Welcome

Horan provided an update on discussions in Faculty Senate regarding the revised core curriculum. Clarifying questions arose in Senate regarding the Futures (previously Sociotechnical Futures or CASES) course. Dave updated table eight which had included information on the current Catalog, the proposed changes for 2023-2024, and the ideal implementation of the Catalog; the ideal implementation column was removed from the table to avoid confusion.

Approval of Minutes – March 8, 2023

MOTION: To vote to approve the Undergraduate Council minutes of March 8, 2023 by Barankin, seconded by Nilsen. Motion passed unanimously.

Update on Sociotechnical Futures and H&SS electives

Woodson provided information on the Futures’ course pilot structure. The lecture would accommodate seventy-five students led by a theme instructor, seminars would contain twenty-five students each with four-week rotations led by a seminar instructor. The pilot of Futures would begin Fall 2023; the theme for the course is Global Energy Futures. Woodson reported a coordinator was hired for the course to help develop it.

As of Spring 2023, a budget request was submitted to AA and four pilot faculty were identified. The four faculty include: Ali Kerr (HASS, coordinator), Adrianne Kroepsch (HASS faculty lead), Marie Stettler Kleine (EDS faculty lead), and Ben Gilbert (EB faculty lead). Theme instructors would then coordinate pilot development and course content in Summer 2023 in preparation of the pilot to seventy-five first-semester students in Fall 2023. Following successful piloting, the course could be expanded to two
sections with new students and faculty in Spring 2024. Houser noted the structure of the course would allow faculty to “swap out” for a semester with another interested faculty member from their department. Houser reported the expertise and competency outcomes from HASS100 would be drawn on for the course.

- **Question** if there are more specific competencies for the course; Houser reported the competencies are to be determined. Broad competencies are being pulled from the core competencies.

Councilor requested brief overview of a week in Futures from the student perspective; Houser reported a typical week would have students in three, fifty-minute seminar sessions with their seminar instructor. Some weeks may have a single meeting where all seventy-five students meet and hear from someone with technical expertise in a particular area or broader perspectives on the course theme.

- **Question** if the pilot faculty were signed up for the core assessment workshop at the Trefny Center; the course coordinator would be signed up, the other individuals may not.

Houser reported H&SS leadership support of renaming H&SS to Culture and Society (CAS) electives. Horan had volunteered to lead a comprehensive review of the CAS electives for Fall 2024 and, based on review, may submit a proposal for changes to the CAS electives for 2024-2025.

CEE recommended engineering economics remain within the electives list.

**Curriculum Item(s) for Vote – from 3/1/23**

**Core Catalog Language Draft**

Dave reported the column containing information on ideal implementation of the Catalog had been removed due to confusion.

Comment raised by CH on interim core and students operating under multiple Catalogs and the burden this may place on advisor. Dave noted each program had adjusted program course flowcharts in their own way, Dave recommended that advisors should be communicated with and provided the flowchart changes. Course substitutions for CSCI128 would occur administratively. Conversations around changing the Catalog should be assessed between advisor and student. Dave noted the Catalog draft has outlined options for students which would be accessible to students, faculty, and advisors. Councilor noted the appendix appeared substantial and may create an issue for advising students.

- **Question** on rush for Fall 2023 release when MINES@150 is for 2024; Dave noted Mines was founded February of 1874 and the change would occur over Fall 2023 and Spring 2024.

Comment raised that, procedurally, the revision felt rushed. Note made that submitting program changes March 1st and approving language now felt backwards and may have stifled discussions.

Horan noted the Senate had been advised that implementation should be questioned if there is evidence that substantive changes have been made to what had been agreed upon in the resolution ([click here to view the Core Curriculum Resolution passed by Faculty Senate and Undergraduate Council](#)). One major change was to the Futures course, which was planned as a first-semester course but is now in the second-semester.
- **Question** on piloting Futures and if there is a plan for how it would replace other courses in degree plans; Dave reported until the course is permanent and part of the core, students taking the course will see it count as a mid-level CAS elective.

**MOTION**: To vote to approve the presented core curriculum Catalog language by Barankin, seconded by Nilsen. Twelve (12) for, one (1) against, four (4) abstentions. Motion passed.

1.2 **APPLIED MATHEMATICS & STATISTICS**

Mike Nicholas

[**CIM 2/27**]

1 program change: BS-AMS: BS in Applied Mathematics and Statistics

**NOTE**: THE FOLLOWING ARE NEW CORE CHANGES: We will drop 3 hours of free elective credit. Not much else will change for us in the new core. I’ve input a new flow chart. At the same time, we will remove MATH530 from the elective lists for the CAM and STAT BS degrees (that is a service course containing material already required in other major classes)

**MOTION**: To vote to approve the program change to BS-AMS: BS in Applied Mathematics and Statistics by Barankin, seconded by Nilsen. Motion passed unanimously.

1.3 **CHEMISTRY**

Dylan Domaille

[**CIM 2/24**]

1 program change: BS-CHM: BS in Chemistry

*Updated flowchart to include new core requirements.*

**MOTION**: To vote to approve the program change to BS-CHM: BS in Chemistry by Domaille, seconded by Barankin. Motion passed unanimously.

1.4 **ENGINEERING, DESIGN, AND SOCIETY**

Chelsea Salinas

[**CIM 2/24**]

1 program change: BS-EGN: BS in Design Engineering

*Updates to program due to core revisions.*

**MOTION**: To vote to approve the program change to BS-EGN: BS in Design Engineering by Barankin, seconded by Nilsen. Motion passed unanimously.

1.4.1

[**CIM 2/21**]

2 course changes: EDNS200: INTRODUCTION TO DESIGN ENGINEERING

*Updating catalog description to better align with course content as recently adjusted to meet needs of incoming Design Engineering students. This course serves as the gateway to our major, newly named BS in Design Engineering.*

EDNS392: DESIGN ENGINEERING APPLICATIONS

*Update catalog description to better align with recently adapted course materials to better suit programmatic outcomes and student progress through degree. Course originated as design engineering identity building, but has developed into a culmination of design theory and hands-on engineering project design.*

**MOTION**: To vote to approve the two (2) course changes in item 1.4.1 in an omnibus Council vote by Nilsen, seconded by Barankin. Motion passed unanimously.
2 new courses: HASS417: INDIGENOUS LITERATURE

One of the stated goals of Mines@150 is to expand offerings and diversify delivery. Mines and HASS students would gain a better understanding of cultural diversity and the world through the literature of the native descendants of those who inhabited regions before settlers colonized them. Their exposure to other cultures and ways of life add cultural and historical knowledge and awareness of the diversity of human experiences.

HASS465: THE GOOD LIFE, FROM ARISTOTLE TO THE ANTHROPOCENE

This course will strengthen student affinity with Mines by giving them a distinctive and transformative learning experience. My goal when designing this course was not just to teach students about the history of ideas, but to provide students with opportunities to use course content to explore big questions of enduring importance in the semesters before they graduate; What do I want my life to look like? How can I be happier? What things matter most to me? What makes a life meaningful or “good”? I have done this by pairing readings on philosophy and history with complimentary readings and lectures on happiness from modern psychologists and cognitive scientists, and by designing several experiential assignments in which students put some of the theories of happiness we study into practice over two-week periods. Their final project also requires them to design a month-long experiment to test a hypothesis about some aspect of living a good life. The first group of students who took this class responded very positively to these experiences. Most reported that they found the class not just interesting, but useful, and some told me it was among the most impactful classes they had taken during their time at Mines.

This course also compliments other Mines at 150 goals. HASS lost one of our philosophy professors last year, and our other philosopher is currently department chair. As a result, students with an interest in philosophy have fewer curricular options. Since this course draws heavily upon philosophy, it helps fill this void, and in doing so makes Mines more attractive to students with these interests. Further, the first group of students who took this class reported that they had gotten to know their peers better in this class than in many other classes they taken because they spent so much time discussing questions that were personal, meaningful, and relevant. In this sense, this course also helps create a stronger sense of community among the students.

- **Question** if the HASS465 course would focus only on Western philosophies; Holles reported the course is primarily western with the instructor’s expertise in medieval content. Holles later reported the course covers Daoist perspectives and uses the following books: Charles Guignon, The Good Life, Hackett Readings in Philosophy (Indianapolis: Hackett Publishing, 1999); Peter N. Stearns, Happiness in World History (New York: Routledge, 2021); Joel Kupperman, Six Myths About the Good Life: Thinking About What Has Value (Indianapolis: Hackett Publishing, 2006).

**MOTION:** To vote to approve the two (2) new courses in item 1.5 in an omnibus Council vote by Holles, seconded by Barankin. Motion passed unanimously.

1.5.1 [CIM 2/27]

1 core course change: HASS100: NATURE AND HUMAN VALUES
Core course change, credits reduced from 4 to 3.

**MOTION:** To vote to approve the credit change to the core course HASS100: Nature and Human Values by Barankin, seconded by Holles. Motion passed unanimously.

1.6  MECHANICAL ENGINEERING  Oyvind Nilsen  
[CIM 2/26]  
7 course changes:  MEGN200: INTRODUCTION TO MECHANICAL ENGINEERING: PROGRAMMING AND HARDWARE INTERFACE  
Removed one pre-req EDNS151, added HNRS198  
MEGN201: INTRODUCTION TO MECHANICAL ENGINEERING: DESIGN & FABRICATION  
Add HNRS105 or HNRS198 are pre-req  
MEGN315: DYNAMICS  
Add MATH225 as co-req, remove MATH307 as co-req.  
MEGN381: MANUFACTURING PROCESSES  
Add MEGN212 as a pre-req (Solid Mechanics)  
MEGN417: VEHICLE DYNAMICS & POWERTRAIN SYSTEMS  
Remove MEGN361 as prereq. Add MEGN391.  
Change from 3 credit hour lecture to 2 credit hour lecture and 1 credit hour studio, to support project-based learning.  
MEGN451: AERODYNAMICS  
Name change, remove Fluid Mechanics II, keep only "Aerodynamics"  
MEGN485: MANUFACTURING OPTIMIZATION WITH NETWORK MODELS  
Add MATH112 as prereq.

At a previous meeting, Councilor had questioned the use of honor prerequisites and if this would prevent students who had not taken honors. Nilsen reported the use of 'or' between prerequisites to provide distinction for students that had not taken honors classes.

**MOTION:** To vote to approve the seven (7) course changes in item 1.6 in an omnibus Council vote by Nilsen, seconded by Barankin. Motion passed unanimously.

1.7.1  [CIM 2/27]  
1 program change:  MIN-AERO: Aerospace Engineering Minor  
Added courses to minor.

- **Question** if the courses were added as electives or courses that would satisfy the minor and whether this increased the credit count; the credit count did not increase with the courses added as courses that were no longer offered or deactivated courses had been removed from the list.

**MOTION:** To vote to approve the program change to MIN-AERO: Aerospace Engineering Minor by Nilsen, seconded by Barankin. Motion passed unanimously.

1.8  PETROLEUM ENGINEERING  Linda Battalora  
[CIM 2/22]
1 course change: PEGN438: PETROLEUM DATA ANALYTICS
We want to add CSCI128 as a pre-req for PEGN438. This will ensure students have the skills need to be successful in this course. As CSCI128 is part of the core curriculum, this will not require additional course credits or create an undue barrier to students taking it.

**MOTION:** To vote to approve the course change to PEGN438: Petroleum Data Analytics by Barankin, seconded by Nilsen. Motion passed unanimously.

1.9 PHYSICS Chuck Stone
[ CIM 2/24]
1 program change: BS-PHE: BS in Engineering Physics
These changes will better match our undergraduate Engineering Physics degree with the larger campus changes in our Core Curriculum.

**MOTION:** To vote to approve the program change to BS-PHE: BS in Engineering Physics by Barankin, seconded by Nilsen. Motion passed unanimously.

1.10 GEOLOGY & GEOLOGICAL ENGINEERING Dave Benson
[ CIM 2/24]
1 course change: GEGN307: PETROLOGY
Removing Thermodynamics (GEGN330 or equivalent) as it is being removed from our BS in Geological Engineering. Increasing to 4 CH (from 3) to add a 3rd hour of lecture, allowing content to be delivered more effectively and also to balance out a historic mismatch in defined credit hours between our two tracks.

**MOTION:** To vote to approve the course change to GEGN307: Petrology by Benson, seconded by Barankin. Motion passed unanimously.

1.11 GEOPHYSICS Ge Jin
[ CIM 2/24]
18 course changes: GPGN228: INTRODUCTION TO GEOPHYSICS
Updates made to catalog description; removed topics covered portion and minor updates to the rest of the description.
    GPGN228: MATHEMATICAL GEOPHYSICS
    GPGN268: GEOPHYSICAL DATA ANALYSIS
    GPGN318: APPLIED GEOPHYSICS I
    GPGN319: APPLIED GEOPHYSICS II
    GPGN328: PHYSICS OF THE EARTH – I
    GPGN329: PHYSICS OF THE EARTH – II
    GPGN404: DIGITAL SIGNAL PROCESSING
    GPGN411: GRAVITY AND MAGNETIC METHODS
    GPGN420: ELECTRICAL AND ELECTROMAGNETIC METHODS
    GPGN436: GEOPHYSICAL COMPUTING
    GPGN438: GEOPHYSICS PROJECT DESIGN
    GPGN455: EARTHQUAKE SEISMOLOGY
    GPGN458: SEISMIC INTERPRETATION
    GPGN461: SEISMIC DATA PROCESSING
    GPGN470: APPLICATIONS OF SATELLITE REMOTE SENSING
MOTION: To vote to approve the eighteen (18) course changes in item 1.11 in an omnibus Council vote by Jin, seconded by Barankin. Motion passed unanimously.

Briefings and Information Items
Office of Undergraduate Studies      Vibhuti Dave
Dave would provide Higher Learning Commission (HLC) updates at a future Council meeting.

Registrar’s Office        D. Scott Heath
Heath reported registration opens 4/3; a notification would be sent to students to let them know about scheduling classes. Okta would be implemented and Trailhead would appear with a new user interface beginning 3/20.

New Curriculum Item(s)

2.1 MECHANICAL ENGINEERING       Oyvind Nilsen
[CIM 3/9]
1 new course: MEGN458: INTRO TO SPACE EXPLORATION AND RESOURCES
2.1.1 1 course deactivation: MEGN408: INTRODUCTION TO SPACE EXPLORATION
New number, deactivate 408 to create 458.

This was a renumbering of an existing course.

Continuing Curriculum Item(s) – from 3/8/23

3.1 ECONOMICS AND BUSINESS       Becky LaFrancois
[CIM 3/1]
2 program changes: BS-BEMS: BS in Business Engineering and Management Science
BS-ECO: BS in Economics
Core revision; course flowchart updated.

3.1.1 1 course change: EBGN403: ECONOMICS CAPSTONE
Starting in 2023, we will begin to offer a 2 semester, 2 credit hour field session that runs during the school year, rather than during the summer. Students will complete a year-long capstone project and engage in seminar sessions. We want the title of the course to better align with the new structure of the course.

3.2 CIVIL & ENVIRONMENTAL ENGINEERING       Hongyan Liu
[CIM 3/6]
3 program change: BS-CE: BS in Civil Engineering
BS-CONSTR: BS in Construction Engineering
BS-EVE: BS in Environmental Engineering
Change along with new core requirements.

3.3 GEOLOGY & GEOLOGICAL ENGINEERING       Dave Benson
1 program change: BS-GLE: BS in Geological Engineering
Changes are related to meeting the changes in core curriculum being implemented in 2023-24, also reducing required credit hours to 133 from 137.5.

3.3.1 5 course changes: GEGN401: MINERAL DEPOSITS
Update prerequisites to remove thermodynamics. Correct contact hours and lecture/lab breakdown.
GEGN403: MINERAL EXPLORATION DESIGN
GEGN439: PETROLEUM EXPLORATION DESIGN
GEGN469: ENGINEERING GEOLOGY DESIGN
GEGN470: GROUND-WATER ENGINEERING DESIGN
Change to prerequisites due to change in program requirements.

3.4 MECHANICAL ENGINEERING
Oyvind Nilsen
1 program change: BS-MECH: BS in Mechanical Engineering
1. Changes according to Mines CORE adjustment.
2. Electives list updated (added/removed).
3. GPA calculation course list trimmed down.
4. Tracks courses updated.
5. Minors and ASI text and credit hours corrections.

3.4.1 [CIM 2/28] 2 course changes: MEGN441: INTRODUCTION TO ROBOTICS
Added EENG307, MEGN200 to prereq list. Also clean up "modality".
List as 2 credit lecture and 1 credit studio, instead of lecture and lab.
MEGN453: AEROSPACE STRUCTURES
Remove CEEN241 as a prereq.
(CEEN is a prereq for MEGN212)

3.5 MINING ENGINEERING
Nicole Smith
1 program change: BS-MNE: BS in Mining Engineering
Updates to the course flowchart reflecting core revisions.

3.6 CHEMICAL & BIOLOGICAL ENGINEERING
Michael Barankin
1 course change: CBEN360: BIOPROCESS ENGINEERING
Re-aligning format/description with how the course is currently taught.
CBEN412: INTRODUCTION TO PHARMACOKINETICS
Updating title (more accurate to how course is taught) and updating pre-reqs.
CBEN415: POLYMER SCIENCE AND TECHNOLOGY
Updating pre-reqs (removing redundancy and enabling juniors to take this course)
CBEN460: BIOCHEMICAL PROCESS ENGINEERING
Making req's consistent with CBEN360 (to facilitate later substitution of the two courses).
3.7 PHYSICS

[CIM 3/3]

1 program deactivation: MIN-BPHYS: Minor in Biophysics
No longer offering this program.

Adjourn
Meeting adjourned: 4:57 pm.
Next meeting: March 29, 4:00-5:00 pm via Zoom. Please send agenda items to Mara Green (mgreen1@mines.edu) one week prior.