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 Bachelor of Science Degree in Earth Science-Interdepartmental

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 Bachelor of Science Degree in Earth Science-Interdepartmental and attachments.

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

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LYMAN BRIGGS COLLEGE

1. Request to delete the curriculum and degree requirements for the Coordinate Major in Earth Science-Interdepartmental 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 Coordinate Major in Earth Science-Interdepartmental through Lyman Briggs College prior to Spring 2023 will have to change their major.
View a Program

Joy Speas, Office of the Registrar

Thursday, 10/27/2022

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

Program Request ID: 4807

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

Requested Date: 9/22/2022 10:54:44 AM

1. Department/School/College:
   10028546 ....

2. Name of Program:
   LB Earth Science-Interdept

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, the program has been in moratorium for 2 years.

Describe impact and explain what accommodations will be made:
   No impact

Reason(s) for change(s):
   The coordinate major no longer support the classes in the major.
COLLEGE LEVEL APPROVAL STATUS

Approved: Lyman Briggs College
10/6/2022 10:11:01 AM by Niki Rudolph for Kendra Spence Cheruvelil, Acting Dean
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. 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, 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. 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 to 10 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
   - Geosciences
   - Human Biology
   - Mathematics
   - Mathematics, Advanced
   - Microbiology
   - Neuroscience
   - Nutritional Sciences
   - Physical Science—Secondary Education
   - Physics
   - Physiology
   - Plant Biology
   - Statistics
   - Zoology

Majors

1. Biology
   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

CREDITS

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(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 Ichthyology 4
- IBIO 306 Invertebrate Biology 4
- IBIO 328 Comparative Anatomy and Biology of Vertebrates (W) 4
- IBIO 360 Biology of Birds 4
- IBIO 385 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 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
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

2
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 credits

(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.
(3) 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 301 The Dynamic Earth 4
GLG 321 Mineralogy and Geochemistry 4
GLG 351 Structural Geology and Tectonics 4
GLG 361 Paleontology (W) 4
GLG 403 Plate-Tectonics (W) 4
GLG 481 Reservoirs and Aquifers 3
GLG 481 Field Geology — Summer Camp (W) 6

(c) Paleobiology
GLG 431 Sedimentology and Stratigraphy (W) 4
GLG 433 Vertebrate Paleontology 4
GLG 434 Evolutionary Paleontology 4
GLB 336 Plants Through Time 3

(d) Environmental Geosciences and Meteorology
GEO 401 Introduction to Meteorology 3
GEO 404 Geography of Plants of North America 3
GEO 402 Agricultural Climatology 3
GEO 405 Weather Analysis and Forecasting (W) 4
GLG 421 Environmental Geochemistry 4

(e) Geomorphology
CSS 410 Soil Resources 3
GEO 407 Regional Geomorphology of the United States 3
GEO 408 Soil Geomorphology: Field Study 4

Geography 206 and 208L, combined, may be substituted for one of the courses listed above.

4. Environmental Sciences and Management 41 credits

(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).

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.

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 18004
   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-
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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.