UNIVERSITY OF KENTUCKY

REQUEST FOR NEW UNDERGRADUATE MINOR OR CHANGE IN MINOR

Program:  N/A

Minor:  Cognitive Science

Department:  N/A  College:  Arts and Sciences

Bulletin pp.:  

CIP CODE:  UK ID No.  HEGIS CODE:  

Accrediting Agency (if applicable):

NEW MINOR

Minor Prerequisites:  (list course prefix, number and title)

Upper class standing.

Minor Requirements (list course prefix, number and title)

CGS 500 Cognitive Science in Theory and Practice  
plus 15 credit hours of electives (see list below)

Of the fifteen credit-hours of courses from the list:
(1) at least six credit-hours must be in the same core discipline, where core disciplines are Biology, Computer Science, Linguistics, Philosophy, and Psychology; and
(2) no more than six credit-hours from any single discipline will count towards satisfaction of the requirement.

Schemes for pursuing the minor can be viewed in appendix B

Minor Electives  (list course prefix, number and title)

ANT 332 Human Evolution * (only by approval of the Director of Cognitive Science)
BIO 375 Behavioral Ecology and Sociobiology
BIO 535 Comparative Neurobiology and Behavior
BIO 550 Advanced Comparative Physiology
BIO 556 Communication Biology
COM 350 Language and Communication
COM 351 Introduction to Communication Theory * (only by approval of the Dir. of Cog Sci)
CS 375 Logic and the Theory of Computing (may not be combined with PHI 520)
CS 463 Logic and Artificial Intelligence
CS 521 Computation Sciences * (only by approval of the Director of Cognitive Science)
CS 536 Situated Computing
CS 575 Models of Computation (may not be combined with PHI 520)
EDC 307 Social Design of Interactive Systems
LIN 211 Introduction to Linguistics I
LIN 212 Introduction to Linguistics II
LIN 318 Semantics and Pragmatics
LIN 319 Historical Linguistics
LIN 512 Modern English Grammar
LIN 515 Phonological Analysis
LIN 516 Grammatical Analysis
LIN 517 Special Topics in Linguistics
PHI 320 Symbolic Logic I
PHI 361 Biology and Society
PHI 520 Symbolic Logic II (may not be combined with CS 375, 575, or 675)
PHI 560 Philosophy of Science
PHI 565 Philosophy of Language
PHI 575 Philosophy of Mind
PSY 223 Developmental Psychology * (only by approval of the Director of Cognitive Science)
PSY 311 Learning and Cognition
PSY 312 Brain and Behavior
PSY 424 Human Senses and Perception
PSY 427 Cognitive Processes
PSY 456 Behavioral Neuroscience
PSY 552 Animal Behavior
PSY 562 Advanced Topics in Cognitive Psychology
PSY 564 Advanced Topics in Learning
PSY 565 Advanced Topics in Neuroscience
PSY 566 Advanced topics in Social Psychology * (only by approval of the Dir. of Cog Sci)

An asterisk by a course indicates that the course will count for Cognitive Science credit only on the approval of the Director of Cognitive Science. The main criterion for approval will be the extent to which the course, as taught during the semester for which the student seeks Cognitive Science credit, contains a sufficient amount of materials relevant to Cognitive Science. The Director will make this determination by consultation with relevant faculty from the department teaching the course (including the instructor of the course), in conjunction with the criteria described below for course inclusion.

A note on these criteria is in order. For each of the various disciplines that have contributed to the development of Cognitive Science (understood to be the study of the human and animal mind as (biological) information-processing systems), we tried to identify the main contributions made by the discipline to Cognitive Science. The following was a rough guide:

Biology: (i) the biological basis of information-processing (visual cognition, communication, etc.) and (ii) the evolutionary pressures on biological information-processing systems;

Computer Science: (i) artificial intelligence, (ii) knowledge representation, (iii) the theory of computation and computational complexity, (iv) machine vision; and (v) the study of algorithms;

Linguistics: (i) the syntactic, semantic, and pragmatic aspects of (natural) language use; (ii) the mental representation (in the language user’s mind) of those aspects; (iii) the development of language in children, and (iv) the historical evolution of language (as a possible reflection of constraints on natural language cognition);
**Philosophy:** (i) the nature and concepts of mind and mental states – including the (conceptualization of the) relation between mind and body; (ii) the nature and concept(s) of consciousness; (iii) the concepts of meaning and truth, as they relate to our understanding of the semantic and pragmatic features of language use; (iv) philosophical issues regarding the innateness controversies; and (v) logic and metalogic.

**Psychology:** (i) concepts, (ii) reasoning, (iii) problem-solving, and (iv) memory.

Individual courses in these disciplines were chosen if a substantial amount of time was devoted to presenting this material. (A by-product of this list was that some courses not in any one of the core disciplines above – ANT 332, COM 350, COM 351, and EDC 307 – satisfy this condition, and so were included on the list.)

Total Hours Required: 18

**Rationale for Proposal:**

The undergraduate minor is aimed to provide undergraduates with an introduction to Cognitive Science as an interdisciplinary approach to the study of the (human and animal) mind. Many other SEC and UK benchmark universities offer a minor in Cognitive Science (see Appendix C), and the present proposal is aimed to ensure that UK undergraduates have the opportunity to study Cognitive Science in a systematic way as well (and to have this noted on their transcript). The successful minor in Cognitive Science will:

(a) be able to articulate, at least in broad terms, some of the assumptions that have been thought to unify the various subfields within the domain of Cognitive Science,

(b) explore more than one discipline’s approach to matters pertaining to Cognitive Science, and

(c) explore in some detail at least one of the five main disciplines contributing to cognitive science (Biology, Computer Science, Linguistics, Philosophy, and Psychology).

CGS 500 “Cognitive Science in Theory and Practice” will be offered with the aim of getting students to satisfy (a); and distribution requirements aim to put students in a position to satisfy (b) and (c).

See Appendix A for a detailed explanation including: (1) context, (2) proposal, (3) staffing, (4) participating UK faculty, (6) director’s duties, (7) cost estimate, and (8) benefits to the university community.
UNIVERSITY OF KENTUCKY
REQUEST FOR NEW UNDERGRADUATE MINOR OR CHANGE IN MINOR

Change in Minor Requirements

Current: Proposed

Total Hours:

Rationale for Proposal:

Will this program be printed in the Bulletin? Yes: XX No:
Signatures of Approval:

Program Chair

Date

Department Chair
David Lepp
Dean of the College

Date

Podnar Higg
Undergraduate Council

Date

University Studies

Date

Graduate Council

Date

Academic Council for the Medical Center

Date

Senate Council (Chair)

Date of Notice to Univ.

Date

Date

Date

Date

 ACTION OTHER THAN APPROVAL

Rev 11/98
Rationale for an undergraduate Minor in COGNITIVE SCIENCE at UK

Prepared by Sanford Goldberg
UK Department of Philosophy

OVERVIEW
1. Context (History; Contemporary Academic Context; Context at UK)
2. The Proposal
3. Staffing
4. Participating Faculty
5. Director's Duties
6. Cost Estimate
7. Benefits to the University Community

I. CONTEXT

A. History
Cognitive Science is an interdisciplinary field of study focusing on the mind conceived as an information-processing system. Arising from Noam Chomsky's seminal criticisms of Behaviorism in the 1950s, the interdisciplinary field of Cognitive Science has come to include such disparate disciplines as Linguistics, Computer Science (artificial intelligence, knowledge representation, theory of computation and computational complexity, algorithms), Psychology (cognitive psychology), Biology (evolutionary theory, neurobiology), Anatomy, Neuroscience, the Behavioral Sciences, and Philosophy (Language, Mind, and Logic). It is a conservative estimate that by the early 1980s Cognitive Science was widely recognized as offering an important new theoretical perspective to the age-old study of the human and animal mind.

B. Contemporary Academic Context
The vast majority of large private and public research universities have some sort of Cognitive Science component in their academic curriculum. These can be placed into three categories.

(1) The most substantive offer programs that grant PhDs and/or other graduate degrees, in addition to undergraduate degrees (BS or BA). In this category the Tufts web site (http://ase.tufts.edu/cogstud/othcspg.htm), which does not claim to be exhaustive, lists 33 such programs, including but not limited to MIT, Tufts, Rutgers, Johns Hopkins, Brown, Illinois, Indiana, Pittsburgh/Carnegie Mellon, Maryland, Georgia Tech, Ohio State, Arizona, U.C. San Diego.

(2) A second category includes those granting only undergraduate degrees (BA or BS) in Cognitive Science. The 1993 Undergraduate Education in Cognitive Science: Current Status and Future Prospects (a report prepared for the NSF, accessible from the web site http://www-psych.stanford.edu/cogsci/academic.html) lists 83 US universities (and over 100 non-US universities) as having an undergraduate major in cognitive science, among which are many public universities (including Georgia, Florida, Iowa, Iowa State, Kansas, Michigan, Minnesota, Nebraska, North Dakota, Oregon, and Purdue) in addition to private ones, including Columbia, Northeastern, Northwestern, Penn, Vanderbilt, U. Washington at St. Louis, and Yale.
A third category includes those that allow undergraduates to minor in Cognitive Science. Although I have not been able to locate any official list, such academic components can be found at Mississippi State and Florida State, among other places.

C. Context at UK

Despite the prevalence of Cognitive Science at Research-I universities, there is currently no Cognitive Science component in the UK undergraduate academic curriculum. There are several (formal and informal) venues for students who might be interested in Cognitive Science. For example, there are several groups that meet, including a group on Logic and Artificial Intelligence (run by the Computer Science Department); a lunch series run on the general topic of cognition, run by the Psychology department; and regular meetings of various labs in Neurology and Anatomy on topics relating to information-processing (including Dr. Jane Joseph’s bi-weekly lab meetings, which have focused quite a bit on cognition). In addition, there have been occasional workshops in related areas: the Center for Ecology, Evolution, and Behavior (located in the Biology Department) has sponsored workshops in Evolutionary Psychology and in the Evolution of Learning. And, of course, there is the Linguistics Program, currently a BA-granting program at UK focusing on issues of language. (Relevant to this, in the upcoming semester there is going to be a seminar on Computational Linguistics, run by members of the Computer Science department, whose participants include several members from the Linguistics Program.) But there is to date no undergraduate curricular framework at UK for students interested in Cognitive Science.

Given the prevalence of Cognitive Science components throughout the Carnegie-I University scene, the lack of a Cognitive Science curriculum at UK is a glaring hole in the undergraduate academic scene here. The proposed undergraduate minor is meant to rectify the situation. What is more, there is a sense of urgency in having such a minor approved. To begin, in September 2004 there will be a week-long conference, organized by Kris Kimmel at the Lexington-based Kentucky Center for Science and Technology, on the theme of “The Mind’s Eye: Exploring Consciousness,” at which various Cognitive Scientists of international reputation will be giving talks. That conference, part of KCST’s very popular bi-annual IdeaFestival, regularly attracts hundreds of participants from Lexington; it offers a wonderful opportunity for massive free publicity for Cognitive Science at UK. But this is not the only sense of urgency we feel. We also believe that, given the obvious enthusiasm of many UK faculty (as attested to by those who have agreed to participate in proposed Cognitive Science minor at UK), given the dedication of a substantial minority of the interested faculty who have committed themselves to seeing this minor through the growth of the early years (as attested to in the supporting letters), and given the materials that are already at hand (i.e., for no further cost to the administration), now is the time to make this academic component happen.

II. PROPOSAL

We propose the creation of an undergraduate minor in Cognitive Science in the UK curriculum, designed to model the undergraduate minors offered by other interdisciplinary programs on campus (e.g. Women’s Studies, Social Theory). It would be housed in the College of Arts and Sciences, and it would be listed with the other interdisciplinary academic units there. It is expected that it will work closely with the Linguistics Program, with those faculty and research groups in Biology and Psychology whose work focuses on cognition, and with those faculty and research groups in Computer Science whose work focuses on artificial intelligence. In the course of creating such an academic unit we will be creating institutional conditions that will sustain the cross-fertilization of ideas of faculty from the participating disciplines.
The proposed minor has various features that should make it very attractive to the University community as a whole, the Graduate School, and also the College of Arts and Sciences:

- It is a shining example of true interdisciplinarity: not only does it join together various disciplines, but also, and more importantly, it joins together disciplines from each of the three main areas of the College of Arts and Sciences (The Exact and Natural Sciences, Social Sciences, and Humanities), as well as the different Colleges (Arts and Sciences, Medicine, and Engineering).
- It offers undergraduates the opportunity to explore in an integrated and cohesive way cutting-edge research in the study of the mind, and to receive official recognition (in the form of the minor) for their studies.
- It offers the potential for a variety of connections (both academic and potentially financial) with local, national, and international high-tech industries.

That it achieves these virtues at such a small cost – both to the Administration and the faculty (in terms of the minimal extra burdens placed on anyone; see below) – is a further strength of this proposal.

III. STAFFING

With very few exceptions, every course that will be part of the Cognitive Science Academic unit is already taught on a regular basis by the participating faculty. (The Request for New Minor form contains a list of the courses already on the books that will count for Cognitive Science credit, and it contains a description of the structure of the undergraduate minor, requiring 18 credit hours). The one exception is a 500-level course CGS 500 entitled “Cognitive Science in Theory and Practice.”

In order to reduce the burden on any single person or department, we are conceiving this as a seminar-type course, as follows. The course will be taught once a year, and will be administered by one member of the steering committee. The administrator will teach the course as a regular course (counting towards her/his course load), and will be supported by the Director of the Cognitive Science academic unit (see below under Director’s Responsibilities) and by the Dean of the College of Arts and Sciences. Administration of the course will be designed so as (a) to distribute among various departments the need to put forth one of its members to assume this duty, (b) to minimize the number of times any single person has to assume this duty, and (c) to minimize the burden on the administrator over the course of the semester. To this end, the administration of the course will alternate between the various willing members of the steering committee, with the aim that the burden on any single person will not fall more than once every five to ten years. The administrator will be responsible for organizing the course to allow each of the other members of the steering committee (and to other members of the participating faculty, as decided by programmatic need and coordinator desire) to serve as a “guest lecturer” for one or two class sessions. The course might be organized into such units as “The Biology of Information-Processing”, “Cognition in Human Psychology”, “Computation and Artificial Intelligence”, “Language Cognition”, and “Philosophical issues in the study of Cognition”, where the Biology faculty will participate in the weeks devoted to the first module, the Psychology faculty will participate in the weeks devoted to the second module, and so on. After each module is over, the administrator of the course will be responsible for making connections with previous modules or modules to come; he or she is expected to develop themes, accessible to the undergraduates in the course (as well as to the graduate students), so as to emphasize both the interdisciplinarity but also the cohesiveness of Cognitive Science. (There are various Cognitive Science text books that
might be useful in this regard.) The administrator will also have all grading responsibilities.

This course will be explicitly designed in such a way that it could be taken early in the student's career, or towards the end. This is important if only because it will be difficult to predict when students come to such a course (at the outset of their interest in Cognitive Science, or towards the end of the formal studies at UK). But in any case undergraduates who are fulfilling the minor will be encouraged to take the course towards the end of their undergraduate studies. (The 500-level designation is helpful in this regard.)

One potential challenge that we face concerns the prerequisite structure of various courses listed as counting towards a Cognitive Science minor, (The courses in question are typically in the sciences and in computer science.) Courses with substantive prerequisites will probably not be among those taken by non-majors or graduate students from other disciplines. Thus a philosophy undergraduate with little or no course experience in biology would not satisfy the prerequisites for any biology course, and so at least one set of courses would not be available to her if she seeks to satisfy the requirements for a Cognitive Science minor.

This prerequisite problem must be acknowledged. At the same time, it need not be as worrisome as might first appear. There are a variety of reasons for this:

- The Cognitive Science academic unit has been devised so that, among the courses that count towards a Cognitive Science minor, there are sufficiently many courses that have few or no prerequisites. The result is that for any student who is interested in pursuing a Cognitive Science minor, there will always be a variety of courses that she can take to pursue that minor. What is more, there will always be set of courses forming a coherent scheme for doing so. (See Appendix B for a sketch of how various students from the different participating departments might satisfy the requirements.)
- Many, perhaps most, of the undergraduates who are interested in Cognitive Science will have a solid background in one of biology, psychology, or computer science, thereby making available all of the courses from that discipline.
- The participating members of our steering committee, most of whom come from departments whose students are likely to make up the majority of those interested in Cognitive Science, will be active in advising any interested students from their own discipline to look ahead to possible courses to satisfy the requirements on the Cognitive Science minor. This will enable the students to determine how best to pursue the Cognitive Science minor, and to determine as well whether her interests are such that she should consider taking courses to satisfy some of the prerequisites for courses from another department.
- Any student who takes the CGS 500 “Cognitive Science in Theory and Practice” course early on will be advised from the start to give thought to how she wants to pursue the minor in Cognitive Science.

These mitigating factors suggests that the extent of the prerequisite problem may not be as great as one might fear. In short, while the prerequisite problem is real, there is reason to think that it will not seriously hamper the ability to administer a successful Cognitive Science minor.

IV. PARTICIPATING FACULTY

Each of the faculty listed below has expressed a commitment to participating in the Cognitive Science Academic unit.
Steering Committee:
Bosch, Anna  Linguistics/English
Goldberg, Sanford  Philosophy
Golding, Jonathan  Psychology
Goldsmith, Judy  Computer Science
Gottlob, Larry  Psychology
Jiang, Yang  Behavioral Science
Joseph, Jane  Anatomy and Neurobiology
Lorch, Robert  Psychology
Schmitt, Fred  Neurology
Stump, Greg  Linguistics/English
Westneat, David  Biology
Yan, Hong  Biology
Zentall, Thomas  Psychology

Other Affiliated Faculty:
Berger, Joseph  Neurology
Bhatt, Ramesh  Psychology
Bruzina, Ronald  Philosophy
Cerullo, Michael  Psychiatry
Cooper, Robin  Biology
Crowley, Phillip  Biology
Finkel, Raphael  Computer Science
Filmore, Mark  Psychology
Gold, Brian  Anatomy
Ho, Dien  Philosophy
Holcomb, Harmon  Philosophy
Kramer, Phillip  Psychology
Lorch, Betty  Psychology
Marek, Victor  Computer Science
Mazur, Joan  Education Policy
Monton, Bradley  Philosophy
Perry, Peter  Mathematics
Rouhier-Willoughby, Jeanmarie  Linguistics/Russian
Sargent, Craig  Biology
Smith, Charles  Neurology
Truszcynki, Mirek  Computer Science
Zunshine, Lisa  English
V. DIRECTOR’S DUTIES

The duties of the director will be as follows. First, the Director will be responsible for arranging for and running periodic (once-a-semester) meetings with the members of the Cognitive Science steering committee, for the purpose of discussing and deciding matters pertaining to the administration of the academic unit. Second, the Director will oversee the successful running of the CGS 500 course (“Cognitive Science in Theory and Practice”). This involves determining a system to assign the course an instructor; designing the syllabus for the course, either by herself or in conjunction with the course’s assigned faculty instructor (as determined by the latter’s wants and needs); and support the course’s assigned faculty instructor in appropriate ways. Third, the Director will serve as the Advisor for the Minor in Cognitive Science, both to those students (undergraduate and graduate) who are already participating in the minor, and to those who are interested in participating and who would like some additional information. Fourth, the Director will serve as the public face for the minor. In this capacity she will serve as the information distribution center for Cognitive Science, answering any questions regarding the academic unit from students, faculty, or outside sources; distributing any relevant information to all of the Minor’s participating faculty and students; and publicizing all of the Cognitive Science activities to the university community. Fifth, the Director will coordinate the Speaker’s Series in Cognitive Science: soliciting opinions from the participating faculty and students regarding whom to invite; coordinating the Cognitive Science Speaker Series with the Speaker Series in the respective participating departments; and arranging the travel and accommodations for speakers supported by Cognitive Science money. And sixth, the Director will be responsible for interacting with the UK administration on an as-needed basis.

VI. COST ESTIMATE

The Graduate Certificate in Cognitive Science at UK is envisaged as a low-cost academic enterprise. As noted, except for the introductory course (CGS 500, “Cognitive Science in Theory and Practice”) every course associated with this unit is already on the books and are offered by the respective departments on a regular basis. Consequently, there are only four areas where recurring funds will be needed, and the total recurring cost of the unit will come to approximately $1750/year, or less than the cost of 1 PTT per year. This figure is composed of the following line items:

- $1250: Annual Speaker’s Series support
- $500: Annual incidentals (office supplies, publicizing materials, phone support, etc.)
- $1750 TOTAL

The dean has agreed to provide these resources on a recurring basis.

VII. BENEFITS TO THE UNIVERSITY COMMUNITY

Our proposed Cognitive Science Minor would have at least five distinct substantive benefits to the University community.

First and foremost, it would bring together already-existing resources to provide students with the opportunity to take courses in an interdisciplinary field whose contemporary importance cannot be ignored. In this respect the educational benefits to the undergraduate population are worth making explicit. Undergraduates will be given the opportunity to take courses in an exciting new
field, many of whose developments make the front pages or lead stories of the print media, and whose subject matter requires the sort of interdisciplinary thinking that exemplifies what is best in a traditional liberal arts curriculum.

Second, and relatedly, having an undergraduate minor in Cognitive Science at UK will build on a strength identified in President Todd’s Strategic Plan of June 24, 2003 (entitled “The Dream and the Challenge”; see http://www.uky.edu/Home/2003-06StrategicPlan/plan.html). In particular, the minor in Cognitive Science unit will both derive strength from, and will in turn yield dividends to, the Neurosciences, which was an area identified in the Strategic Plan as one of the “Priority Areas for Future Development.”

Third, Cognitive Science at UK provides a forum for interested UK faculty and students to discuss research with one another, and to develop some interdisciplinary lines of research. What is more, our colleagues from the various departments will encourage their respective departments to make some effort to include one speaker/year in their speaker series devoted to a topic of interest to the Cognitive Science community. This is a way to ensure that the limited speakers’ budget of the Cognitive Science unit can go a long way towards developing a Cognitive Science speaker series on the back of strong speaker series’ in each of these departments.

Fourth, it offers the prospect for new revenue streams. These might come from industry (perhaps in the future we could raise money for a speaker series from some Lexington-based high-tech industry, such as Lexmark), or else from the government. In the latter respect it is noteworthy that the members of the Cognitive Science academic unit have already identified two relevant funding sources. The first is NSF grant earmarked for support of Science of Learning Centers (see http://www.nsf.gov/pubs/2003/nsf03573/nsf03573.htm). And the second is an NIH grant tailored to science pedagogy in new academic units. In connection with NIH funds, it is noteworthy that there is a statewide resource in the Kentucky Biomedical Research Infrastructure Network (KBRIN), which serves as an “Outreach” program meant to support local initiatives’ attempts to secure federal grants, and which contains a Neuroscience component. Since KBRIN is already supported by NIH, and since we will be connecting with it (under the rubric of its Neuroscience component), having an undergraduate minor in Cognitive Science at UK will increase our chances at landing an NIH science pedagogy grant. (The KBRIN web site, including links for local initiative support, can be accessed at http://www.kbrin.louisville.edu/education-tools/brochure.html.)

Fifth, it will eliminate an important hole in the interdisciplinary units offered at UK. As mentioned in the first section, Cognitive Science has some sort of presence at most large public and private research universities; that UK is not among them is something that the present proposal aims to rectify.

We should add that our proposal was designed so as to maximize the benefits to the university at a minimum cost; this was done out of our recognition of the difficulty budget situation facing UK. To our mind, the facts (first) that proposal for an undergraduate minor in Cognitive Science at UK (if implemented) would bring so many different benefits, and (second) that it does so in such a cost-effective way, make the case for approving such a proposal extremely powerful. We hope you agree.
Minor in Cognitive Science
APPENDIX B
SCHEMES FOR PURSUING THE COGNITIVE SCIENCE MINOR
July 2003

The following ‘schemes’ are meant to suggest how a Cognitive Science Minor could be pursued by an interested student with no background knowledge in a relevant discipline other than that of her home major department. This is not meant to suggest that these are the schemes that ought to be pursued according to major. *Quite to the contrary*, those students with a diverse background, who because of this background satisfy the prerequisites of other departments, ought to pursue more courses in the core disciplines (Biology, Computer Science, Linguistics, Philosophy, and Psychology) as dictated by interest. What follows is meant to address only to the ‘worst case’ *scenario*, in which a student otherwise interested in Cognitive Science is limited in what she can take, owing to her failing to satisfy any of the prerequisites of any courses other than those in her home department. The point of Appendix B, then, is merely to suggest that even in the worst case scenario, a student with an interest in pursing a minor in Cognitive Science could do so (to great educational benefit).

**UNDERGRADUATE MINOR**

The following courses are available to the relevant undergraduate who satisfies no requirements for any Cognitive Science courses save those in her home department; the list of such courses attests to the variety of courses still open to such a student.

**Scheme 1: Biology Undergraduate**

CGS 500 Cognitive Science in Theory and Practice
ANT 332 Human Evolution
BIO 375 Behavioral Ecology and Sociobiology
BIO 535 Comparative Neurobiology and Behavior
BIO 556 Communication Biology
COM 350 Language and Communication
COM 351 Introduction to Communication Theory
LIN 211 Introduction to Linguistics I
LIN 212 Introduction to Linguistics II  *[Prerequisite: LIN 211]*
LIN 318 Semantics and Pragmatics  *[LIN 211]*
LIN 319 Historical Linguistics  *[LIN 211]*
LIN 512 Modern English Grammar  *[LIN 211]*
LIN 515 Phonological Analysis  *[LIN 211]*
LIN 516 Grammatical Analysis  *[LIN 211]*
LIN 517 Special Topics in Linguistics  *[LIN 211]*
PHI 320 Symbolic Logic I
PHI 361 Biology and Society
PHI 560 Philosophy of Science
PHI 565 Philosophy of Language
PHI 575 Philosophy of Mind
Scheme 2: Computer Science Undergraduate

CGS 500 Cognitive Science in Theory and Practice
ANT 332 Human Evolution
COM 350 Language and Communication
COM 351 Introduction to Communication Theory
CS 375 Logic and the Theory of Computing (may not be combined with PHI 520)
CS 463 Logic and Artificial Intelligence
CS 521 Computation Sciences
CS 536 Situated Computing
CS 575 Models of Computation (may not be combined with PHI 520)
LIN 211 Introduction to Linguistics I
LIN 212 Introduction to Linguistics II [LIN 211]
LIN 318 Semantics and Pragmatics [LIN 211]
LIN 319 Historical Linguistics [LIN 211]
LIN 512 Modern English Grammar [LIN 211]
LIN 515 Phonological Analysis [LIN 211]
LIN 516 Grammatical Analysis [LIN 211]
LIN 517 Special Topics in Linguistics [LIN 211]
PHI 361 Biology and Society
PHI 560 Philosophy of Science
PHI 565 Philosophy of Language
PHI 575 Philosophy of Mind

Scheme 3: Undergraduate Psychology Major

CGS 500 Cognitive Science in Theory and Practice
ANT 332 Human Evolution
COM 350 Language and Communication
COM 351 Introduction to Communication Theory
LIN 211 Introduction to Linguistics I
LIN 212 Introduction to Linguistics II [LIN 211]
LIN 318 Semantics and Pragmatics [LIN 211]
LIN 319 Historical Linguistics [LIN 211]
LIN 512 Modern English Grammar [LIN 211]
LIN 515 Phonological Analysis [LIN 211]
LIN 516 Grammatical Analysis [LIN 211]
LIN 517 Special Topics in Linguistics [LIN 211]
PHI 320 Symbolic Logic I
PHI 361 Biology and Society
PHI 520 Symbolic Logic II [PHI 320]
PHI 560 Philosophy of Science
PHI 565 Philosophy of Language
PHI 575 Philosophy of Mind
PSY 223 Developmental Psychology
PSY 311 Learning and Cognition
PSY 312 Brain and Behavior
PSY 424 Human Senses and Perception
PSY 427 Cognitive Processes
PSY 456 Behavioral Neuroscience
PSY 552 Animal Behavior
PSY 562 Advanced Topics in Cognitive Psychology
PSY 564 Advanced Topics in Learning
PSY 565 Advanced Topics in Neuroscience
PSY 566 Advanced topics in Social Psychology

Scheme 4: Undergraduate Philosophy Major

CGS 500 Cognitive Science in Theory and Practice
ANT 332 Human Evolution
COM 350 Language and Communication
COM 351 Introduction to Communication Theory
LIN 211 Introduction to Linguistics I
LIN 212 Introduction to Linguistics II [LIN 211]
LIN 318 Semantics and Pragmatics [LIN 211]
LIN 319 Historical Linguistics [LIN 211]
LIN 512 Modern English Grammar [LIN 211]
LIN 515 Phonological Analysis [LIN 211]
LIN 516 Grammatical Analysis [LIN 211]
LIN 517 Special Topics in Linguistics [LIN 211]
PHI 320 Symbolic Logic I
PHI 361 Biology and Society
PHI 520 Symbolic Logic II [PHI 320]
PHI 560 Philosophy of Science
PHI 565 Philosophy of Language
PHI 575 Philosophy of Mind

It will be noted that these schemes suggest the high likelihood of something like the following course of events, in ‘worst case’ situations. 9 of the required 18 credit hours for the undergraduate minor will come from within the student’s own discipline. 3 of the remaining 9 credit hours will come from CGS 500 (“Cognitive Science in Theory and Practice”). The remaining 6 credit hours will typically come from among those (mind- and language-related) courses in Linguistics, Communication, and Philosophy – since these are the only courses where prerequisites are either non-existent or easily satisfied by someone with no relevant background.

But if this course of events is (to a large degree) ‘forced’ on the student who has little or no relevant background beyond that within her home department, such a ‘forced’ option still has its virtues. First, such a selection of courses will provides the student with a grounding in the interdisciplinary subject that is Cognitive Science. Second, this ‘forced’ option may have the beneficial side effect of convincing a student who might not otherwise think to take a broad mix of courses to do so – thereby serving as a bit of a corrective to extreme narrow-mindedness. Third, this ‘forced’ option suffices to put the student in a position to apply things she has learned (in biology, computer science, or psychology) to the cognition involved in linguistic and other intelligence-exhibiting activities. This is precisely the sort of intellectual fermentation that is the engine behind the development of Cognitive Science itself.
Cognitive Science Programs at SEC Universities at UK's Benchmarks  
July 2003  
Prepared by S. Goldberg, UK Department of Philosophy  

I. The SEC Universities

<table>
<thead>
<tr>
<th>CS Program</th>
<th>Programs of Study</th>
<th>PhD</th>
<th>MA</th>
<th>Grad Cert.</th>
<th>BS/BA</th>
<th>Minor</th>
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<td></td>
<td>X</td>
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### II. UK'S BENCHMARK UNIVERSITIES

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**KEY:**
- * called a Concentration
- ** called program in conjunction with Linguistics Program
- *** called Cognitive Neuroscience
- **** Home to the ‘Cognitive Circle’, a faculty research group devoted to bringing cognitive science to bear on the arts.
- + involves a non-degree-granting Cognitive Science Center
- ++ there is a proseminar every semester, involving 4-6 faculty, though no degrees granted
June 14, 2003

Dr. Steve Hoch
Dean, Arts and Sciences
University of Kentucky

Dear Dean Hoch,

Professor Sandy Goldberg, as you know, has been putting together a program for the interdisciplinary study of Cognitive Science, which has now reached the point of being fully described and ready to be implemented. While I was not one of the steering committee, and was not involved in the discussions leading to the overall conception, I wish to explain my full support for this program, and to encourage you to give it careful consideration. I believe it is a component of full-scale university studies that we should have at the University of Kentucky, but I also believe that its pursuit here should be marked by distinctive strength. The program at the University of Kentucky should develop dimensions that would make it more than simply an emulation of more established—and one ought to add, superbly funded and staffed—programs and institutes. At the University of Kentucky a Program in Cognitive Science should be one that supplies elements not always sufficiently emphasized in a richly ambitious and exciting field. Let me explain.

Cognitive Science is quite correctly characterized in Sandy’s proposal as “an interdisciplinary field of study focusing on the mind conceived as an information-processing system.” It is this conception that allows the interplay of diverse disciplines, and hence is the basis for the cooperative spirit that would typify the actual work done. However, one of the things that also typically happens in the work of cognitive scientists is that this unifying conception becomes an assumed final answer to the age-old question of what a “mind” in the end actually is. In other words, the working approach becomes a comprehensive dogmatic principle, rather than being a conception with which to begin, but which investigation as it proceeds may have to correct, radically modify, or even displace. The result can be that the purely formal character of an “information-processing system” is taken as adequate to understanding what the mental action of understanding itself is all about. Overlooked is what every one of us—even when involved in theoretical work—lives and experiences: that understanding takes place in the world of concrete engagements wherein alone individual living agents have their place and efficacy. To put it another way, in the end cognitive science, even by way of its initial focus, is meant to offer a contribution to understanding cognition as an action and process in human life.

Here is where the role of disciplines such as biology (especially neurology), psychology, anthropology, and, yes, philosophy can play an essential role. For some
years now I have been following the work of both mainstream cognitive science such as found in the *Journal of Consciousness Studies* and independently pursued work in developmental neurology, most particularly in French developmental neurology, e.g., that of Jacques Monot, François Jacob, and Alain Prochiantz. What comes out of this is an approach to the action of the “mind” that sees it as integrated in the whole developmental process, specifically in terms of both the internal and the external milieu wherein alone the dynamisms of development and living occur. Even when information-processing principles are seriously considered (e.g., in Prochiantz’s reading of Alan Turing), they are recognized as only having relevance if they are adjusted to and reinterpreted in terms of these milieu-integrated biological dynamisms. The analogy between this neurobiological approach and that of certain sociological and philosophical approaches offers strong incentives towards counterbalancing the formalism of information-processing principles with materially fundamental elements and contexts; and, once again, here is where the interdisciplinary character of a cognitive science program can show its advantages. In sum, inquiry that emphasizes the material dimensions of human being in the world can be, and in fact has to be, as methodical and rigorous as that conducted in the formal, mathematics-like analysis of mainstream cognitive science, without having to be reduced to the latter. This is how cognitive science can attain its goal: to offer contributions to the study of *full-dimensional cognition*.

Something of this kind of breadth is what I would see to be part of the essential potential of a Cognitive Science Program at the University of Kentucky, one that would justify its efforts not by imitation of other centers, but by forging a distinctive dynamic investigational and instructional undertaking that truly integrates diverse disciplines in a common goal. And it is from this perspective that I would look forward to participation in it, and that I encourage you to give the proposal your positive consideration.

Sincerely yours,

Ronald Bruzina
Professor
June 20, 2003

Dr. Hoch
Dean, College of Arts and Sciences
University of Kentucky, Lexington

Dear Dr. Hoch,

I am writing to express my strong support for the establishment of a cognitive science program at UK. Given the importance of this relatively new but already immensely influential area of interdisciplinary inquiry, such a program will contribute to attracting talented students and faculty to our university, consolidate efforts of scholars from different departments interested in cognitive science, and thus considerably add to the strength of UK’s overall research profile.

For the last seven years (starting back in graduate school) I have been working on forging connections between literary studies and cognitive science. I co-organized the forum “Historicizing Cognition: Literature and the Cognitive Revolution” for an annual convention of the Modern Language Association (MLA) in 1998, coordinated the creation of the new discussion group on cognitive approaches to literature within the MLA, and served on that group’s executive committee from 1999 to 2002. I have organized panels on cognitive science and literature for conferences in Israel, Norway, Canada, England, and Germany, as well as in Berkeley, San Diego, New York, Los Angeles, New Orleans, Washington DC, Atlanta, Pittsburgh, and Boston, and have published essays on cognitive approaches to literature in such scholarly journals as *Philosophy and Literature, Poetics Today,* and *Narrative,* as well as in several edited collections. I am gratified to see the growing interest in the field of cognitive approaches to literature on the part of literary scholars. To use the most recent personal example,
earlier this spring, at an annual meeting of the Society for the Study of Narrative at the University of California, Berkeley, our early morning panel on cognitive approaches drew sixty people out of the two hundred attending the conference, packing the room and making it the single most attended non-plenary panel at that scholarly meeting.

The current state of the field of cognitive approaches to literature already testifies to the spectacular diversity of venues offered by the parent fields of cognitive neuroscience, artificial intelligence, philosophy of mind, cognitive linguistics, evolutionary biology, cognitive psychology, and cognitive anthropology. Literary scholars have begun to investigate the ways in which recent research in these areas opens new avenues in gender studies (F. Elizabeth Hart); feminism (Elizabeth Grosz); cultural materialism (Mary Thomas Crane, Alan Richardson); deconstruction (Ellen Spolsky); literary aesthetics (Elaine Scarry, Gabrielle Starr); history of moral philosophy (Blakey Vermeule), and theory of narrative (Porter Abbott, David Herman, Paul Hernadi).

Given my long-standing interest in this field and its tremendous interdisciplinary potential, I am particularly excited about the possibility of having a cognitive science program at UK. If the proposal for establishing such a program is approved, I will certainly be interested and willing to teach courses on cognitive approaches to literature and culture within that program. I am equally open to developing my own courses in the area and to team-teaching it with professors from other departments.

Sincerely,

Lisa Zunshine
Dear Dean Hoch,

Please allow me to add my voice to the many who support the development of an interdisciplinary program in Cognitive Science at the University of Kentucky.

Indeed, as the flagship university of the state, the University of Kentucky continues to shortchange its undergraduates and, particularly, its graduate students by failing to offer a minor or certificate (at the minimum) in the growing field of cognitive science. As Professor Goldberg points out in his proposal, the majority of our benchmark institutions offer some type of program in Cognitive Science—several offer graduate degrees. While we cannot hope to “compete” with these degree programs, given our current funding problems, I continue to believe that we do our students a disservice if we fail to provide them with the working knowledge of this growing discipline.

As director of the UK Linguistics program, I particularly support the development of a cognitive science program. First, such interdisciplinary programs are becoming essential for our students, both undergraduate and graduate—especially those in Computer Science, Psychology, Biology, Neuroscience, Linguistics, and Philosophy. Second, as a linguist at UK I know very well how important such interdisciplinary programs can be to the faculty in related disciplines: to be able to step outside one’s “home” department and meet with others whose research interests are related in new ways to one’s own research is both refreshing and reinvigorating. I would even go so far as to say that my colleagues in Linguistics are essential both to my development as a scholar and to my “job satisfaction” here at UK, and I look forward to extending that circle of collegiality within a Cognitive Science program. The emotional value of the support of such interdisciplinary programs cannot be underestimated. And finally, as you and I both know well, these interdisciplinary programs are cost-effective. For a paltry amount of money, really, a program can be established which eventually may develop a very high visibility across campus and beyond. Current financial straights cannot be an excuse to postpone this academic program.

I will be on sabbatical for the coming year at the University of Edinburgh, where I have a visiting fellowship at the Institute for Advanced Studies in the Humanities to pursue linguistic research, also sponsored by a sabbatical fellowship from the American
Philosophical Society. Thus I will not be able to lend my voice to your discussions of this program, except through this brief letter. I sincerely hope that by the time I return to campus, the Cognitive Science Program at the University of Kentucky will be up and running!

Let me finally take this opportunity to welcome you to the College; as a former member and co-chair (2001-2002) of the College Council, I wish you well in your reorganization of the College administration, and I wish you the best of luck in all your endeavors.

Best wishes,

Anna Bosch
Linguistics Program Director
Associate Professor, English and Linguistics
bosch@uky.edu
June 25, 2003

Sanford Goldberg  
Director of Graduate Studies and Associate Professor  
Department of Philosophy  
University of Kentucky  
1427 Patterson Office Tower

Dear Sandy,

I am writing to express my enthusiastic support for the Cognitive Science Program which you have proposed; there is, in my view, an acute need for such a program at here at UK.

At most major universities, my colleagues in the field of linguistics participate in cognitive science programs of exactly the kind that you envision for our campus. To an ever-increasing extent, current research in linguistics has profound consequences for other disciplines relating to human cognition—psychology, philosophy, computer science (including artificial intelligence), even neurobiology; by the same token, research in these same fields has never before had such substantive and extensive implications for the future of linguistic theory. What we currently lack here at UK is a framework within which faculty in these varied disciplines can exchange ideas and work collaboratively in anything more than an ad hoc fashion; we likewise lack a coherently structured curriculum in cognitive science to recommend to students who wish to explore the developing interfaces among the sciences of the mind. To the extent that these needs remain unfilled, we are short-changing both our faculty (whose research horizons fit less and less comfortably within the University’s existing disciplinary strictures) and our students (who depend upon us to keep our curricular landscape up-to-date). The establishment of the proposed Cognitive Science Program would help to redress these needs, providing a solid platform for interdisciplinary exchanges among our faculty and affording a systematically organized cognitive science curriculum for our students.

My own research would certainly benefit from the establishment of this program. As a theoretical linguist, I investigate universal properties of human language and seek the explanations for their universality; thus, in recent years, my work has been centrally concerned with the universal properties of inflectional systems. The establishment of the Cognitive Science Program would engender opportunities to share this work more closely with specialists in other disciplines who are themselves pursuing research on other sorts of cognitive universals; such opportunities should, of course, prove extremely valuable to everyone involved. I should add, too, that one aspect of my research has particular relevance to the interdisciplinarity of the proposed Cognitive Science Program: for several years now, I have been working collaboratively with Raphael Finkel (Department of Computer Science) on a large-scale project focussing on the computational generation and analysis of natural-language morphology; we have reported on this research in various venues (most recently, in our paper ‘Generating Hebrew verb morphology by
default inheritance hierarchies’, in M. Rosner and S. Wintner, eds., *Computational Approaches to Semitic Languages: Proceedings of the Workshop*, pp.9-18 [Philadelphia: Association for Computational Linguistics, 2002]). The constellation of computational and linguistic issues which Raphael and I are addressing in this research would, I feel, be of considerable interest to students interested in pursuing a specialization in cognitive science, and could be naturally explored in the context of the upper-division ‘Introduction to Cognitive Science’ course which you have proposed.

I want to reaffirm my willingness (rather, my eagerness!) to serve on the proposed program’s steering committee. I will certainly be willing to administer the above-mentioned introductory course in rotation with other members of the steering committee and to contribute guest lectures for the course in those years in which I am not administering it. I look forward to participating in both of these capacities.

Please let me know of any ways in which I might help to insure the realization of this proposal, and many thanks for your energy and initiative in seeing it forward.

With best wishes,

[Signature]

Gregory Stump
Professor of English & Linguistics
June 24, 2003

Dr. Sanford Goldberg
Director of Graduate Studies and Associate Professor
Department of Philosophy
University of Kentucky
1427 Patterson Office Tower
Lexington, KY 40506-0027

Dear Dr. Goldberg:

I am writing to support your initiative to create a Cognitive Science program at the University of Kentucky. Cognitive Science has been a fast growing field in the past decade, and its impact has extended into the fields of philosophy, computer science, neuroscience, and human neuro-genetics. I think that your effort to establish a Cognitive Science program is feasible and much needed for the sizeable university like UK.

Given my background and training in Cognitive Psychology and Neuroscience, I would like to contribute by teaching a course under the Cognitive Science program in the future. As my research investigates brain mechanisms of cognition using functional imaging methods (e.g., fMRI and ERPs), I am particularly interested in team-teaching a “Cognitive Neuroscience” course. I have given such a course at the Graduate School of the National Institutes of Health, during my postdoctoral training at the Laboratory of Brain and Cognition, NIMH, and have also taught part of the course as a guest lecturer at the Cognitive Science Laboratory of the Catholic University of America.

I have agreed to serve as a member on the steering committee. Please let me know if I can be of any further help to you in building a Cognitive Science program at UK.

Sincerely,

Yang Jiang, Ph.D.
Assistant Professor, Behavioral Science
May 15, 2003

Dr. Sandy Goldberg  
Department of Philosophy  
University of Kentucky  
1427 Patterson Office Tower  
Lexington, KY 40506-0027

Dear Dr. Goldberg,

I am writing this letter to support the initiative to formally set up a Cognitive Science Program in our campus.

The need to have Cognitive Science Program (CSP) in our campus has several advantages and benefits to students as well as faculty. First, CSP is an integrated field that has been gaining attention across the country. As I know the top 20 universities that we try to catch up all have similar programs. This type of integrative program tends to bring out synergistic inputs from faculty across many disciplines. Such an interaction brings out the best of faculty in terms of applying and obtaining graduate training grants and to build up a better graduate training program. Along the way, undergraduate students will also be benefited from the existence of such a program. One good example within our campus is the training program of Center for Ecology, Evolution and Behavior (CEEB). Its mission is similar to what we are going to do Cognitive Science Program, over the years CEEB has been very successful in bringing faculty and students from many departments to create a very strong and well recognized graduate program.

Second, I see the creation of Cognitive Science Program would allow us to formally apply federal funding through NIH-based training grant. My personal research is focused on Mechanosensory Physiology and Behavior of animals. I believe that my research could contribute greatly to the mission of Cognitive Science Program and my research program will also benefit greatly from interacting with other faculty members as well as students of the program.

Thirdly, I am willing to offer my time and effort in the proposed program. I have been offering BIO556 Communication Biology to both under- and graduate students over the past 10 years. I will be happy to contribute my time to offer a few lectures on a team-taught course that will be offered by CSP. When it is necessary, I will also be willing to teach a core 500-level course for CSP once every five years.

Sincerely yours

[Signature]

Hong Y. Yan, Ph. D.  
Associate Professor
May 19, 2003

Sanford Goldberg, Ph.D.
Department of Philosophy
1427 Patterson Office Tower, 0027
CAMPUS MAIL

Re: Cognitive Science Program

Dear Sandy:

I provide my whole-hearted support in your efforts to develop a Cognitive Science Program at the University of Kentucky. The investigators in the field of cognitive science are scattered around campus and often totally unaware of each others efforts. The development of a program would provide a framework for better interactions amongst investigators. My own interest in the development of the program pertains more to how I perceive faculty members within my department using it. As you are no doubt aware, individuals within the Department of Neurology have funded research in the investigation of a number of disorders affecting cognition, including Alzheimer's disease, AIDS, and stroke, to name a few. It is certainly conceivable that they will be able to use the resources in the nascent program. My own research interest is focused largely, although not exclusively, on the dementing illnesses associated with HIV infection. It is certainly conceivable that the cognitive program would be of some benefit to me personally.

Sincerely yours,

Joseph R. Berger, M.D
Professor and Chairman

JRB/ss
May 22, 2003

Sanford Goldberg  
Department of Philosophy  
University of Kentucky  
1427 Patterson Office Tower  
Lexington, KY 40506-0027

Dear Sandy:

I am writing in support of your proposal for a program in Cognitive Sciences. As you know, I teach two classes that relate to the proposal, Semantics and Pragmatics (LIN318) and Special Topics in Linguistics: Cognitive Linguistics (LIN517). LIN318 is offered each spring, while Cognitive Linguistics is on a rotating schedule with other special topics courses in the Linguistics program. I am also willing to participate in the core 500 level course, either as a guest lecturer each semester or as the primary teacher once every five years.

The Cognitive Sciences program offers multiple benefits to the university. Firstly, it unites people with common interests across many disciplines. Such opportunities promote significant developments in research. I myself am currently involved in a project on a cognitive semantic analysis of the Russian verbal system and would welcome input from others specialists in this area. Currently there is no venue for us to share our work or obtain such input. This program would thus be a valuable asset in this regard.

Secondly, this program would be of great benefit to students, both undergraduate and graduate. Cognitive Science is a field that is growing in scope and prominence. If we are able to offer our students the opportunity to gain a strong background in this field, it will stand them in good stead in graduate study in many areas, from psychology to philosophy, from linguistics to computer science. Our graduate students would also profit from access to a program that allows them to enhance their speciality by expanding areas for potential research.

Sincerely,

Jeanmarie Rouhier-Willoughby  
Associate Professor of Russian and Linguistics
June 2, 2003

Dr. Sanford Goldberg
Department of Philosophy
University of Kentucky
Lexington, KY 40506

Dear Sandy,

I am writing to you to express my unequivocal support for the proposed Cognitive Science Program at the University of Kentucky. In my 15 years at UK I have tried to become involved with programs that offer students an opportunity for interdisciplinary study. The Cognitive Science Program will clearly be such an opportunity. I believe that such a program is long overdue at UK, and that it will benefit both undergraduate and graduate students across the university. As a researcher in cognitive psychology who studies memory this program is especially appealing to me and many of my colleagues in the Department of Psychology who study issues related to information processing.

In supporting the Cognitive Science Program proposal I should add that I am willing to teach one to two class sessions of the core 500-level course as needed. I may also be able to teach the Introduction to Cognitive Science course that is being proposed, depending on my other teaching demands.

Sincerely,

Jonathan M. Golding
Full Professor
Letter of Support: Cognitive Science Program

Dear Dean Hoch:

I am writing in support of the proposed Cognitive Science Program. It will fill real needs for our students and for the profile of the University of Kentucky. It is a program with which I expect and plan to be actively involved, in my teaching, research, and as a member of the Steering Committee.

For instance, I have in the last year had three students approach me about research in Computational Linguistics, a subject I have not in fact studied. After determining that their interests, and their overlap with my interests, are not in fact covered in the Linguistics Program or by anyone else in my department, I have agreed to facilitate a seminar on the subject.

An organized Cognitive Science Program will simplify such a search, and allow a seminar or course to be offered to a wider range of students and interested faculty members. Rather than forcing each of us doing interdisciplinary work to rediscover the research connections and should-be connections for each new project, we will have a central clearing house for this information. It will allow the many students whose interests in cognition overspill departmental boundaries to structure their studies to their own interests. Finally, the students who go through such a program will have ranges of knowledge and skills most appropriate to work in the current Information Technology and service economy.

I am concerned as I watch our best engineering students leave KY in search of interesting jobs; by nurturing such a program, we help create an atmosphere in Lexington and in the Commonwealth that will support the creation of new high-tech, biological, and psychiatrically grounded companies.

I expect that my courses on Artificial Intelligence, Machine Learning, and Formal Languages and Automata Theory will all be part of the program. I look forward to students with broad interests in cognition. I do a one-hour lecture, "What is AI?" for the first-year Computer Science students; I look forward to expanding that into a unit for the Introduction to Cognitive Science course. (It is the most popular lecture I give; years later, students still remember it and approach me about the prerequisites of my advanced courses.) I also look forward to broadening my own knowledge of Cognitive Science when it is my turn to teach the introductory course.

In short, this Program fulfills needs for the students, faculty, and the Commonwealth. I am enthusiastically involved in the planning, and will be in its administration. If you have any questions, I can be reached at goldsmit@cs.uky.edu, and occasionally by phone at 7-4245.

Sincerely,

[Signature]

Dr. Judy Goldsmith
Associate Professor, Computer Science
June 6, 2003

To whom it may concern,

I am writing to give my full support to the proposal that UK should have a Cognitive Science Program. This is an important area of interdisciplinary research at many institutions, and having such a Program would help that to be the case at UK as well. Also, having the Program would encourage students to seek out connections between various academic disciplines, and hence would give them a deeper and more well-rounded education.

My research relates to cognitive science in that I have examined issues involving how observers (including people) are represented in various versions of quantum mechanics. Also, I sometimes teach issues relating to cognitive science, such as the influence of antidepressants on personality, and the ways in which memory is faulty.

I am willing to do work to help the Program succeed. For example, I am willing to teach one or two class sessions of the core 500-level course each year.

Sincerely,

Bradley Monton
Assistant Professor, Department of Philosophy and Honors Program

bmonton@uky.edu
June 6, 2003

Dr. Sandy Goldberg
Department of Psychology
1427 Patterson Office Tower
CAMPUS 0027

Dear Sandy:

I would like to offer my strong support for the development of a Cognitive Science Program at the University of Kentucky. Cognitive Science is a discipline that cuts across a number of departments including psychology, philosophy, biology, anthropology, sociology, computer science, and robotics. My area of research is comparative cognition and the questions that I address have to do with how one defines various cognitive abilities and what evidence would be needed to demonstrate cognitive ability in a human, an animal, or a machine. At present, researcher who have similar interests are scattered around the campus and it would be very productive to offer and collaborate on classes and seminars with these colleagues. Cognitive Science Programs can be found at many of the leading universities and I belong to active group of researchers who belong to the Cognitive Science Society.

I believe that a cognitive science program would be attractive to undergraduate as well as graduate students. I currently have seven graduate students who work with me and I believe that all of them would be interested it taking courses in cognitive science if they were offered.

If such a program were to be developed at UK I would be willing to participate in the teaching responsibilities in the form of occasionally teaching a core 500-level Introduction to Cognitive Science course as well as teaching a graduate seminar in Comparative Cognition from time to time.

Please let me know if there is anything I can do to facilitate the development of a Cognitive Science Program at UK.

Sincerely,

Thomas Zentall
Professor of Psychology
June 9, 2003

Dear Sandy

I am writing to express my support for and excitement about the development of a cognitive science program at the University of Kentucky. The formation of a cognitive science program not only will remedy a significant gap in our academic curriculum, it also will provide a permanent venue for researchers from different disciplines to draw upon each other's specializations in the study of the mind. Given the fact that most of the resources necessary for the program are already in place, the formation of a cognitive science program presents a wonderful opportunity to maintain growth at UK at a minimal cost.

I also expect my own research on the scientific method and epistemology to benefit immensely from a cognitive science program at UK. The ability to collaborate with faculty from psychology, for example, will add a clinical dimension to my research on rational belief revision. The fact that programs in cognitive science across the country have been held up as paradigmatic and successful examples of interdisciplinary study should convince us that we should expect likewise at UK. Like many faculty at UK also interested in the workings of the mind, I believe that the ability to transcend the orthodox disciplinary boundaries can only enrich and broaden our research.

Please let me know if there is anything I can do to assist in the formation of the program. I am extremely excited about the prospect of a cognitive science program at UK. It will be an integral part of our process of becoming a top-ranked public institution in the country.

Sincerely,

Dien Ho
Assistant Professor
Department of Philosophy
201 Kastle Hall  
Lexington, KY 40506-0044  
June 16, 2003  

Dr. Sanford Goldberg  
Department of Philosophy  
University of Kentucky  

Dear Dr. Goldberg:

This is a letter of support for the proposed Cognitive Science Program at UK. I have agreed to serve on the steering committee for the program, as a Cognitive Science program would serve an important role in synergistically joining together many areas including (but not limited to) psychology, behavioral sciences, linguistics, computer sciences, philosophy, statistics, biology, neuroscience, vision, and mathematics.

I was a graduate student at Arizona State University, a postdoc at Duke, and a visiting assistant professor at Syracuse. All of those institutions have active Cognitive Science groups that promote cross-fertilization between areas.

I am an experimental psychologist; my work has made contact with many allied areas, including mathematics (probability theory), statistics, linguistics, vision, and neuroscience. It is a great advantage in my work to be able to make contact with other researchers at UK who work in those areas. As an example, one of my areas of research requires developing statistical models for response time distributions; my colleague Kert Viele in Statistics has helped me to formulate these models. That work may also result in a dissertation topic for one of his graduate students. In addition, I have consulted with Arne Bathke (also in Statistics) who has developed non-parametric models for answering some of the questions in my research.

As part of my contribution to the Cognitive Science program, I will agree to teach the 500-level seminar once every five years or so. In addition, I agree to contribute to the seminar by teaching the modules devoted to psychology.

Sincerely,

Lawrence R. Gottlob, Ph.D.  
Assistant Professor
June 17, 2003

Dr. Sandford Goldberg
Department of Philosophy
University of Kentucky
1427 Patterson Office Tower
Lexington, KY 40506-0027

Dear Sandford:

I am writing in support of your proposed program in Cognitive Science in the College of Arts & Sciences. Cognitive science has had a tremendous influence on thinking in many, seemingly disparate areas of inquiry in its relatively brief existence. That influence promises to continue to grow because cognitive science has become a truly interdisciplinary field. In my own discipline of psychology, cognitive science has been a major conceptual force in every subdiscipline of psychology. It is high time that the University of Kentucky formed a structured program of study in cognitive science at both the graduate and undergraduate levels.

I have a personal interest in the development of a cognitive science program at UK. My own training is in cognitive psychology. I have conducted research in comprehension processes and memory in my 23 years at UK. I teach courses in cognitive psychology at both the graduate and undergraduate levels. The development of a cognitive science program would benefit me at both levels of training. At the undergraduate level, it would bring motivated students from outside psychology into my cognitive courses. At the graduate level, it would increase my ability to attract talented students to UK. And, of course, it would be great to have the opportunity to interact with colleagues who have similar research interests.

Given my interest in the formation of a program in cognitive science, I would be willing to contribute to a 500-level introductory course in cognitive science on a yearly basis. I would also be willing to administer the course occasionally (although I would hope that the course would not need to be treated as an overload, given the minimal expense of the program).

Sincerely,

Robert F. Lorch, Jr.
Professor
Dr. Sanford Goldberg  
Director of Graduate Studies and Associate Professor  
Department of Philosophy  
University of Kentucky  
1427 Patterson Office Tower  
Lexington, KY 40506-0027

June 23, 2003

Dear Dr. Goldberg:

I am delighted to write this letter of support for establishing a Cognitive Science program for undergraduates here at the University of Kentucky (UK). Although many of the critical ingredients for a CS program exist at UK, there are currently no means for unifying these elements into a coherent program. The current proposal outlines an excellent plan for establishing this important academic program at a minimal cost to the university. I would like to stress the need for such a program in contributing to UK’s efforts to become a “Top 20” university, given that many Carnegie Research-I universities already have well-established Cognitive Science programs.

I am very enthused about the prospect of this program and am happy to be a member of the steering committee. I would also like to be involved in teaching the core 500-level Introduction to Cognitive Science course – serving as course director once every five or so years, and also contributing specific lectures in this course once a year. I am thankful that such a proposal has been drafted and hope that this program comes to fruition.

Sincerely,

Jane E. Joseph
Dear Professor Goldberg

I apologize for the lack of response; I am out of town for the entire summer doing research with my friends at UCSD. This takes all my time, and even more importantly, attention.

Let me, however, address the issue of Cognitive Science program at UK.

I am looking at this matter from the Artificial Intelligence perspective. I am getting quite often queries from prospective students concerning AI program at UK. In such cases I can offer to such candidates only limited assurance - we cannot promise our students a proper education in the most fundamental aspects of AI, namely Cognitive Science courses. Moreover, for various, mainly historical, reasons we do not offer courses in widely understood Logic area.

The proposed program in Cognitive Science will fill, I hope, this void. This will have a tremendous impact on our ability to bring quality students, postdocs and, ultimately, first-class CS/AI faculty. Since the quality of our graduate students is the driving force of our ability of getting grants and contracts, I expect that the proposed program will soon be able to provide the university with a good return on the necessary investment.

I apologize again for the delay in answering your letter and sincerely hope that your initiative will bring an important new exciting area to UK.

Sincerely,

Victor W. Marek
Professor of Computer Science

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Victor W. Marek
marek@cs.uky.edu
marek@cs.engr.uky.edu
859-257-3496 (office)
http://www.cs.engr.uky.edu/~marek

Department of Computer Science
University of Kentucky
Lexington, KY 40506-0046
859-257-3961 (Dept)
859-323-1971 (FAX)
Dear Professor Goldberg,

I strongly support the proposal for the Cognitive Science Program. There are several close connections between cognitive science and computer science, especially, the field of artificial intelligence. At present there are four faculty members in the Department of Computer Science who list artificial intelligence as one of their areas of interest. These faculty members advise about 15 graduate students. That group of faculty and students would be most direct beneficiaries of the program and active participants in its curriculum.

Sincerely,

Mirek Truszczyński
Professor and Chair
Computer Science Department

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Mirek Truszczyński
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dept. of computer science: e-mail: mirek@cs. engr. uky. edu
University of Kentucky: http://www. cs. engr. uky. edu/~mirek
Lexington, KY 40506-0045: phone: (859) 257-3951
USA: fax: (859) 323-1971

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Printed for Sanford Goldberg <scgold@pop.uky.edu>
July 7, 2003

Sanford Goldberg
Director of Graduate Studies and Associate Professor
Department of Philosophy
University of Kentucky
1427 Patterson Office Tower
Lexington, KY 40506-0027

Dear Sandy,

I very much support the effort to institute a cognitive science program in our university. Cognitive science has truly become an interdisciplinary endeavor, with philosophers, psychologists, neuroscientists, psychiatrists, linguists, sociologists, biologists, robotics engineers, computer modelers, and others examining the mental life of humans and other organisms. Recognizing this, many leading universities have set up interdisciplinary cognitive science programs to aid research and training.

I research and teach cognitive development in infants and children. My students and I have been able to collaborate with faculty and students from programs such as Behavioral Science, Pediatrics, and Anatomy and Neurobiology. I recognize, however, that these collaborations have been mostly due to chance encounters, and a more structured program would make it easier for faculty to develop joint projects that will benefit from synergistic interactions. Furthermore, because cognitive science is inherently multidisciplinary, graduate and undergraduate training need to incorporate multiple approaches that have hitherto been associated with disparate disciplines. Such training will obviously be easier in an interdisciplinary program. Thus, the proposed cognitive science program will greatly benefit both the research and teaching missions of the university, and I hope to be able to participate in such a program. Thank you.

Sincerely,

[Signature]

Ramesh Bhatt, Ph.D.
Associate Professor
Dear Sandy,

I'm sorry to be slow in getting back to you—I've been franticly busy this summer with no end in sight. But I certainly do want to respond to your request concerning the Cognitive Sciences Initiative.

I strongly support your notion of initiating a multidisciplinary approach to cognitive sciences research, student instruction, and training here at UK. It is clear that UK has critical mass in this area; with your enthusiastic organizational efforts and the new Dean's backing, things could start to snowball here. I would be particularly interested in improving the draw for graduate-student prospects interested in applying cognitive methodology to understanding animal behavior. The group of faculty you have assembled can help facilitate this and other related goals, while building toward collaborative grant projects and new programs in the area. Best of luck in bringing this exciting opportunity to fruition....Phil Crowley
July 3, 2003

Dean Steven L. Hoch  
College of Arts and Sciences  
Campus

Dear Dean Hoch,

I am writing in support of the proposed Cognitive Science Program.

My research largely deals with the interplay between Computer Science and other disciplines, including Linguistics (with Professor Greg Stump of English), Classics (with Professor Ross Scaife of Classics), and Biology (Professor Heinz Kohler of Microbiology). Within Computer Science, I have worked on constraint satisfaction, which is an aspect of Artificial Intelligence. Many of these diverse research directions have connection with Cognitive Science, defined broadly as the study of the mind.

I think the greatest benefit of this Program will be the increased opportunities for faculty members in diverse fields to see how their interests are related to each other’s and to work together, just as I have sought out researchers in other fields to work with.

In support of this Program, I would be eager to present several guest lectures per year on aspects of my work, both in the core 500-level introductory course and in seminars.

Sincerely,

Raphael Finkel  
Professor
Subject: Re: Cognitive Science at UK
Cc: Jane Joseph <joseph@POP.UKY.EDU>
To: Sanford Goldberg <scgold@POP.UKY.EDU>
From: "C.D. Smith" <csmith@mri.uky.edu>
X-Mailer: Apple Mail (2.552)
X-Mail-Router: No infection found

Sandy - OK, yes I would be interested in participating in the development of such a program and contributing what I can. What I would bring is a behavioral neurology perspective, that is, interactions of cognition and other higher brain functions with diseases affecting the brain, particularly the degenerative dementias. My research work uses functional magnetic resonance imaging.

There are certain thinkers in this field, e.g., Marcel Mesulam, Ken Heilman, Antonio Damasio, Gerald Edelman, Mike Gazzaniga, Patricia Churchland and VS Ramachandran all with very different perspectives who would be worth bringing here to stir up some excitement. Perhaps one or more of them would be willing to serve on an advisory panel to kick-start cognitive science at UK. - CS

On Monday, June 23, 2003, at 02:09 PM, Sanford Goldberg wrote:

Dear Dr. Smith,

For the past seven months, I have been working on putting together a proposal to have Cognitive Science Program here at UK, one with both an undergraduate and a graduate component. To that end, I have recruited approximately 25 faculty, from across the campus, to participate, either actively (serving on the Steering committee) or passively (expressing their desire for and interest in such a program). One of these people is Dr. Jane Joseph, who mentioned your name in this connection. So I am writing to see whether you would be interested in participating either actively or passively in the program.

Below is the extended e-mail letter that I wrote to the original 25 participants; I cut-and-paste it here for your perusal. (I have an extended proposal already written; if you are interested in seeing it, let me know and I will send it as an attachment.)

Sandy Goldberg

I am writing to gauge your interest in participating in a COGNITIVE SCIENCE PROGRAM here at UK, modeled on some of the other interdisciplinary programs presently on the books (Linguistics, for example). At present there is no such program, but I am thinking of proposing one. Given your research interests, I would be most interested in knowing whether you would be interested in participating — whether loosely (i.e., you would be willing to allow the relevant classes you teach to be listed as counting for Cognitive Science credit) or more formally (i.e., you would be interested in being a member of the steering committee).

Basically, what I envisage for such a program would be not much more than a name and a loose structure organizing various faculty (and courses presently being offered) in Psychology, the Behavioral Sciences, the Neurosciences, Computer Science, Linguistics, Biology (especially neurobiology and evolutionary biology), and Philosophy (Mind, Language, and Logic). The program would offer undergraduates the opportunity to get some sort of certificate in Cognitive Science (I am presently investigating Cognitive Science programs at other universities to determine how we might structure requirements and related courses etc.); and the Program would also provide to interested faculty the opportunity to get together occasionally (perhaps when an outside speaker is invited in, as part of a speaker series that I hope to have funded by the Dean’s Office). Participation in the Program will not be a time- or
July 3, 2003

Dear Dr. Sanford Goldberg,

This is a letter of support related to your Cognitive Science Program.

I sincerely feel that it is important to have such a program as you have proposed at UK since it initiates discussion and a forum for which students can participate across disciplines. Not only is this program of benefit to the students but faculty as well will be encouraged to promote cross-fertilization of ideas from the various disciplines.

Such a program may even entice students to apply to UK for this major because of its uniqueness. We could use additional selling features to attract good students that will bridge various programs. The university community as a whole should benefit by having a Cognitive Science Program on campus.

Sincerely yours,

[Signature]

Dr. Robin L. Cooper
Associate Professor in Biology
RE: Proposed Cognitive Science Program

7 July 2003

Dear Sandy,

I write in strong support for the proposal to establish a Cognitive Science Program at UK. I think such a program is very feasible here, would boost the University’s visibility in this important area, and more selfishly, would benefit my research and my students in tangible ways.

Cognitive Science is a broad area encompassing the diversity of ways scholars have sought to understand the mind. The proposed program brings together a large number of experts already here on campus but who are scattered among existing departments. This program would foster increased interaction among these people, expand the training opportunities for both graduate and undergraduate students, and increase UK’s ability to compete for funds and people. The program would thus add significant value to the activities of the institution.

I also think the proposed program has considerable potential to enhance my own research. I study the ecology and evolution of animal decision-making. The interactions among faculty and students that would occur in the proposed program are likely to reveal new ways of approaching my research. I have been interacting with several faculty members in the Psychology Department in this way and those interactions have had a significant impact on my research questions and my students’ training. The Cognitive Science Program would add further breadth to my program, attract additional students as well as supplement the training of existing ones, and could open up new avenues for funding my research.

In sum, I am pleased that you are proposing a Cognitive Science Program and would be happy to assist you in garnering resources to make it happen.

Sincerely,

[Signature]

David F. Westneat, Professor of Biology
July 14, 2003

Dr. Sanford Goldberg  
Associate professor  
Department of Philosophy  
University of Kentucky

Dear Dr. Goldberg

I enthusiastically support the creation of a cognitive science program here at UK. I believe that implementing such a program as an undergraduate minor and a graduate certificate is a prudent way to inaugurate this academic initiative. Cognitive science and neuroscience represent two of the most vigorous interdisciplinary areas within academia. Each has grown precipitously over the past three decades, and the relationship between the two is quite extensive. The UK community currently features an active neuroscience group that includes faculty and students from central campus as well as the Medical Center. The formation of a cognitive science initiative would serve as a productive compliment to the neuroscience program.

The more compelling case for a cognitive science program, however, is the intrinsic value such an initiative affords the UK scholarly community. It is no hyperbole to assert that cognitive science is the schema by which research in the study of mind and behavior is now organized and funded across a wide band of disciplines. There are many faculty at UK within humanities, social science, and natural science departments who share an intellectual bond much more important than the department affiliations that segregate them; it is the problems that we study and the content of our inquiry that unite faculty. Anything UK can do to bring these faculty together and to exploit the vitality of adding cognitive science to the undergraduate and graduate curricula would greatly benefit UK.

My own research interests have been and continue to fall outside of departmental boundaries and are best conceptualized within the cognitive science framework. Beyond my interest as a scholar, I would be very willing to support this proposal with respect to my responsibilities as Associate Provost for Undergraduate Education. There are several ways in which I might be able to assist the development of the undergraduate minor, and I encourage you to rely on my support as your proposal moves forward. I am especially excited about the salutary impact the minor could have on the College of Arts and Sciences.

As a footnote, the next Idea Festival to be sponsored by the Kentucky Science and Technology Corporation will focus on consciousness: not a bad endorsement for the relevance of a cognitive science initiative at UK!

Sincerely,

Philipp J. Kraemer  
Professor Department of Psychology and Associate Provost
Sanford Goldberg  
Director of Graduate Studies and Associate Professor  
Department of Philosophy  
University of Kentucky  
1427 Patterson Office Tower  
Lexington, KY 40506-0027

July 8, 2003

Dear Sandy,

This letter is to convey my interest and support for the Cognitive Science Program you are organizing at UK. Multidisciplinary research and scholarship is an important new approach to understanding the brain's higher functions. I would be interested in participating in the development of such a program and contributing what I can. We need to teach students the findings and techniques associated with Cognitive Science, and it appears to me that even many faculty are unaware of the remarkable progress and developments in this field in the past ten years, and its deep implications for understanding our universe.

What I would bring is a behavioral neurology perspective, that is, interactions of cognition and other higher brain functions with diseases affecting the brain, particularly the degenerative dementias. My research work uses functional magnetic resonance imaging.

There are certain thinkers in this field, e.g., Marcel Mesulaum, Ken Heilman, Antonio Demasio, Gerald Edelman, Mike Gazzaniga, Patricia Churchland and VS Ramachandran all with very different perspectives who would be well worth bringing here to stir up some excitement. Perhaps one or more of them would be willing to serve on an advisory panel to 'kick-start' Cognitive Science at UK. Thank you for beginning this important endeavor.

With Best Regards,

Charles D. Smith, MD  
Professor of Neurology