

MICHIGAN STATE UNIVERSITY

September 6, 2012

MEMORANDUM

TO: Dr. Douglas Estry, Associate Provost for Undergraduate Education
and Dean of Undergraduate Studies

FROM: Dr. Linda O. Stanford, Associate Provost for Academic Services

RE: Request for a New Coordinate Major in Lyman Briggs College –
Neuroscience

For Transmittal to the University Committee on Undergraduate Studies

The request referenced above is being sent to the University Committee on Undergraduate Studies in accordance with the *Bylaws for Academic Governance*, 4.4.

Response Requested:

Please ask the committee to consider the request referenced above and provide consultative commentary. Please mail the related materials referenced under the heading Attachments at the end of this memorandum to the committee members.

After receiving the committee's consultative response, the Provost will make a determination to forward or not to forward the request to the University Committee on Curriculum for its approval of curriculum and degree requirements.

If you have any questions, please call Joy Speas, University Curriculum Administrator, at 5-8420.

Thank you.

Attachments:

1. Request to Establish a New Academic Program form dated September 5, 2012: Coordinate Major in Neuroscience, Lyman Briggs College and attachments.



University Curriculum and Catalog

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

517-355-8420
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LYMAN BRIGGS COLLEGE

1. Request to recognize the **Neuroscience** major leading to the Bachelor of Science degree in the College of Natural Science as a **Coordinate Major in Lyman Briggs College**.

Effective Spring 2013.

View a Program		Main Menu
Joy Speas, RO		Wednesday, 9/5/2012
Program Name: LB Neuroscience Degree: BS Sequence Number: 1		Program Request ID: 2249
Effective Dates: Spring 2013 - Open Status: Interim Initial Action: New		
Requested Date: 8/21/2012 1:03:39 PM		
<p>1. Department/School/College: 28546 Lyman Briggs College</p> <p>2. Name of Program: LB Neuroscience</p> <p>3. Name of Degree: BS</p> <p>4. Type of Program: Major</p> <p>5. Effective Start Semester: Spring 2013</p> <p>6. Target student audience for the program: LBC Students</p> <p>7. Enrollment: What is the expected enrollment per year: 10 What is the minimum enrollment acceptable: 0</p> <p>8. Source of budget for the program: To align academic planning and curricular change, ALL requests for NEW funds must be included in the College's annual planning letter. Provost approval of new funds and the effective date for the new program must align. If funding is not approved, then the program request will not be forwarded to Faculty Senate. Internal reallocation If new funds, was this request included in the College's annual planning letter? Indicate yes or no. If no, then this is a department or college fund reallocation (If the program is implemented, no additional resources are required.).</p> <p>9. Projected Costs as compared to other programs in unit: Same</p> <p>10. Staff requirement: How many additional staff will be required: 0 Who will provide the primary instruction. Describe any external linkages(industry, government, etc.):</p>		

Primary instruction of LBC College requirements will be by LBC faculty. Coordinate major required courses will be taught by the same faculty teaching for the BS in Neuroscience.

11. Will additional equipment be required:

Approximate cost: 0

Source of funding:

12. Will additional library materials be required:

Approximate cost: 0

Source of funding: none

13. Will additional space be required:

Type:

Approximate amount:

14. If the program requirements contain a named concentration, do you wish for the concentration to be noted on the student's transcript?:

No

15. Detailed Description:

Coordinate major: Students complete LBC College requirements and the major requirements of the BS in Neuroscience. LBC students are actively seeking this coordinate major; neuroscience is a growing area of interest for many LBC student pursuing both medical and non-medical fields of study.

16. Are there admissions requirements for this program?:

Grade or grade-point average requirements and if so in which course(s), portfolio requirement, audition, essay, etc. If there are not admission requirements other than those required by the University policy indicate "none".

None.

DEPARTMENT LEVEL APPROVAL STATUS

Approved: Lyman Briggs College
8/21/2012 4:22:27 PM by Kelly Millenbah for Elizabeth H. Simmons, Dean

SIGNOFFS STATUS

No Response by: College of Natural Science

Signed Off: Program in Neuroscience
8/27/2012 9:02:26 AM by Laura Symonds for Cheryl Sisk, Director

COLLEGE LEVEL APPROVAL STATUS

Approved: Lyman Briggs College

9/5/2012 7:47:02 AM by Kelly Millenbah for Elizabeth H. Simmons, Dean

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UNDERGRADUATE PROGRAM

The Lyman Briggs College program leads to the Bachelor of Science Degree.

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 the College of Natural Science 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: English 473A; History 425; Lyman Briggs College 332, 333, 334, 335, 336, 355. 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:

a. CORE PROGRAM CREDITS
46 to 55

- (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

(6 to 8 credits):

- (a) Lyman Briggs 273, 274.
- (b) Physics 231, 232, 251, 252.
- (c) Physics 183, 184.
- (d) Physics 181B, 182B, 251, 252.
- (e) Physics 231B, 232B, 251, 252.
- (f) Physics 183B, 184B.
- (g) Physics 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. In addition to completing one course from each of the three groups, the student must complete one of the following courses from group (b) or group (c): English 483; History 425; Lyman Briggs 332, 333, 334, 335, 336, 355.

- (a) One of the following courses: Lyman Briggs 133; Writing, Rhetoric and American Cultures 110, 115, 120, 125, 130, 135, 140, 145, 150, 195H.
- (b) One of the following courses: Lyman Briggs 331, 332, 333, 334, 335, 336, 355.
- (c) One of the following courses: Lyman Briggs 330, 331, 332, 333, 334, 335, 336, 355, 490E; English 473A; History 425.

Each of the following courses may be used to meet either requirement 3.a.(5)(b) or requirement 3.a.(5)(c), but not both of those requirements: Lyman Briggs 331, 332, 333, 334, 335, 355.

- (6) **Senior Seminar:** Lyman Briggs 492 (4 credits).

- 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
Fisheries and Wildlife
Entomology

(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—Interdepartmental
Biomedical Laboratory Science
Chemical Physics
Chemistry
Computational Chemistry
Computational Mathematics
Diagnostic Molecular 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
Nutritional Sciences
Physical Science—Interdepartmental
Physics
Physiology
Plant Biology
Statistics
Zoology

Neuroscience

NEUROSCIENCE

The Bachelor of Science degree in Neuroscience is for students who wish to pursue a career in which a broad-based knowledge of the structure and function of the nervous system is necessary, including careers in research, education, healthcare or business. It is also intended for those students who seek admission to graduate study in neuroscience or health-related professional schools. In addition to core requirements, students can concentrate in cellular and developmental neuroscience; behavioral and systems neuroscience; or cognitive neuroscience.

Several colleges and departments within Michigan State University cooperate in offering the interdepartmental Master of Science and Doctor of Philosophy degree program with a major in neuroscience, which is administered by the College of Natural Science. Students may elect to complete the requirements for a second major, in addition to the requirements for the Master of Science and Doctor of Philosophy degree in neuroscience.

Students who are enrolled in the master's or doctoral degree program with a major in Neuroscience may also elect an Interdepartmental Specialization in Cognitive Science. For additional information, refer to the statement on *Interdepartmental Graduate Specializations in Cognitive Science* in the *College of Social Science* section of this catalog. For additional information, contact the College of Natural Science.

Bachelor of Science

Requirements for the Bachelor of Science Degree in Neuroscience

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

The University's Tier II writing requirement for the Neuroscience major is met by completing Neuroscience 311L. That course is referenced in item 3. below.

Students who are enrolled in the College of Natural Science 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 may be used to satisfy the alternative track.

- The requirements of the College of Natural Science for the Bachelor of Science degree.

The credits earned in certain courses referenced in requirement 3. below may be counted toward College requirements as appropriate.

- The following requirements for the major:

	CREDITS
a. One of the following pairs of courses (5 or 6 credits):	
(1) CEM 141 General Chemistry	4
CEM 161 Chemistry Laboratory I	1
(2) CEM 151 General and Descriptive Chemistry	4
CEM 161 Chemistry Laboratory I	1
(3) CEM 181H Honors Chemistry I	4
CEM 185H Honors Chemistry Laboratory I	2
(4) LB 171 Principles of Chemistry I	4
LB 171L Introductory Chemistry Laboratory I	1
b. One of the following pairs of courses (6 credits):	
(1) CEM 251 Organic Chemistry I	3
CEM 252 Organic Chemistry II	3
(2) CEM 351 Organic Chemistry I	3
CEM 352 Organic Chemistry II	3
c. One of the following pairs of courses (6 or 8 credits):	
(1) PHY 231 Introductory Physics I	3
PHY 232 Introductory Physics II	3
(2) PHY 183 Physics for Scientists and Engineers I	4
PHY 184 Physics for Scientists and Engineers II	4
(3) PHY 193H Honors Physics I-Mechanics	4
PHY 294H Honors Physics II-Electromagnetism	4
(4) LB 273 Physics I	4
LB 274 Physics II	4
d. One of the following courses (3 or 4 credits):	
MTH 124 Survey of Calculus I	3
MTH 132 Calculus I	3
MTH 152H Honors Calculus I	3
LB 118 Calculus I	4
e. One of the following courses (3 or 4 credits):	
STT 201 Statistical Methods	4
STT 231 Statistics for Scientists	3
STT 421 Statistics I	3
f. Both of the following courses (8 credits):	
BMB 401 Comprehensive Biochemistry	4
PSY 101 Introductory Psychology	4

g. One of the following groups of courses (8 or 9 credits):			
(1)	BS 161	Cell and Molecular Biology	3
	BS 162	Organismal and Population Biology	3
	BS 171	Cell and Molecular Biology Laboratory	2
(2)	BS 181H	Honors Cell and Molecular Biology	3
	BS 182H	Honors Organismal and Population Biology	3
	BS 191H	Honors Cell and Molecular Biology Laboratory	2
(3)	LB 144	Biology I: Organismal Biology	4
	LB 145	Biology II: Cellular and Molecular Biology	5
h. One of the following groups of courses (4 or 6 credits):			
(1)	PSL 310	Physiology for Pre-Health Professionals	4
(2)	PSL 431	Human Physiology I	3
	PSL 432	Human Physiology II	3
i. All of the following courses (8 credits):			
	NEU 301	Introduction to Neuroscience I	3
	NEU 302	Introduction to Neuroscience II	3
	NEU 311L	Neuroscience Laboratory (W)	2
j. One course from each of the following groups of courses (6 credits):			
(1)	PHM 350	Introductory Human Pharmacology	3
	PHM 431	Pharmacology of Drug Addiction	3
	PHM 480	Special Problems	3
(2)	MMG 404	Human Genetics	3
	MMG 409	Eukaryotic Cell Biology	3
k. Complete 15 credits in courses from one of the following concentrations:			
Cellular and Developmental Neuroscience			
	BMB 400	Introduction to Bioinformatics	3
	MMG 404	Human Genetics	3
	MMG 409	Eukaryotic Cell Biology	3
	NEU 420	Neurobiology of Disease	3
	ZOL 341	Fundamental Genetics	4
	ZOL 343	Genetics Laboratory	3
	ZOL 402	Neurobiology	3
	ZOL 425	Cells and Development (W)	4
Microbiology and Molecular Genetics 404 or 409 may not be used for requirement 3. j. (2) and this concentration.			
Behavioral and Systems Neuroscience			
	NEU 420	Neurobiology of Disease	3
	PHM 431	Pharmacology of Drug Addiction	3
	PHM 480	Special Problems	1 to 3
	PSY 209	Brain and Behavior	3
	PSY 310	Psychology and Biology of Human Sexuality	3
	PSY 402	Sensation and Perception (W)	3
	PSY 409	Psychobiology of Behavioral Development (W)	3
	PSY 410	Neurobiology of Learning and Memory (W)	3
	PSY 411	Hormones and Behavior (W)	3
	PSY 413	Laboratory in Behavioral Neuroscience (W)	4
	PSY 493	Issues in Psychology (W)	3
	ZOL 313	Animal Behavior	3
	ZOL 403	Integrative Neurobiology	3
Pharmacology and Toxicology 431 may not be used for requirement 3. j. (1) and this concentration.			
Cognitive Neuroscience			
	ENG 492H	Honors Seminar in English	3
	LIN 455	Neurolinguistics	3
	LIN 463	Introduction to Cognitive Science	3
	PHL 200	Introduction to Philosophy	3
	PHL 462	Philosophy of Mind	3
	PSL 429	Biomedical Imaging Methods	3
	PSY 200	Cognitive Psychology	3
	PSY 209	Brain and Behavior	3
	PSY 301	Cognitive Neuroscience	3
	PSY 401	Memory and Skill (W)	3
	PSY 402	Sensation and Perception (W)	3
	PSY 410	Neurobiology of Learning and Memory (W)	3
	PSY 493	Issues in Psychology (W)	3