

UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: Benjamin Bruening phone number 831-4096

Department: Linguistics and Cognitive Science email address bruening@udel.edu

Action: Revise major: BS in Cognitive Science

(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term 12F
(use format 04F, 05W)

Current degree BS
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: BS
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: no change
Proposed new name for revised or new major / minor / concentration / academic unit (if applicable)

Revising:

Undergraduate major / Concentration: BS in Cognitive Science
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: _____
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: _____
(**Must attach** your Graduate Program Policy Statement)

Graduate Program of Study: _____
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: _____

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter “None”)

None.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>

The proposed revision is to bring the breadth requirements for the BS in Cognitive Science in line with breadth requirements for other BS degrees at the University. This has no effect on how the program supports the 10 goals of undergraduate education. See <http://www.ling.udel.edu/bs-cognitive-science.html> for the mission statement of the BS in Cognitive Science.

Identify other units affected by the proposed changes:

(Attach permission from the affected units. If no other unit is affected, enter "None")

None.

Describe the rationale for the proposed program change(s):

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

1. Breadth Requirements. The BS in Cognitive Science currently requires that students complete the breadth requirements of the College of Arts and Sciences generally: 9 hours in Group A, 9 hours in Group B, 9 hours in Group C, and 10 hours in Group D. Because the BS requirements in the major are extensive (52 credit hours in the most popular concentration, speech/language pathology), these breadth requirements are causing students difficulties in completing their requirements for graduation. They are also out of line with other BS programs in the College (which require 18--24 credit hours total). Moreover, the study of Cognitive Science is inherently interdisciplinary, meaning that students pursuing the BS attain a lot of breadth simply by completing the major requirements. We are therefore proposing to revise the breadth requirements for the BS in Cognitive Science to 6 hours in Group A, 6 hours in Group B, and 6 hours in Group C. This is identical to the BS in Psychology, and in line with other BS requirements, like those for Chemistry and Physics.

Program Requirements:

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)

See attached.

ROUTING AND AUTHORIZATION: (Please do not remove supporting documentation.)

Department Chairperson _____ Date _____

Dean of College _____ Date _____

Chairperson, College Curriculum Committee _____ Date _____

Chairperson, Senate Com. on UG or GR Studies _____ Date _____

Chairperson, Senate Coordinating Com. _____ Date _____

Secretary, Faculty Senate _____ Date _____

Date of Senate Resolution _____ Date to be Effective _____

Registrar _____ Program Code _____ Date _____

Vice Provost for Academic Affairs & International Programs _____ Date _____

Provost _____ Date _____

Board of Trustee Notification _____ Date _____

Revised 10/23/2007 /khs

Proposal for a Revision to the Curriculum of the BS in Cognitive Science

Department of Linguistics and Cognitive Science

October 2011

1 Description

The Department of Linguistics and Cognitive Science is proposing to change the Breadth requirements for the BS in Cognitive Science, as follows.

The BS in Cognitive Science currently requires that students complete the Breadth requirements of the College of Arts and Sciences generally: 9 hours in Group A, 9 hours in Group B, 9 hours in Group C, and 10 hours in Group D. These are the requirements for BA degrees; BS degrees typically reduce the number of Breadth requirements because they have many more major requirements. The BS in Cognitive Science is no different in this respect from other BS programs: the major requirements are extensive. The most popular concentration, speech/language pathology, requires at least 53 credit hours in the major. Because the major requirements are so heavy, the general BA Breadth requirements are causing students difficulties in completing their requirements for graduation. In some cases they have delayed students' expected graduation, and in other cases they certainly will if left as they are. These Breadth requirements are also out of line with other BS programs in the College, which require 18–24 credit hours total, not 37. Moreover, the study of Cognitive Science is inherently interdisciplinary, meaning that students pursuing the BS attain a lot of breadth simply by completing the major requirements.

The Department of Linguistics and Cognitive Science is therefore proposing to revise the breadth requirements for the BS in Cognitive Science to 6 hours in Group A, 6 hours in Group B, and 6 hours in Group C (18 credit hours total). This is identical to the BS in Psychology, and in line with the requirements of other BS programs, like those in Chemistry and Physics.

2 Rationale and Demand

The BS in Cognitive Science requires 26 credit hours, in addition to general University and College requirements. However, each student in the major must also choose a concentration, which imposes additional requirements—at least 18 additional credits. By far the most popular concentration, speech/language pathology, requires an additional 27 to 30 credits. (For a current list of concentration requirements, see <http://www.ling.udel.edu/concentrations.html>). This means that the majority of majors in Cognitive Science have to take at least 53 credit hours in the major, in addition to general University and College requirements. (To give a sense of how many students are involved here, as of October 2011 there were 146 students in the speech/language pathology concentration, out of a total of 172 majors in Cognitive Science. These numbers have been growing steadily.)

At the moment, the College requirements that must be satisfied for the BS in Cognitive Science include the breadth requirements for the College generally, which are meant for BA degrees. These are 9 hours in Group A, 9 hours in Group B, 9 hours in Group C, and 10 hours in Group D. This is a total of 37 credits. Some of the courses that satisfy the Cognitive Science major also satisfy the breadth requirements, but these are mostly in Group C. Several cognitive science courses that used to count as Group D breadth courses had to be restricted to majors due to space limitations, and so no longer count as Group D breadth courses. This means that Cognitive Science majors have particular difficulty completing the Group A, Group B, and Group D requirements.

This situation is particularly ironic and unjustifiable because Cognitive Science is, by its very nature, inherently interdisciplinary. By choosing to study Cognitive Science, students automatically expose themselves to more breadth than most other majors at the University. They take courses in Psychology, Linguistics, Biology, Computer Science, and Philosophy. Cognitive Science is also inherently *science*, as its name implies, and the curriculum requires numerous science courses, including laboratory courses, that should satisfy the Group D requirement (and would, if they did not have to be restricted to majors).

Moreover, no other BS program at the University imposes such stringent breadth requirements. Other BS programs in the College of Arts and Sciences require 18–21 breadth credits total, nowhere near the 37 that Cognitive Science requires. Chemistry and Biochemistry, and all Biological Sciences BS programs, require 21 credits total; all Mathematics BS programs, Physics, Psychology, and Neuroscience require 18 credits.

The Department of Linguistics and Cognitive Science therefore proposes to revise the breadth requirements for the BS in Cognitive Science to bring it into line with other BS programs. Taking Psychology as our model, we propose to amend the breadth requirements to the following:

College Breadth Requirements: 18 credits total, with a minimum of 6 credits each in Groups A, B, and C.

No credits are required for Group D because the major is a science-based curriculum and includes numerous science and laboratory courses, such as: LING 253 Laboratory Phonetics, CGSC 378 Anatomy and Physiology of Speech, CGSC 379 Audiology, CGSC 376 Introduction to Communication Disorders, CGSC 380 Clinical Principles and Procedures in Speech Pathology, CGSC 496 Psycholinguistics, LING 433 Introduction to Acoustic Phonetics, LING 462 Language Acquisition. Students also choose between BISC 104 Principles of Biology with Laboratory and BISC 207 Introductory Biology I, and they must also take a computer science course and a statistics or logic course.

Students will have no trouble meeting the 6-credit Group C requirement, because many of the courses that count toward the major are Group C courses. These include CGSC 170 Introduction to Cognitive Science, LING 101 Introduction to Linguistics, and PSYC 100 General Psychology, all of which are required of all majors. Several other CGSC and LING courses that count as electives are also Group C courses. Students will still have to fulfill most of the Group A and Group B requirements outside of the major, but with the reduced number of credits required this should not be an undue burden, and they should be able to complete all of their requirements in a timely fashion. At the same time, though, they will not be too narrowly focused in their course choices, because, as stated above, Cognitive Science is inherently interdisciplinary. Core requirements include courses from Linguistics, Psychology, Biology, Computer Science, Philosophy, and Mathematics. Besides the many courses that are science-oriented, there are also many courses in the major that are arguably humanities in content, such as CGSC 404 Animal Minds, CGSC 418 Meaning and Language Use, and CGSC 330 Philosophy of Mind. All of these are cross-listed with Philosophy. Four regularly-taught CGSC courses also currently count as Group A courses: CGSC 327 Race, Gender Science, CGSC 205 Anthropology and Human Nature, CGSC 320 Theory of Knowledge, and CGSC 450 Recent Topics in Philosophy of Mind. Several courses also cover cultural change (the topic of Group B), such as LING 203 Languages of the World, LING 102 Language, Mind, and Society, and LING 471 Discovering Human Language.

In summary, students studying Cognitive Science attain more breadth than most other majors at the University do. They receive a liberal arts education within the major, one that includes humanities, history and cultural change, social sciences, and natural sciences. Lowering the breadth requirements will not lose them any breadth, but it will make satisfying the requirements in a timely fashion possible.

3 Curriculum Specifics

See the attached documents showing the current curriculum and the proposed revisions.

Current Curriculum of the BS in Cognitive Science

Department of Linguistics and Cognitive Science

November 29, 2010

Degree: Bachelor of Science

Major: Cognitive Science

DEGREE REQUIREMENTS

Required Courses (26 hours/credits)

All of the following:

CGSC 100	First Year Experience	1
CGSC 170	Introduction to Cognitive Science (foundation course)	3
CGSC 314	Brain and Behavior	3
CGSC 485	Seminar in Cognitive Science (senior seminar)	3
LING 101	Introduction to Linguistics	3
PSYC 100	General Psychology	3

One of the following:

BISC 104	Principles of Biology with Laboratory	4
or		
BISC 207	Introductory Biology I	4

One of the following:

CISC 108	General Computer Science	3
or		
CISC 103	Introduction To Computer Science with Web Applications	3
or		
CISC 181	Introduction to Computer Science II	3
or		
CISC 280	Program Development Techniques	3

One of the following:

PHIL 205	Logic	3
or		
MATH 201	Introduction to Statistical Methods I	3
or		
MATH 205	Statistical Methods	4
or		
PSYC 209	Measurement and Statistics	3

CONCENTRATION REQUIREMENT

In addition to completing the required core, students will develop, with the aid of a faculty advisor, a concentration program individualized to their interests of at least 18 credit hours. Concentrations may include a focus of

linguistics or pre-professional speech pathology and speech science, natural language processing, animal cognition, artificial intelligence, computer modeling of cognition, or psychological models of cognition, among other possibilities.

The faculty advisor must be among the core departmental faculty listed on the departmental website (<http://www.ling.udel.edu/ling>). Further, the concentration program must be proposed by the student, approved by the student's faculty advisor and approved by the Undergraduate Studies Committee of the department. All concentration programs will consist of at least 18 credits drawn from a list of eligible courses which will be maintained on the Department's website. Some concentrations may exceed 18 hours. The list of eligible courses will be updated and posted annually on the Departmental website. Substitute courses may be proposed by the student with the approval of the faculty advisor.

First Year Experience and Discovery Learning

All first-year students in the Cognitive Science Interest major must complete a First Year Experience (FYE). The course, CGSC 100, will meet the first 8 weeks of the semester.

All students are required to participate in a discovery or experiential learning experience. The available Discovery or Experiential Learning Programs are posted on the departmental website (<http://www.ling.udel.edu/ling>). The Department currently offers opportunities for study abroad and internship possibilities which meet this requirement.

Capstone Course

Senior majors are brought together for a seminar on topics in cognitive science: CGSC 485 Seminar in Cognitive Science. The course requires participants to engage in research that demonstrates grasp of the issues in the field as a whole and in their chosen focus. This work may lead to an Honors Thesis for qualified students.

University and College Requirements

In order to receive the degree of BS in Cognitive Science all students must meet the University requirements for a bachelor's degree. Students are also required to meet the skill requirements of the College of Arts and Sciences.

College Breadth Requirements

Students must meet the following breadth requirements:

Group A Creative Arts and Humanities 9
These courses provide students with an understanding and appreciation of the visual and performing arts, of aesthetic forms, designs, or craftsmanship, or of literary, philosophical, and intellectual traditions. Courses may focus on a single aesthetic form or intellectual tradition, or cross-cultural comparisons. Nine credits of courses representing at least two departments or appropriate instructional units.

Group B History and Cultural Change 9
These courses provide students with an understanding of the sources and forces of historical changes in ideas, beliefs, institutions, and cultures. Courses may address social, cultural, intellectual, economic, technological, artistic, scientific, and political development, changes in a discipline, or globalization and its effects. Nine credits of courses representing at least two departments or appropriate instructional units.

Group C Social and Behavioral Sciences 9
These courses provide students with an understanding of the behavior of individuals and social groups in the context of their human and natural environments. Courses emphasize the empirical findings, applications, and methods of the social and behavioral sciences. Nine credits of courses representing at least two departments or appropriate instructional units.

Group D Mathematics, Natural Sciences and Technology 10
These courses provide students with an understanding of fundamental and/or applied concepts and phenomena from mathematics, logic, natural or physical sciences, and technology including quantitative reasoning and methods used to approach and solve problems. Ten credits of courses representing at least two departments or appropriate instructional units and including a minimum of one course with an associated laboratory. The laboratory component provides exposure to the working methods of science.

If the grade earned is sufficient, a course may be applied toward more than one requirement (e.g., breadth and major requirements), but the credits are counted only once toward the total credits for graduation. If all but one course in a group has been taken in one department or program, a course cross-listed with that program will not satisfy the distribution requirement.

Proposed Curriculum of the BS in Cognitive Science

Department of Linguistics & Cognitive Science

October 27, 2011

Degree: Bachelor of Science

Major: Cognitive Science

DEGREE REQUIREMENTS

Required Courses for Major (26 hours/credits)

- Students must earn a grade of C- or higher in all of the courses within the major, including those that make up the concentration.
- Students may not take courses pass/fail unless the course is graded solely on a pass/fail basis.
- Students may not take 600-level courses and have them count towards the B.S. degree in Cognitive Science.
- Credits may be counted only once toward a degree.
- Students minoring in linguistics and majoring in cognitive science may not use the same courses to count towards both the major and the minor, with the exception of LING101.

All of the Following:

CGSC 100	First Year Experience	Take Fall Semester Freshman Year	<u>13 Credits</u>
CGSC 170	Introduction to Cognitive Science	Best if taken first year	3 Credits
CGSC 485	Seminar in Cognitive Science	Take in senior (or late Jr) year	3 credits
LING 101	Introduction to Linguistics	Best if taken in first year, preferably Fall or Winter	3 Credits
PSYC 100	General Psychology	Best if taken in first year, preferably Fall or Winter	3 Credits
PSYC 314	Brain & Behavior (cross-listed w/CGSC314)		3 Credits

One of the Following:

BISC 104	Principles of Biology with Laboratory		<u>4 Credits</u>
BISC 207	Introductory Biology I		4 Credits

One of the Following:

CISC 103	Introduction to Computer Science with Web Applications		<u>3 Credits</u>
CISC 108	General Computer Science		3 Credits
CISC 181	Introduction to Computer Science II		3 Credits
CISC 280:	Program Development Techniques		3 Credits

One of the Following:

PHIL 205	Logic		<u>3 Credits</u>
MATH 201	Introduction to Statistical Methods I		3 Credits
MATH 205	Statistical Methods		3 Credits
PSYC 209	Measurement & Statistics		3 Credits

Concentration Requirement (minimum of 18 credits)

In addition to completing the 26 credit hours of required courses, students must complete a minimum of 18 additional credit hours in a concentrated area of study. (Some concentrations may exceed 18 hours.) A number of pre-approved concentrations can be found on the Department of Linguistics & Cognitive Science website (www.ling.udel.edu). Alternatively, students have the option of developing an individualized concentration with the aid of their faculty advisor and by approval of the Director of Undergraduate Studies and the Undergraduate Studies Committee. Please see the Department of Linguistics & Cognitive Science (www.ling.udel.edu) site for more information on individualized concentrations.

Capstone Course, 3 Credits

Junior and senior majors are brought together for a seminar on topics in cognitive science: [CGSC 485: Seminar in Cognitive Science](#). The course requires participants to engage in research that demonstrates a grasp of the issues in the field as a whole and in their chosen focus. This work may contribute to an Honors Thesis for qualified students.

University Requirements and College of Arts & Sciences Requirements

In addition to completing the requirements for the Cognitive Science major, students must complete a number of University and College of Arts and Sciences requirements.

University Requirements

ENGL 110: Critical Reading and Writing (minimum grade C-) 3 Credits

- This requirement must be completed by the time a student has earned 60 credits. Students who transfer into the College of Arts and Sciences with 45 credits or more must complete this requirement within two semesters

First Year Experience (FYE) 0 – 3 Credits

- Cognitive Science Majors can satisfy this course with CGSC 100: Freshman Year Experience, 1 Credit, Pass/No Pass

Discovery Learning Experience (DLE) (minimum grade C-) 3 Credits

- DLE courses must be taken for a letter grade, unless the course is taught solely on a pass/no pass basis.

University Breadth Requirement (minimum grade C-) 12 Credits

- 3 credits in each group (A, B, C, and D) of pre-approved University Breadth Requirement courses.
- Up to 3 credits from each University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.
- See University of Delaware Course Catalogue for restrictions and qualifications.

Multi-Cultural Course 3 Credits

- LING 101: Introduction to Linguistics (a requirements for the major) fulfills the multicultural requirement.

College of Arts & Sciences Requirements

Second Writing Requirement (minimum grade C-) 3 Credits

- CGSC 485: Senior Seminar (a requirement for the major) fulfills the second writing requirement.

Foreign Language 0 – 12 Credits

- Completion of the intermediate-level course (107 or 112 or 202 or 214). The number of credits needed and initial placement will depend on the number of years of high school study of foreign language. See the University Course Catalogue for details.

Mathematics 0 – 4 Credits

- This requirement must be completed by the time a student has earned 60 credits. Students who transfer into the College of Arts and Sciences with 45 credits or more must complete this requirement within two semesters.

College of Arts & Sciences Breadth Requirement: (For students entering Fall 2010 or later, minimum grade C-)

- Minimum of 6 credits each in Groups A, B, and C.
- Up to 3 credits from each University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.
- See University of Delaware Course Catalogue for restrictions and qualifications.