

SCHOOL OF MIND, BRAIN, AND BEHAVIOR

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Development Team

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Current Units to be Reorganized

ARL Division of Neurobiology
 Department of Psychology
 Department of Speech, Language and Hearing Sciences
 GIDP in Cognitive Science
 GIDP in Neuroscience

Existing Programs Involved:

Undergraduate

Psychology B.A. and B.S.
 Speech, Language, & Hearing Sciences B.S.

Graduate

Cognitive Science, Ph.D. minor
 Neuroscience, Ph.D.
 Psychology, Ph.D.
 Speech, Language, & Hearing Sciences, M.S., Ph.D.

Professional Program

Speech, Language, & Hearing Sciences (Au.D.)

Proposed New Program:

Undergraduate Major in Cognitive and Neural Science

We propose the creation of a **School of Mind, Brain, and Behavior**, which would assemble departments and other units that share research and curricular interests related to the study of mind, brain, and behavior, under a common umbrella. As such, the School would embody a broad and multidisciplinary intellectual pursuit rather than a collection of unrelated departments, focused on a common purpose—understanding the relations among mind, brain and behavior—and would create new research and educational opportunities unconstrained by traditional disciplinary boundaries.

By enhancing interdisciplinary research collaborations, the School would increase the likelihood of external funding, enable greater efficiencies of existing curricular and other services, attract outstanding new faculty to a growing area of research and curricular focus, attract students to a new undergraduate major or minor, and provide a vehicle for new community outreach and development activities. It would position the U of A to be more prominent and competitive in this expanding broad intellectual and research arena, and increase the visibility of the University as a world-class institution. **We propose that The School of Mind, Brain, and Behavior be free-standing within the College of Letters and Science, independent of its constituent Colleges and reporting directly to the Executive Dean.**

Participating Units

- **Core Units**

We propose a reorganization of the following units: Department of Psychology, Department of Speech, Language, and Hearing Sciences, Program in Cognitive Science, ARL Division of Neurobiology (ARLDN), GIDP in Cognitive Science, and GIDP in Neuroscience. The new School would consist of four core teaching-and-research units:

- **Department of Psychology**
- **Department of Speech, Language, & Hearing Sciences**
- **Department of Cognitive Science**
- **Department of Neuroscience**

Psychology and Speech, Language, & Hearing Sciences would move into the School intact. A new Department of Cognitive Science would be created from the present core faculty whose lines are in Cognitive Science (currently 3.25 FTE) and possibly other individuals who choose to move into the new Department. Faculty from the current ARLDN would form the nucleus for a new Department of Neuroscience and might be joined by other individual faculty who wish to help develop a strong Department of Neuroscience. Faculty associated with the current GIDPs would be given the opportunity to move their lines wholly into the new departments, to have joint appointments in the new departments along with their current home departments, or to have affiliate status. The GIDPs would continue as GIDPs, but the administration of their graduate programs would move into the School.

This group of core units would enable the School to investigate issues ranging from the identification of basic cellular, molecular, genetic and developmental mechanisms to the understanding of higher-level neural and cognitive processes associated with individual and social behaviors, and to translate empirical findings into effective treatment protocols for neurological and psychological disorders. Uniting the core units within the larger College of Letters and Science would simplify administration of academic functions, increase the ease with which non-core units and faculty could become affiliated with the School, and maximize coordination of future hires in ways that would benefit the broader mission of the School. We anticipate that 4-5 faculty lines that bridge among units within the School and fill gaps in the programs will be necessary when new hiring again becomes possible.

- **Affiliated Units**

In addition to the core units, we envision affiliated units and individual faculty from Departments and Colleges throughout the U of A. These affiliates would remain within their existing Colleges and, along with core faculty, would form clusters within the School based on shared curricular or research interests.

For example, Philosophy and Linguistics have expressed an interest in teaching within the new School and would transfer some amount of FTE to the School. Various research clusters that address the grand challenges in mind, brain, and behavior might take any of several configurations: a *biomedical or neuroscience cluster* with faculty from Biomedical Engineering, Molecular and Cellular Biology, Neurology, Pharmacology, Physiology, and Radiology; a *computational modeling cluster* with faculty from the proposed School of Mathematics, Computer Science, Ecology and Evolutionary Biology, Linguistics, and Philosophy; a *social/cultural cluster* with faculty from Communication, Family Studies and Human Development, and Mexican-American Studies; a *language cluster* with faculty from Linguistics. Additionally, drawing on current research programs within Philosophy and Psychology, the School would be poised to enhance interdisciplinary research and teaching in the intersection of ethics and psychology, including neuroethics. Faculty from each of these departments have expressed an interest in an affiliation with the School and in working with core faculty in self-organizing clusters to address complex research questions and enhance the education of students at all levels.

□ Teaching Mission

• Undergraduate

The School would grant undergraduate degrees in Psychology and Speech, Language, and Hearing Sciences, and develop a **new undergraduate degree program in Cognitive and Neural Science**. This degree would include a foundational core with two tracks, allowing students to emphasize cognitive science or neuroscience. There are relatively few undergraduate programs in Cognitive Science nationally, and when such programs exist, they are popular among high-achieving students. Therefore an undergraduate program emphasizing this discipline would likely attract significant numbers of students. The addition of Neuroscience as a major for undergraduates would bring our program into alignment with the top programs in Neuroscience in the country, all of which include both undergraduate and graduate programs. The new degree would be composed largely of existing courses that are currently distributed across multiple departments that include faculty with appointments in either the current Cognitive Science or Neuroscience GIDPs. The intent is to continue to offer these courses from the existing departments, capitalizing on the multidisciplinary nature of these two disciplines. In addition, introductory undergraduate survey courses are under development in ARLDN and Cognitive Science. We expect that the new undergraduate degree program could be launched within two years. To ensure the participation of units outside of the School, it will be important that tuition dollars allocated to departments are linked to student credit hours. This would provide the necessary incentive for distributed departments to teach classes that serve both their own majors and the Cognitive and Neural Science major. We should note, however, that faculty in Psychology and Speech, Language, & Hearing Sciences currently participate in both the Cognitive Science and Neuroscience GIDPs and also offer undergraduate courses that would be appropriate for the new major. In fact, 39% of the active Neuroscience faculty are in the core units of the School, and 37% of the active Cognitive Science faculty are in the core units. We expect that this program will expand over the next 5 years as additional faculty lines come into the School and further support the undergraduate major in Cognitive and Neural Science.

The School will contribute to the University's general education mission at both the Tier I and Tier II levels. An 8 credit, two-semester sequence in Mind, Brain, and Behavior will be created, with four of the credits designated as NATS credits and the other four as INDV credits. This course sequence would have multiple sections that could be team-taught or rotated among faculty in the School as well as faculty from affiliated units. The Mind, Brain, and Behavior course would cut across disciplinary boundaries and could be construed as Introductory to the fields within the School. At the Tier II level, the core departments currently offer 3 NATS courses and 3 INDV courses. Speech, Language, & Hearing Sciences currently has plans to submit proposals for 3 additional NATS courses. These new courses involve approval of already existing courses, thus again capitalizing on current resources to further support the general education mission.

Given national trends towards interdisciplinary education, we expect that the new undergraduate major in Cognitive and Neural Science as well as School-based courses in Mind, Brain, and Behavior would be in high demand and would bring increased visibility to the U of A. We also believe that graduates from this School, because of their broadly-based education, would be well-prepared for a range of graduate programs and professional careers in a number of fields, and would thereby be expected to make a significant impact on the workforce and economic growth of the State.

- **Graduate**

The Departments of Psychology and Speech, Language, & Hearing Sciences and the GIDP in Neuroscience all currently offer graduate degrees. These will continue to be offered. Cognitive Science currently offers a graduate minor only, but will work towards a Ph.D. in Cognitive Science as the program develops. We also anticipate the possibility of awarding joint Ph.D.s, in any two disciplines within the School. The School structure would enrich the research training of all graduate students in the School, providing increased opportunities for interdisciplinary and cross-laboratory learning and research experiences, and collaborations across units.

- **Research Mission**

Restructuring departments/units under a School of Mind, Brain, and Behavior would have a positive effect on research collaborations, creating a synergy that has been building in recent years and that would be enhanced by increased interactions of graduate students and faculty across traditional boundaries. It also would encourage strategic hires and attract outstanding research scholars who would fuel new interdisciplinary collaborations. The School would position faculty to compete more effectively in a funding environment that increasingly emphasizes interdisciplinary efforts (e.g., NIH, NSF) and relevance to clinical problems (e.g., NIH). We therefore expect greater achievements in research and scholarship and increased external funding to flow into the University and the School.

- **Outreach and Development**

The core units proposed for the School already have a strong history of community service and outreach to southern Arizona and Mexico. We envision adding an outreach component that would target public education in a variety of ways. The School would become the co-sponsor of the highly successful Brain Awareness Week (presently sponsored by the Tucson Chapter of the Society for Neuroscience) and add opportunities for students to supplement their high school science courses with content related to mind, brain, and behavior. The School would also become the source and mechanism for the dissemination of information concerning how research findings, across the range of disciplines represented in the School, could be translated into real benefits for those with mental health or neurological disorders. We anticipate that this School of Mind, Brain, and Behavior, like similar institutes and initiatives at other prominent universities (e.g., Columbia, Princeton) would be very attractive to a broad range of donors.

- **Administrative Structure**

We propose that the School preserve existing department structures, retaining the strong national rankings and status of the individual departments within their own disciplines. This also would facilitate accreditation and operation of the clinical programs in two of the units (Speech, Language, and Hearing Sciences, and Psychology). For the first transition year while new departments, courses and administrative structures are being set up, we propose that the School be managed by an Advisory Council of department heads of the core units. In years following, one of those individuals would serve as the School Director, on a rotating basis. (In the case of Psychology, because of its size, this could be either the Head or a designee). An Administrative/Executive Assistant would also be needed to serve at the School level.

- The School Director would have responsibility for coordinating the distributed undergraduate curriculum and advising services, overseeing centralized IT support and business services, promoting multi-investigator research efforts, and representing the School to the Executive Dean of the College

of Letters and Science, the central administration, and the community. This individual would receive teaching release and either a fiscal salary or possibly an RA for time in service as School Director. We propose that a portion of the administration's share of School-generated ICR funds should flow to this level to be re-distributed among departments and that teaching revenues generated by School-based courses and units should be divided between the School and its departments that generate the revenue. Some portion of these funds will remain with the School Director for administrative purposes (e.g., an Administrative or Executive Assistant).

- The School Director and Advisory Council would have joint responsibilities for identifying and promoting strategic directions for the School, coordinating core and affiliated units, and promoting School-wide outreach and development activities.
- Department Heads would retain their current responsibilities at the department level including faculty recruitment, evaluation, departmental promotion and tenure, development activities, and coordination with relevant outside entities (e.g., accreditation, certification, and licensing bodies, state agencies). Department Heads would retain their current salary supplements and teaching relief. Graduate education would be managed at the department level.

❑ **Space**

Because core units are scattered across campus, we anticipate needing additional space to house the administrative services of the School and to provide office space for individual faculty who want to join the School and relocate to one of its departments. Seminar rooms for School-wide meetings, cluster and focus groups, workshops and visiting scholars would facilitate the kinds of interdisciplinary activities that the School is designed to foster. In addition, to the extent that administrative services can be housed within a single location, greater savings and efficiency of services can be realized.

❑ **Process of Consultation**

This proposal was developed primarily by the Heads and Directors of the core units, along with representatives of the GIDPs of Cognitive Science and Neuroscience. The primary working group included Betty Glisky (Psychology and GIDP in Cognitive Science), Elena Plante (SPHS and GIDP in Cognitive Science), LouAnn Gerken (Psychology, Linguistics and GIDP in Cognitive Science), John Hildebrand (ARLDN and GIDP in Neuroscience), Konrad Zinsmaier (ARLDN and GIDP in Neuroscience), Lee Ryan (Psychology and GIDP in Neuroscience), and Carol Barnes (Psychology, ARLDNSMA, and GIDP in Neuroscience). Early discussions also included Julie Barkmeier-Kraemer (SLHS and GIDP in Neuroscience), Tom Christensen (SLHS), Lynn Nadel (Psychology, GIDPs in Cognitive Science and Neuroscience), Chris Maloney (Philosophy and GIDP in Cognitive Science), and Mike Hammond (Linguistics and GIDP in Cognitive Science). The proposal also integrated key elements from an earlier School of Neuroscience white paper. Development of the proposal was facilitated by Vice Provost Gail Burd and by Dean Joaquin Ruiz. **Faculty votes** were taken in the core departments with the following results (in favor/opposed/abstain): ARLDN: 8/0/1; Cognitive Science: 2/0/0; Neuroscience GIDP: 29/3/1; Psychology: 23/1/11 no response yet; SLHS: passed. The complete proposal was forwarded to Dean Ruiz on 2/6/09.

❑ **Budget and Projected Savings**

Budget information is still preliminary, and there are still many options to be considered. The greatest savings and efficiencies of this proposal should be realized at the level of the undergraduate curriculum primarily through a mechanism of shared courses across the School and its affiliates. We recommend that the lower-division undergraduate curriculum be handled at the level of the School in order to take advantage of several of these shared courses. We make the following recommendations and note that several of them involve increasing numbers of students. These strategies may make sense only if tuition dollars follow student credit hours. As yet, we have no certain information concerning changes in the structure and number of Gen Ed courses and so recommendations concerning those classes may change.

- **Curriculum**
- Real-time Web-based sections of some Gen Ed and large undergraduate classes could be added. This would increase the number of seats per section, and reduce the number of sections, without requiring additional resources, such as space or adjunct instructors. Psychology is also working on adding 1 credit to some courses via online labs or workshops
- The addition of the Tier I Gen Ed course in Mind, Brain, & Behavior (4 units per semester) would add large numbers of seats with the investment of minimal resources. We anticipate that this course would be team-taught by School faculty, several of whom currently do limited amounts of undergraduate teaching.
- The School would offer lower-division undergraduate courses in research design and statistics that would combine classes currently taught in individual departments.
- The School would offer research design, statistics, research ethics, and grant writing courses at the graduate level. These are competencies needed by all graduate students in the School and would eliminate low-enrollment classes within each of the participating departments. In addition, graduate-level seminars would be offered school-wide, with faculty teaching on a rotating basis. This would also allow us to eliminate some small enrollment seminars currently taught in each of the units
- Similar courses that are currently taught in multiple core and affiliated departments (we estimate that there are at least 9 of these) would be reconfigured to better fit the needs of students in multiple departments and offered as cross-listed courses.
- Because existing faculty in a variety of departments would contribute to an undergraduate major in Cognitive and Neural Science, we anticipate an influx of students to these courses without need for additional faculty.
- **Curriculum savings** : Psychology could eliminate 9 adjunct instructors at a savings of \$82,000. The possibility of hiring 2-3 Master teachers for lower-division courses, however, is appealing and would be cost-effective in the long-term. Speech, Language & Hearing Sciences plans to eliminate several adjuncts and hire 2 instructors with a savings of \$17,200. Estimated total savings = \$97,200.
- **Increased revenues** of uncertain amounts would be expected from the addition of students enrolling in the new proposed courses and other expanded courses
- **Business Services and IT Support**
- We also anticipate significant savings through centralization of the Business Office, as a result of a reduction or change in personnel. We are currently exploring a number of different business models to determine the most efficient and cost-effective way to deliver business services. One possibility is to subscribe to the services of the ARL Business Office. Although the heads of the core units have met as a group with the Assistant Director of Finance and Administration of the ARL, individual meetings with each unit are necessary to work out specific details. Once we have completed those meetings and made comparisons with other models, we will be able to provide estimates of savings from business services.
- There are also potential savings to be gained in IT, which cannot be determined until IT policy in the new College is developed.
- **Other**
- We expect to generate increased revenues from new multidisciplinary grants.
 - Estimated savings from combining colloquium and speaker series = \$13,000
 - The Administrative/Executive Assistant for the School would be appointed from one of the existing units at no additional cost
 - After the first year, savings would be modestly reduced by the amount of compensation for the School Director.