ATTACHMENT B

MICHIGAN STATE
UNIVERSITY

October 28, 2022

MEMORANDUM

TO: Dr. Mark Largent, Associate Provost for Undergraduate Education and Dean of Undergraduate Studies

FROM: Joy Speas, University Curriculum Administrator

RE: Request to Phase Out and Discontinue the Lyman Briggs Field of Concentration in Earth Science (Major)

For Transmittal to the University Committee on Undergraduate Education (UCUE)

The request referenced above is being sent to you for action by the University Committee on Undergraduate Education (UCUE).

UCUE Response Requested:

Please ask the University Committee on Undergraduate Education (UCUE) to consider the request referenced above. Please mail the related materials referenced under the heading Attachments at the end of this memorandum to the committee members.

After receiving UCUE's consultative response, the Provost will make a determination to discontinue/not discontinue this program. Then, the program's curriculum and degree requirements referenced above will be included on the agenda for the January 19, 2023 meeting of Subcommittee A, University Committee on Curriculum (UCC). Requests that are approved by Subcommittee A on January 19 will be before the Full Committee, UCC, for action on February 2, 2023. Requests that are approved by the Full Committee on February 2 will be included in the February 21, 2023, Report of the UCC to the Faculty Senate.

If you have any questions, please contact me at 5-8420.

Thank you.
Attachments:

1. Request for Discontinuation form dated October 6, 2022; Lyman Briggs Field of Concentration in Earth Science (Major) and attachments.

2. Student Enrollments by Program; Student Awards by Programs (for the request referenced above).

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University Curriculum and Catalog

Hannah Admin. Building
426 Auditorium Road
Suite 430
East Lansing, MI 48824

517-355-8420
Fax: 517-355-9601

LYMAN BRIGGS COLLEGE

1. Request to delete the curriculum and degree requirements for the **Field of Concentration (Major)** degree in **Earth Science** in Lyman Briggs College. The University Committee on Undergraduate Education (UCUE) will provide consultative commentary to the Provost after considering this request at its November 3, 2022 meeting. The Provost will make a determination to discontinue the program after considering the consultative commentary from the University Committee on Undergraduate Education.

   No new students are to be admitted to the program effective Fall 2020. No students are to be readmitted to the program effective Fall 2020. Effective Spring 2023, coding for the program will be discontinued and the program will no longer be available in Lyman Briggs College. Students who have not met the requirements for the Field of Concentration (Major) in Earth Science through Lyman Briggs College prior to Spring 2023 will have to change their major.

Michigan State University Office of the Registrar

View a Program

Joy Speas, Office of the Registrar — Thursday, 10/27/2022

Program Name: LB Earth Science - FC
Degree: BS Sequence Number: 4

Program Request ID: 4818

Effective Dates: Spring 2023 Status: Interim Initial Action: Deleted

Requested Date: 10/6/2022 10:10:19 AM

1. Department/School/College:

10028546 ....

2. Name of Program:

LB Earth Science - FC

3. Name of Degree:

BS

4. Type of Program:

Major

5. Effective Start Semester:

Spring 2023

Effective End date:

Spring Semester 2023

Will the proposed change(s) have a negative impact on students? If so, which ones?:

No students are enrolled in the program since it's moratorium.

Describe impact and explain what accommodations will be made:

n/a

Reason(s) for change(s):

Moratorium has concluded, and we would like to delete the program.

DEPARTMENT LEVEL APPROVAL STATUS

Approved:
10/6/2022 10:10:30 AM by Niki Rudolph for Kendra Spence Cheruvelil, Dean

COLLEGE LEVEL APPROVAL STATUS

Approved: Lyman Briggs College
10/6/2022 10:10:53 AM by Niki Rudolph for Kendra Spence Cheruvelil, Acting Dean

DRAFT

Requirements for the Bachelor of Science Degree in Lyman Briggs College

1. The University requirements for bachelor's degrees as described in the Undergraduate Education section of this University catalog; 120 credits, including general elective credits, are required for the Bachelor of Science degree in Lyman Briggs College.

   Students who are enrolled in Lyman Briggs College may complete the alternative track to Integrative Studies in Biological and Physical Sciences that is described in item 1. under the heading Graduation Requirements in the College statement. Certain courses referenced in requirement 3. below are equivalent to courses in the alternative track and, therefore, may be used to satisfy the alternative track.

   The completion of the Lyman Briggs College mathematics and statistics requirement [referenced in item 3.c.(4) below] may also satisfy the University mathematics requirement.

   The completion of Lyman Briggs 133 or one of the approved alternatives [referenced in requirement 3.a.(5)(a) below] may also be counted toward the University Tier I writing requirement.

   The University's Tier II writing requirement for the Major and Coordinate Majors in Lyman Briggs College is met by completing Lyman Briggs College 492 and one of the following courses: Lyman Briggs College 321A, 321B, 322A, 322B, 323A, 323B, 324A, 324B, 325A, 325B, 326A, 326B, 327A, or 327B. Those courses are referenced in items 3. a. (5) and 3. a. (6) below.
2. The requirements of Lyman Briggs College for the Bachelor of Science degree, referenced in item 3. a. below.

   The credits earned in certain courses referenced in requirement 3. below may be counted toward College requirements as appropriate.
3. The following requirements of Lyman Briggs College for the Bachelor of Science degree:

   CREDITS

   a. CORE PROGRAM 48 to 57
      (1) **Biology**: One of the following **groups** of courses (8 to 10 credits):
         (a) Lyman Briggs 144, 145.
         (b) Biological Science 181H, 191H, 182H, 192H.
         (c) Biological Science 161, 171, 162, 172.
      (2) **Chemistry**: One of the following **groups** of courses (8 to 10 credits):
         (a) Lyman Briggs 171, 171L, 172, 172L.
         (b) Lyman Briggs 171, 171L; Chemistry 143
         (c) Lyman Briggs 171, 171L; Chemistry 251.
         (d) Chemistry 141, 142, 161.
         (e) Chemistry 141, 143, 161.
         (f) Chemistry 141, 161, 251.
         (g) Chemistry 151, 152, 161.
         (h) Chemistry 181H, 182H, 185H.
      (3) **Mathematics and Statistics**: One of the following **groups** of courses (6 to 8 credits):
         (a) Lyman Briggs 118, 119.
         (b) Lyman Briggs 118; Statistics and Probability 231.
         (c) Mathematics 132, 133.
         (d) Mathematics 132; Statistics and Probability 231.
         (e) Mathematics 152H, 153H.
      (4) **Physics**: One of the following **groups** of courses (8 to10 credits):
         (a) Lyman Briggs 273, 274.
         (b) Physics 231, 232, 251, 252.
         (c) Physics 183, 184, 191, 192.
         (d) Physics 183B, 184B, 191, 192.
         (e) Physics 191, 192, 193H, 294H.
      (5) **History, Philosophy and Sociology of Science**: A total of 11 or 12 credits from the courses in **groups** (a), (b), and (c) below.
         (a) One of the following courses: Lyman Briggs 133; Writing, Rhetoric and American Cultures 101.
         (b) One of the following courses: Lyman Briggs 321A, 322A, 323A, 324A, 325A, 326A, 327A.
         (c) One of the following courses: Lyman Briggs 321B, 322B, 323B, 324B, 325B, 326B, 327B.
      (6) **Senior Seminar**: Lyman Briggs 492 (4 credits).

   b. MAJOR or COORDINATE MAJOR.
      Each student must complete the requirements of a Major or a Coordinate Major. The Major or Coordinate Major must be chosen from the lists of options below. Both the Major or Coordinate Major and the related courses must be approved by the student's academic advisor. With the approval of the appropriate Lyman Briggs College Curriculum Coordinator or Undergraduate Director, courses other than those that are listed as requirements for a Major or Coordinate Major may be used to satisfy degree requirements.

Majors:
Biology
Computer Science
~~Earth Science~~
Environmental Science and Management
Physical Science
History, Philosophy and Sociology of Science
Coordinate Majors:
(1) College of Agriculture and Natural Resources:
Animal Science
Entomology
Fisheries and Wildlife
Food Science
Forestry
(2) College of Engineering:
Computer Science
Students are admitted to this Coordinate Major after they have reached junior standing and have met certain other requirements specified by Lyman Briggs College .
(3) College of Natural Science:
Actuarial Science
Astrophysics
Biochemistry and Molecular Biology
Biochemistry/Biotechnology
Biological Science—Secondary Education
Biomedical Laboratory Science
Chemical Physics
Chemistry
Computational Chemistry
Computational Mathematics
Data Science
~~Earth Science—Interdepartmental~~
Environmental Biology/Microbiology
Environmental Biology/Plant Biology
Environmental Biology/Zoology
Environmental Geosciences
Genomics and Molecular Genetics
Geological Sciences
Human Biology
Mathematics
Mathematics, Advanced
Microbiology
Neuroscience
Nutritional Sciences
Physical Science—Secondary Education
Physics
Physiology
Plant Biology
Statistics
Zoology

Majors

		CREDITS
1.	**Biology**	41
a.	A minimum of 41 credits from the courses listed below including:	
(1)	*Organic Chemistry* (6 credits):	
	Both of the following courses:	
	CEM 251 Organic Chemistry I	3
	CEM 252 Organic Chemistry II	3
(2)	*Biochemistry* (4 to 6 credits):	
	One of the following, either (a) or (b):	
	(a) BMB 401 Comprehensive Biochemistry	4
	(b) BMB 461 Advanced Biochemistry I	3
	BMB 462 Advanced Biochemistry II	3
(3)	*Advanced Experiential Biology* (6 credits):	
	The following course:	
	LB 348 Research Experiences in Biology	3
	At least 3 credits from the following:	
	LB 490B Advanced Directed Study – Biology	1 to 4
	LB 493 Field Experience	1 to 4
	LB 494 Undergraduate Research	1 to 4
	Other courses as approved by advisor.	
(4)	*Integrative Biology* (16 credits):	
	All of the following courses:	
	IBIO 341 Fundamental Genetics	4
	IBIO 355 Ecology	3
	IBIO 445 Evolution (W)	3
	MMG 301 Introductory Microbiology	3
	MMG 409 Eukaryotic Cell Biology	3

(5) *Organismal Diversity* (3 or 4 credits):
One of the following courses:

ENT	404	Fundamentals of Entomology	3
ENT	422	Aquatic Entomology	3
ENT	470	General Nematology	3
FW	471	Icthyology	4
IBIO	306	Invertebrate Biology	4
IBIO	328	Comparative Anatomy and Biology of Vertebrates (W)	4
IBIO	360	Biology of Birds	4
IBIO	365	Biology of Mammals	4
IBIO	384	Biology of Amphibians and Reptiles (W)	4
PLB	402	Biology of Fungi	4
PLB	418	Plant Systematics	3
PLB	424	Algal Biology	4

Other courses as approved by advisor.

(6) *Ecology, Evolution, and Behavioral Biology* (3 or 4 credits):
One of the following courses:

CSS	442	Agricultural Ecology	3
FW	417	Wetland Ecology and Management	3
FW	420	Stream Ecology	3
FW	431	Ecophysiology and Toxicology of Fishes	3
FW	439	Conservation Ethics	3
FW	444	Conservation Biology	3
FW	463	Wildlife Disease Ecology	3
FW	472	Limnology	3
GLG	434	Evolutionary Paleobiology	4
IBIO	303	Oceanography	4
IBIO	313	Animal Behavior	3
IBIO	415	Ecological Aspects of Animal Behavior (W)	3
IBIO	440	Field Ecology and Evolution	4
MMG	425	Microbial Ecology	3
PLB	441	Plant Ecology	3
PLB	443	Restoration Ecology	3

(7) *Cellular and Molecular Biology* (3 or 4 credits):
One of the following courses:

FSC	440	Food Microbiology	3
IBIO	320	Developmental Biology	4
IBIO	408	Histology	4
IBIO	425	Cells and Development (W)	4
MMG	404	Human Genetics	3
MMG	413	Virology	3
MMG	421	Prokaryotic Cell Physiology	3
MMG	425	Microbial Ecology	3
MMG	431	Microbial Genetics	3
MMG	433	Microbial Genomics	3
MMG	445	Microbial Biotechnology (W)	3
MMG	451	Immunology	3
MMG	461	Molecular Pathogenesis	3
MMG	463	Medical Microbiology	3
PSL	310	Physiology for Pre-Health Professionals	4
PSL	431	Human Physiology I	4

Other courses as approved by advisor.

2. **Computer Science** 30

a. A minimum of 37 credits from the courses listed below including:

(1) All of the following courses (28 credits):

CSE	231	Introduction to Programming I	4
CSE	232	Introduction to Programming II	4
CSE	260	Discrete Structures in Computer Science	4
CSE	320	Computer Organization and Architecture	3
CSE	325	Computer System	3
CSE	331	Algorithms and Data Structures	3
CSE	335	Objected-oriented Software Design	4
MTH	314	Matrix Algebra with Computational Applications	3

(2) Computer Science Electives
Complete one of the following concentrations (9 credits):

(a) **Systems** - Three of the following courses:

CSE	410	Operating Systems	3
CSE	415	Introduction to Parallel Computing	3
CSE	422	Computer Networks	3
CSE	450	Translation Programming Languages	3
CSE	480	Database Systems	3

(b) **Intelligent Systems** - Three of the following courses:

CSE	402	Biometrics and Pattern Recognition	3
CSE	404	Introduction to Machine Learning	3

CSE 440 Introduction to Artificial Intelligence 3
CSE 482 Big Data Analysis 3

(c) **Media** - Three of the following courses:
CSE 471 Media Processing and Multimedia Computing 3
CSE 472 Computer Graphics 3
CSE 476 Mobile Application Development 3
CSE 477 Web Application Architecture and Development 3

(d) **Security** - Three of the following courses:
CSE 425 Introduction to Computer Security 3
CSE 410 Operating Systems 3
CSE 422 Computer Networks 3

(3) **Ethics Requirement** - One of the following courses:
LB 322A Advances in Science and Technology - Arts and Humanities (W) 4
LB 322B Advances in Science and Technology - Social Sciences (W) 4

The completion of LB 322A or LB 322B satisfies the ethics requirement for the major, but cannot be counted toward the Lyman Briggs College requirement.

~~3. **Earth Science** 27~~

~~a. A minimum of 27 credits from the courses listed below including:~~

~~(1) At least 14 credits in courses at the 300–400 level.~~

~~(2) At least 8 credits in earth science courses outside the Department of Earth and Environmental Sciences.~~

~~(4) At least one course in each of the following 5 earth science areas (15 to 22 credits).~~

~~(a) Astronomy and Astrophysics~~
~~AST 207 The Science of Astronomy 3~~

~~(b) Geology of the Solid Earth~~
~~GLG 201 The Dynamic Earth 4~~
~~GLG 321 Mineralogy and Geochemistry 4~~
~~GLG 351 Structural Geology and Tectonics 4~~
~~GLG 361 Petrology (W) 4~~
~~GLG 401 Plate Tectonics (W) 4~~
~~GLG 481 Reservoirs and Aquifers 3~~
~~GLG 491 Field Geology – Summer Camp (W) 6~~

~~(c) Paleobiology~~
~~GLG 431 Sedimentology and Stratigraphy (W) 4~~
~~GLG 433 Vertebrate Paleontology 4~~
~~GLG 434 Evolutionary Paleobiology 4~~
~~PLB 335 Plants Through Time 3~~

~~(d) Environmental Geosciences and Meteorology~~
~~GEO 203 Introduction to Meteorology 3~~
~~GEO 401 Geography of Plants of North America 3~~
~~GEO 402 Agricultural Climatology 3~~
~~GEO 405 Weather Analysis and Forecasting 4~~
~~GLG 421 Environmental Geochemistry 4~~

~~(e) Geomorphology~~
~~CSS 470 Soil Resources 3~~
~~GEO 407 Regional Geomorphology of the United States 3~~
~~GEO 408 Soil Geomorphology Field Study 4~~
~~Geography 206 and 206L, combined, may be substituted for one of the courses listed above.~~

3.

4. **Environmental Sciences and Management** 41

a. A minimum of 41 credits from the courses listed below including:

(1) One of the following groups of courses (8 or 10 credits):
(a) LB 118 Calculus I 5
STT 231 Statistics for Scientists 3
(b) MTH 132 Calculus I 3
MTH 133 Calculus II 4
STT 231 Statistics for Scientists 3

(2) One course from each of the following 7 areas (24 to 26 credits):
(a) Ecology:
ZOL 355 Ecology 3
ZOL 355L Ecology Laboratory 1
(b) Geology:
GLG 201 The Dynamic Earth 4
(c) Taxonomy or Phylogenetic Biology:

ENT 404 Fundamentals of Entomology 4
PLB 418 Plant Systematics 3
ZOL 306 Invertebrate Biology 4

(d) Biochemistry:
BMB 401 Basic Biochemistry 4

(e) Aquatic Systems:
FW 420 Stream Ecology 3

(f) Microbiology:
MMG 301 Introductory Microbiology 3

(g) Economics:
EC 201 Introduction to Microeconomics 3

(3) One course from each of the following three groups (9 to 11 credits):

(a) FOR 464 Forest Resource Economics (W) 3
SOC 452 Environment and Society 3

(b) FW 424 Population Analysis and Management 4
FW 444 Conservation Biology 3

(c) FW 410 Upland Ecosystem Management 3
FW 417 Wetland Ecology and Management 3

Students who elect Sociology 452 must also complete Sociology 452L to meet requirement 4. a. (3) (a).

4. ~~5.~~ **Physical Science** 31

a. A minimum of 31 credits from the courses listed below including:

(1) The following course:
LB 220 Calculus III 4

(2) At least 27 credits in chemistry courses, in physics courses, or in chemistry and physics courses approved by the student's academic advisor. At least 20 of the 27 credits must be in courses at the 300 level or above, and at least 14 of the 27 credits must be in either chemistry courses or physics courses and must meet the conditions specified below:

For students who elect to complete at least 14 credits in chemistry courses, at least 4 of the 14 credits must be laboratory credits at the 300–400 level.

For students who elect to complete at least 14 credits in physics courses, at least 6 of the 14 credits must be in modern physics, and at least 3 of the 14 credits must be laboratory credits.

5. ~~6.~~ **History, Philosophy and Sociology of Science** 24

A minimum of 24 credits in 300–400 level courses chosen from the following with History, Philosophy, and Sociology of Science content approved by the student's HPS academic advisor. Courses used to fulfill the Lyman Briggs College graduation requirements and LB 492 may not be used to fulfill these requirements. A minimum of four courses from Lyman Briggs must be selected. Additional courses outside of Lyman Briggs may be used with advisor approval.

CSUS 310 History of Environmental Thought and Sustainability 3
CSUS 463 Food Fight: Politics of Food 3
CSUS 464 Environmental and Natural Resource Policy in Michigan 3
ENG 473A Literature and Medicine 3
FW 439 Conservation Ethics 3
GEO 435 Geography of Health and Disease 3
HST 420 History of Sexuality since the 18th Century 3
HST 425 American and European Health Care since 1800 4
HRT 486 Biotechnology in Agriculture: Applications and Ethical Issues 3
IBIO 446 Environmental Issues and Public Policy 3
LB 304 Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ) and Sexuality Studies 3
LB 321A Science and the Public- Arts and Humanities (W) 4
LB 321B Science and the Public- Social Sciences (W) 4
LB 322A Advances in Science and Technology- Arts and Humanities (W) 4
LB 322B Advances in Science and Technology- Social Sciences (W) 4
LB 323A Science in a Global Context- Arts and Humanities (W) 4
LB 323B Science in a Global Context- Social Sciences (W) 4
LB 324A Science and Sex, Gender, Sexuality- Arts and Humanities (W) 4
LB 324B Science and Sex, Gender, Sexuality- Social Sciences (W) 4
LB 325A Science and the Environment- Arts and Humanities (W) 4
LB 325B Science and the Environment-

		Social Sciences (W)	4
LB	326A	Medicine and Health- Arts and Humanities (W)	4
LB	326B	Medicine and Health- Social Sciences (W)	4
LB	327A	Scientific Practice- Arts and Humanities (W)	4
LB	327B	Scientific Practice- Social Sciences (W)	4
LB	490E	Advanced Direct Study- History, Philosophy, Sociology of Science (W)	1 to 4
MC	351	Science and Social Policy	4
PHL	380	Nature of Science	3
PHL	462	Philosophy of Mind	3
PHL	480	Philosophy of Science	4
SOC	368	Science, Technology, and Society	4
SOC	452	Advanced Seminar in Environmental Sociology	3
SOC	475	Health and Society	3

Enrollments and Awards By Program
Lyman Briggs College

Program - Description	Span		FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	Total	10 yr Diff.
3494 - Computational Mathematics - Second Degree	FS08-	Enrollments	1	2	2	0	0	0	0	0	0	0	5	-1
		Awards	0	0	1	0	0	0	0	0	0	0	1	0
		%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	20%	0%
3281 - Computer Science	FS08-	Enrollments	4	5	6	9	7	6	13	13	16	21	100	17
		Awards	0	1	1	2	2	1	2	1	0	2	12	2
		%	0%	20%	17%	22%	29%	17%	15%	8%	0%	10%	12%	10%
3495 - Computer Science	FS08-	Enrollments	3	3	4	4	3	1	2	3	3	1	27	-2
		Awards	0	0	2	0	0	0	0	0	1	0	3	0
		%	0%	0%	50%	0%	0%	0%	0%	0%	33%	0%	11%	0%
3283 - Computer Science - Second Degree	FS08-	Enrollments	1	2	1	2	4	3	2	3	5	3	26	2
		Awards	0	0	0	0	1	1	1	0	2	1	6	1
		%	0%	0%	0%	0%	25%	33%	50%	0%	40%	33%	23%	33%
3497 - Computer Science - Second Degree	FS08-	Enrollments	0	0	1	1	1	1	2	1	0	0	7	0
		Awards	0	0	0	0	1	0	0	0	0	0	1	0
		%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	14%	0%
3498 - Diagnostic Molecular Science	FS08-FS12	Enrollments	6	4	0	0	0	0	0	0	0	0	10	-6
		Awards	1	4	0	0	0	0	0	0	0	0	5	-1
		%	17%	100%	0%	0%	0%	0%	0%	0%	0%	0%	50%	-17%
3500 - Diagnostic Molecular Science - Second Degree	FS08-FS12	Enrollments												0
3284 - Earth Science	FS08-US20	Enrollments	1	1	0	4	4	4	2	0	0	0	16	-1
		Awards	1	0	1	0	0	2	2	0	0	0	6	-1
		%	100%	0%	0%	0%	0%	50%	100%	0%	0%	0%	38%	-100%
3286 - Earth Science - Second Degree	FS08-US20	Enrollments	0	0	0	0	0	0	0	1	1	1	3	1
3501 - Earth Science-Interdept	FS08-FS16	Enrollments	0	0	1	1	0	0	0	0	0	0	2	0

Fiscal Year (FY) counts are distinct student counts within the Summer, Fall, and Spring terms.
e.g. FY07=distinct student count within Summer 06, Fall 06, and Spring 07.
If a student changed majors within the FY, he/she is counted under both majors.