideration will be given to sustainable materials, including finishes, and new engineering ideas.</p> <p>This is a new offering in our music program, deploying the talents of our newest full-time faculty. A way to integrate students' love of music, craftsmanship and developing implementation of sustainability. It has been piloted successfully.</p> <p>Hoping for a vote today so it could be put in the Spring semester offerings and bypass the one meeting hold for a vote for HASS125 and HASS329. Both courses have been offered in the past.</p> <p>MOTION: Motion to approve the new course was moved by Brandon and seconded by Hisham. Motion to approve the new course was approved by all present. Zero opposed and zero abstentions.</p>
AMS	Mike Nicholas
CIM 10/09/23	
1 Course Change:	MATH440: PARALLEL SCIENTIFIC COMPUTING
	<p>Just adding a programming prereq to the class. CS200 is needed since the class is taught in C++</p> <p>Question: What would be the impact on CS200? Is CS ready for that number of students?</p> <p>Answer: This course is taken entirely by math majors who must take this course anyway.</p>
Geophysics (GP)	Brandon Dugan
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> <p>Comment: The credit hours are not listed in the catalog description for this course. This will be double checked.</p>
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Geophysics (GP)		Brandon Dugan
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>	

Geophysics (GP)		Brandon Dugan
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 emphasis is 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 include the integration of</p>	

	<p>information the data to be inverted and the information in the complementary data that are conceptual in nature.</p> <p>Question: What is the pre-req for this course? Do students need to take machine learning ahead of this course?</p> <p>Answer: Student do not need to take machine learning before this course. It is designed for students who want to learn the geoscience side and broaden their skill set.</p> <p>Comment: There are no credit hours listed for this course.</p>
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3. Continuing Curriculum Item(s) – from 9/27/23

3.1

CEE		Hongyan Liu
CIM 09/09/23		
1 New Course:	CEEN 497 – Practices and Principles of Environmental Consulting	
	<p>This course provides an in-depth understanding of the environmental consulting industry with a particular focus on problem solving and project delivery to meet expectations of professional services organizations (environmental consulting firms). Using case studies, real-life consulting assignments, and business scenarios, the course offers exposure to the technical, ethical, and business challenges of winning and executing environmental projects.</p>	

3.2

CH		Dylan Domaille
CIM 09/27/23		
1 New Course:	CHGN 423 – SOLID-STATE CHEMISTRY	
	<p>Dependence of properties of solids on chemical bonding and structure; principles of crystal growth, crystal imperfections, reactions and diffusion in solids, and the theory of conductors and semiconductors</p> <p>Question: Has this course been piloted? Who was the prof that offered it? Are there prereqs for this course since it's a 400-level course?</p> <p>Answer: Yes. This is currently a graduate course, but it was taken by a few undergraduates last Spring by Annalise Maughan. No prereqs for this course but will confirm with the instructor since it is a 400-level course.</p>	

3.3

EB		Andrew Pederson
CIM 10/04/23		

1 Course change:	EBGN 305 – FINANCIAL ACCOUNTING
	EBGN201 is not needed as a prereq.

3.4

EB		Andrew Pederson
CIM 10/04/23		
1 Course change:	EBGN 345 – PRINCIPLES OF CORPORATE FINANCE	
	Remove unnecessary EBG201 Pre Rec, and add EBG305 Accounting	

3.5

EB		Andrew Pederson
CIM 10/04/23		
1 Course change:	EBGN 346 – INTRODUCTION TO INVESTMENTS	
	Remove EBG201 add EBG305 Accounting	

3.6

EB		Andrew Pederson
CIM 10/04/23		
1 Course change:	EBGN 485 – BUSINESS STRATEGY	
	Add Necessary Pre Rec for Capstone Class	

3.7

HASS		Jay Straker
CIM 9/26/23		
1 New Course:	HASS 329 – REEVALUATION OF DESIGN AND SUSTAINABLE FUTURE OF MUSICAL INSTRUMENT	
	<p>Sustainability is an issue confronting the society these days, and the Mines will do its part in solving this huge puzzle one by one. This course will challenge each student to become an entrepreneur and disrupt the music industry by advancing brand-new designs and sourcing materials ethically. This class will inspire students from all backgrounds to work collaboratively and find the practical solution.</p> <p>The history of musical instruments will be surveyed with the particular emphasis on their evolution of designs, materials, and engineering. Musical instruments of choice will be built by each small group of students reflecting their own solution to current design issues identified through their research. Special consideration will be given to sustainable materials, including finishes, and new engineering ideas.</p> <p>MOTION: Motion to approve the new course was moved by Brandon and seconded by Hisham. Motion to approve the new course was approved by all present. Zero opposed and zero abstentions.</p>	

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3.8

AMS		Mike Nicholas
CIM 9/27/23		
1 Course change:	MATH 307 – INTRODUCTION TO SCIENTIFIC COMPUTING	
	Just adding CS128 to the list of prereqs.	

3.9

AMS		Mike Nicholas
CIM 9/27/23		
1 Course change:	MATH 332 – LINEAR ALGEBRA	
	<p>Adding CSCI128 as prereq to MATH307, MATH332, and MATH334 and a co-req to MATH225 to be able to leverage programming ability in these courses.</p> <p>Comment: The changes are saved but not submitted. Please submit to be processed.</p> <p>Question: Have not all students taken CSCI128 prior to this change?</p> <p>Comment: It was suggested to wait a year to enforce the prereq change. It might be better to add CSC101 or 102 as prereqs instead.</p>	

3.10

MEGN		Jeff Wheeler
CIM 10/02/23		
1 Course deactivation:	MEGN 436 – COMPUTATIONAL BIOMECHANICS	

3.11

MEGN		Jeff Wheeler
CIM 10/03/23		
1 New Course:	MEGN 454 – ORBITAL MECHANICS	
	<p>This new course is being transitioned from an existing 498 course within the department. The course was designed to expand course offerings and help diversify delivery of course material, through its unique approach to combined lectures, course projects, and active learning. The course is structured as a residential course that helps prepare our students for future careers in the aerospace industry as well as to return to our graduate mechanical engineering and space resource programs.</p>	

3.12

MEGN		Jeff Wheeler
CIM 10/02/23		

1 New Course:	MEGN 465 – ELECTRIC VEHICLE POWERTRAIN SYSTEMS
	<p>Expanding Offerings and Diversifying Delivery: Offering a class on electric vehicle powertrain systems demonstrates the university's commitment to expanding its educational offerings in response to the changing needs of industry and society. Electric vehicles are becoming increasingly important in the transportation sector, and having an applied understanding of their powertrain systems is crucial for students pursuing careers in automotive engineering.</p> <p>Strengthening Affinity for Mines: A practical, hands-on class on electric vehicle powertrain systems will be unique to Mines and can enhance the university's reputation and attract students and alumni who are interested in emerging technologies and sustainability.</p> <p>Being Innovative and Entrepreneurial: The field of electric vehicles is characterized by innovation, particularly in the development of new powertrain technologies. Offering a lab-based class on electric vehicle powertrain systems encourages students to think creatively about addressing real-world challenges.</p>

3.13

MEGN		Jeff Wheeler
CIM N/A		
1 Course change:	MEGN 315 – DYNAMICS	
	Remove MATH 225 (Differential Equations) as a prereqs, Add MATH 225 as a co-req. Differential equations are not used until the end of the course in a vibrations unit.	

3.14

MEGN		Jeff Wheeler
CIM 10/03/23		
1 Program Change:	MIN-BMECHE : Minor in Biomechanical Engineering	
	The proposed change replaces the elective MEGN 436 (no longer offered) with MEGN 536.	

3.15

MEGN		Jeff Wheeler
CIM 10/03/23		
1 Program Change:	BS-MECH: BS in Mechanical Engineering	
	<p>Updated list of approved electives to include courses approved by the ME faculty.</p> <p>Biomechanics track: Updated list of electives to remove MEGN 436 Computational Biomechanics (no longer offered) as an elective. Added MEGN 536 Computation Biomechanics as an elective to the track.</p>	

	Automotive track: Updated list of electives to include new course offerings.
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3.16 **Updated Changes to Absence Policy**

Vibhuti Dave
Jeff Ackerman

There was the question of whether there should be more added to the absence policy.

- **Question:** If we say something other than the stated policy in the syllabus, does that make the syllabus the policy as opposed to the overarching policy overriding syllabus?
- **Comment:** We will further discuss via email.

Meeting adjourned: 5:05 pm.

Next meeting: November 8, 4:00-5:00 pm via Zoom. Please send all agenda items to Ventzi Karaivanov (vkaraiva@mines.edu) one week prior.