Core Curriculum

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New Core Curriculum

The purpose of the Core Curriculum at Mines is to give students the fundamental knowledge and skills they will need to put to use in their majors and in careers after graduation. The core is the set of classes vertically aligned through four years required of all Mines students. Students complete courses in the core curriculum to develop and strengthen scientific and engineering knowledge and to explore the contextualization of that knowledge in a sociotechnical, professional, and global community.

Mines' core curriculum went through major revision in 1998 – 1999. The world, society, and student population coming to Mines has gone through some substantial changes since then. Given the intention behind the core curriculum, it was time to modernize it such that we would be providing students with skills that are relevant to world we live in today and challenges we face as a society today.

As part of our MINES@150 work, Mines faculty and leadership have spent the last four years examining the core curriculum required for all undergraduate degrees. Mines is excited to announce the launch of a revised core curriculum that provide students with the skills they need to be successful academically and careers of their choosing.

The new core curriculum builds on existing strengths within the curriculum, while also providing an expanded range of opportunities for integrative, exploratory, experiential, interdisciplinary, and enhanced hands-on learning. It includes a greater focus on student wellness, with a process for recognizing the importance of activities that facilitate personal growth and encourage a balanced and healthy campus lifestyle.

The courses in the core curriculum are organized in the following topical areas:

1. Math, Basic Sciences, & Computing
2. Design and Innovation
3. Culture and Society (CAS)
4. Success and Wellness (S&W)
5. Student-Led Inquiry

Introducing the Revised Core for the 2023-2024 Catalog:

WHAT'S NEW:

- **Computer Science for STEM** (CSCI 128) is now required for all students. This is an introductory course providing students with foundational skills in computing, programming, data science, and software ethics. It is replacing CSCI 101/102 which will no longer be offered.
- **Engineering Economics** (EBGN 321) is now required for all students, replacing Principles of Economics (EBGN 201). This upper-level course focuses on the development and application of time value of money concepts of present, future, and annual value to a variety of banking and investment scenarios. *Students must have Junior standing (60 credits completed toward degree) before being eligible to enroll.*

- **Student Wellness and Well-Being** (CSM 202) is a new course that will provide students with skills and tools to focus on personal well-being, explore the seven dimensions of well-being, and help have a healthy personal/academic life balance.

WHAT'S CHANGED?

Success & Wellness replaces the **Physical Activity Requirement** and can be fulfilled by alternative courses outside of PAGN. Available qualifying courses can be found using the Success and Wellness Attribute under Advanced Search of Schedule of Classes. A list of currently approved courses can also be found beneath the New Core below.

Culture And Society (CAS) requirement replaces the **Humanities & Social Sciences** (H&SS) Electives. Available qualifying courses can be found using the Culture & Society Attribute under Advanced Search of Schedule of Classes. A list of currently approved courses can also be found beneath the New Core below.

Distributed Science Requirements have been removed from the core. Each academic program has updated their four-year plans to include any necessary course requirements.

Reduced Credit Requirements:

- **Total Credit Hours in the Core** has been reduced by 1 credit.
- **Free Elective Requirement** has been reduced by 3 credits.

Credit Changes (No more 0.5 credits):

- HASS 100: 4 → 3 credits
- PHGN 100: 4.5 → 4 credits
- PHGN 200: 4.5 → 4 credits
- CSM 101: 0.5 → 1 credit
- PAGN xxx: 0.5 → 1 credit

The New Core:

Math, Basic Sciences, Computing	
Course	*Credits*
MATH 111 — Calculus for Scientists & Engineers I	4
MATH 112 — Calculus for Scientists & Engineers II	4
MATH 213 — Calculus for Scientists & Engineers III	4
MATH XXX — Program-specific MATH course	3
CHGN 121 — Principles of Chemistry I	4
PHGN 100 — Physics I — Mechanics	4
CSCI 128 — Computer Science for STEM	3
Design and Innovation	
EDNS 151 — Cornerstone Design	3
Culture and Society (CAS)	
HASS 100 — Nature and Human Values	3
HASS 200 — Global Studies	3
EBGN 321 — Engineering Economics	3

Culture and Society Mid-level Electives (2)*	6
Culture and Society 400 level Elective	3
Success and Wellness (S&W)	
CSM 101 – Freshman Success Seminar	1
CSM 202 – Student Wellness and Well-being	1
S&W Elective**	1
Student-Led Inquiry	
Free Electives	6

 *A full list of courses that can be used toward CAS Electives and S&W Electives will be available when the 2023-2024 Academic Catalog is published on June 1, 2023.

* Culture & Society Electives (additional courses to be approved in future)

Course	*Title*	
HASS xxx	All courses with the HASS prefix are eligible for CAS credit	
LIFL xxx	All LIFL courses are eligible for CAS (mid-level) credit	
HNRS xxx	All HNRS courses are eligible for CAS credit (see your advisor)	
Economics and Business Courses approved for CAS credit		
Course	*Title*	*Credit*

EBGN 201	Principles of Economics	3
EBGN 301	Intermediate Microconomics	3
EBGN 302	Intermediate Macroeconomics	3
EBGN 310	Environmental and Resource Economics	3
EBGN 320	Economics and Technology	3
EBGN 330	Energy Economics	3
EBGN 340	Energy and Environmental Policy	3
EBGN 430	Advanced Energy Economics	3
EBGN 434	Property Rights and Natural Resources	3
EBGN 437	Regional Economics	3
EBGN 441	International Economics	3
EBGN 443	Public Economics	3
EBGN 470	Environmental Economics	3
Engineering, Design, and Society courses approved for CAS credit		
Course	*Title*	*Credit*

Course	Title	Credit
EDNS 315	Engineering for Social and Environmental Responsibility	3
EDNS 375	Engineering Cultures	3
EDNS 430	Corporate Social Responsibility	3
EDNS 475	Engineering Cultures in the Developing World	3
EDNS 477	Engineering and Sustainable Community Development	3
EDNS 478	Engineering and Social Justice	3
EDNS 479	Community-based Research	3
EDNS 480	Anthropology of Development	3
Other courses approved for CAS credit		
Course	*Title*	*Credit*
MNGN 335	Communities and Natural Resource Development	3
PEGN 430	Environmental Law and Sustainability	3

** **Success & Wellness Electives (additional courses to be approved in future)**

Course	Title	Credits
CSM 202	Student Success and Well-Being	1
CSM 250	Engineering Your Career Pathway	1
CSM 275	Bounce Back	1
CSM 350	Studies in Leadership	3
PAGN 2xx	Any 1.0 credit PAGN 2xx Course	1

Continuing Students:

No action is needed if you would like to remain in your current catalog. You will complete the courses in your degree path as outlined in your degree plan. You can find your catalog year and degree requirements in Degree Works:

Degree in Bachelor of Science   INCOMPLETE

Credits required: 134.5   Credits applied: 61   Catalog year: 2022-2023   GPA: _ _

If you are interested in updating to a program in the new catalog, be aware that you will need to meet the requirements of the new core. It is **HIGHLY** advised that you meet with an advisor if you are considering make a change since it may impact your expected time to graduation. Beginning this fall, you will be able to run a "What If" audit using the 2023-2024 catalog to see how the new requirements would impact your degree plan.

Frequently Asked Questions:

Why should I consider switching to the new catalog?

- Many programs in the new catalog have reduced the total number of credit hours required for graduation
- You may not need to complete all Distributed Science requirements

Why should I refrain from switching to the new catalog?

- Core and Major requirements may require additional courses and increase the time it will take for graduation
- If you have completed the core under your current catalog, you may need to take all new courses in the revised core

The credits have changed for a course that is in my degree program, do I need to take it again?

- No. Courses will substitute automatically for the previously required program. Please note that your total number of credits required to graduate will not change so you may be required to take additional elective credits to meet the minimum. Please confirm with your advisor if you have concerns.
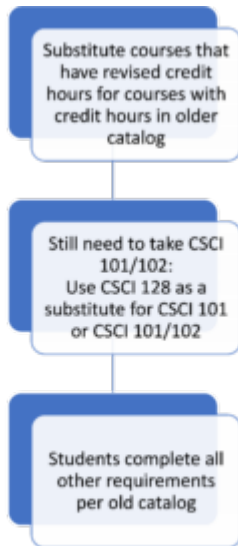
Figure 3: Expectations from students who do not switch catalogs

What if I have already completed CSCI 101 and/or CSCI 102?

- CSCI 101 will fulfill the CSCI 128 requirement. If you are in a prior catalog, CSCI 128 will fulfill any CSCI 101 requirements (see figure below):

What requirement does EBGN 201 fulfill?

It is approved to fulfill a Culture and Society (CAS) Mid-Level Elective or can be used toward the Economics and Business & Entrepreneurship Minors. EBGN-201 does NOT substitute for EBGN-321 (Engineering Economics). If CAS Mid-Level Electives are met, EBGN-201 can be applied to Free Electives.

How do I fulfill Success & Wellness or PAGN Requirements now?

If a student is currently on a catalog prior to 23 — 24, their options are:

1. Remain on **Catalog Prior to Fall 2023**
    - Complete CSM 101, if not already
    - Complete at least 2.0 CH of PAGN requirement by way of:
        - CSM 250 (1CH), OR

- CSM 202 (1CH), OR
- CSM 275 (1CH), OR
- CSM 350 (3CH), OR
- PAGN 2XX (1CH)

2. Change to **2023 – 2024 Catalog**
   - Complete CSM 101, if not already
   - Complete CSM 202
   - If necessary: Complete at least 1.0 CH S&W requirement by way of:
     - CSM 250 (1CH), OR
     - CSM 275 (1CH), OR
     - CSM 350 (3CH), OR
     - PAGN 2XX (1CH)
   - *NOTE: This accepts the potential of only 2.5 credits earned (because CSM101 prior to Fall 23 was 0.5 CH). This is permissible.*

How do I request a Catalog Change?

Submit a Catalog Change Petition online