REPORT OF THE GRADUATE COUNCIL
June 3, 2004

The Graduate Council approved the Colleges of Liberal Arts, Science, and Veterinary Medicine joint Neuroscience Proposal to authorize a Doctor of Philosophy in Neuroscience, Master of Science in Neuroscience (Thesis Option).
A PROPOSAL

to the

TEXAS HIGHER EDUCATION COORDINATING BOARD

to authorize a

Doctor of Philosophy in Neuroscience
Master of Science in Neuroscience (Thesis Option)

Offered Jointly by:
Faculty of Neuroscience
Colleges of Liberal Arts, Science, Veterinary Medicine
TEXAS A&M UNIVERSITY
And
The TEXAS A&M UNIVERSITY SYSTEM Health Science Center
Substantive Degree Program Request - Title Page

Name of Institution: Texas A&M University

Name of Proposed Program: Interdisciplinary Program in Neuroscience

Display how proposed program(s) would appear on the Coordinating Board program inventory; include Texas CIP designation(s).

Neuroscience NRSC 26.06

How would the name(s) of program(s) appear on student diplomas?

Doctor of Philosophy in Neuroscience

Administrative unit(s) responsible for the program(s):

Council of Participating Deans

Proposed date for implementation of program: Fall 2006

Person to be contacted for further information about proposed program(s):

Name: Dr. Mark J. Zoran Title: Chair, Faculty of Neuroscience, TAMU
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Name: Dr. Christopher C. Colenda Title: Dean, College of Medicine, TAMUSHSC
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Signatures:

TAMU Campus Chief Executive Officer

TAMUSHSC Campus Chief Executive Officer

Date

Date

System Chief Executive Officer

Date

Governing Board approval date: _________________________________
Administrative Council
For the Graduate Degree Programs in Neuroscience

Richard E. Ewing, Vice President for Research, TAMU

John R. Giardino, Dean of Graduate Studies, TAMU

David S. Carlson, Vice President for Research and Graduate Studies, TAMUSHSC

H. Joseph Newton, Dean of College of Science

Christopher C. Colenda, Dean of College of Medicine, TAMUSHSC

H. Richard Adams, Dean of College of Veterinary Medicine

Charles A. Johnson, Dean of College of Liberal Arts

Date
June 18, 2004

Dr. Mark J. Zoran  
Chair, Faculty of Neuroscience  
Texas A&M University  
College Station, Texas 77843-3258

Dear Dr. Zoran,

The Office of the Vice President for Research wholeheartedly supports the adoption of the proposed interdisciplinary graduate program in Neuroscience at Texas A&M University and the Texas A&M University System Health Science Center. This program will greatly enhance Texas A&M’s efforts towards increasing research and graduate education, as well as promote the University’s reinvestment goals within Biology and other participating departments.

We remain committed to joining the College of Science, and other colleges throughout the College Station campus, in helping provide the resources needed to allow the Interdisciplinary Faculty of Neuroscience to grow and this proposed degree program to flourish.

As Texas A&M University strives to place itself among the very top Research I universities across the nation, implementing programs such as this effort in Neuroscience will help to attract the excellent faculty and graduate students that the University requires to move towards its Vision 2020 goals.

Again, the Office of the Vice President for Research is extremely pleased to extend its support for the establishment of the proposed graduate program in Neuroscience.

Sincerely,

Richard E. Ewing
April 19, 2004

Dr. Mark J. Zoran  
Chair, Faculty of Neuroscience  
Texas A&M University  
College Station, TX 77843-1112

Dear Dr. Zoran,

The College of Science is eager to promote and provide leadership for the establishment of a new interdisciplinary graduate program in Neuroscience at Texas A&M University and The Texas A&M University System Health Science Center. The adoption of this program would greatly benefit the College, Texas A&M University, the Health Science Center, the State of Texas, and the nation.

The interdisciplinary design of the graduate program will consolidate the educational goals of the Interdisciplinary Faculty of Neuroscience, a group that has had considerable success in bringing together high quality researchers across many administrative units of TAMU and the TAMUS HSC. To further enhance our interdisciplinary neuroscience community, the recruitment of new faculty, establishment of an excellent graduate student population, and development of cutting-edge facilities will be needed. I am confident that the establishment of a first-rate graduate program, and the recruitment of high quality faculty and students that it will facilitate, will critically impact extramural funding in the neurosciences and competitiveness of your program faculty and graduates.

As you are aware, the College of Science has provided financial and human resources to the Faculty of Neuroscience for many years. This year I have authorized the reinvestment planned recruitment of three new neuroscience faculty members in the Department of Biology. The College of Science remains committed to the Faculty of Neuroscience. We are also committed to providing educational opportunities for residents of Texas and to providing a new opportunity to recruit Texas students to remain in Texas for graduate school. Therefore, we strongly support the development of this educational program. Additionally, by bringing more well-qualified students from other states and internationally to Texas, the proposed program will provide industry in the state with larger biomedically- and biotechnologically-trained workforce.

In conclusion, the College of Science would like to whole-heartedly encourage the adoption of the new graduate program in neuroscience. The College is committed to the new program and will continue to provide resources and support needed to establish and maintain this important educational and research endeavor. If I can be of any further assistance, please do not hesitate to contact me.

Sincerely,

H. Joseph Newton  
Dean, College of Science
April 27, 2004

Dr. Mark J. Zoran
Chair, Faculty of Neuroscience
Texas A&M University
College Station, TX 77843-1112

RE: Proposal to the Texas Higher Education Coordinating Board for the Faculty of Neuroscience to Offer a Doctor of Philosophy in Neuroscience, Master of science in Neuroscience (Thesis Option) and Master of Science in Neuroscience (Non Thesis Option) for Texas A&M University and The Texas A&M University System Health Science Center College of Medicine

Dear Dr. Zoran:

The Texas A&M University System Health Science Center College of Medicine (HSC-COM) is pleased to support the initiative to establish the degree programs in Neuroscience at Texas A&M University and HSC-COM.

As you are aware, the HSC-COM has provided financial and human resources to the Faculty of Neuroscience for many years. Many collaborations exist across the campus and several of the HSC-COM faculty have key leadership responsibilities in the multidisciplinary neurosciences program. Therefore, we strongly support the development of this educational program.

This program will greatly benefit the College and we strongly encourage the adoption of the new graduate program in neuroscience. The HSC-COM is committed to the new program and will continue to provide the resources and support needed to establish and maintain this important educational and research endeavor. If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Christopher C. Colenda, M.D., M.P.H.
Dean, College of Medicine
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EXECUTIVE SUMMARY

Overview:

The Faculty of Neuroscience has been in existence since 1992 and recognized by Texas A&M University as an official interdisciplinary faculty since 2001. Over the years, the Faculty of Neuroscience has been supported financially from the Office of the Vice President for Research, the College of Science, the College of Medicine, the College of Veterinary Medicine, and the College of Liberal Arts. The Faculty is currently comprised of 46 members representing 12 departments across the campuses of Texas A&M University and The Texas A&M University System Health Science Center, yet the University does not have a graduate program in the neurosciences.

This proposal is for the Faculty of Neuroscience to administer an Interdisciplinary Graduate Program in Neuroscience and to offer jointly Doctor of Philosophy and Master of Science degrees in Neuroscience from Texas A&M University and The Texas A&M University System Health Science Center. The neuroscience graduate studies program will incorporate a diverse set of courses already offered at Texas A&M University and will offer new courses under the aegis of the NRSC prefix. The program consists of a first year core curriculum, a comprehensive examination at the end of the first year, and a second year of neuroscience electives. The first year curriculum is comprised of core neuroscience courses, the Neuroscience Colloquium, and a two-semester sequence of research rotations. In addition, students will be expected to add additional courses in areas where their undergraduate education may have been deficient. Following the first year in the Neuroscience Training Program, each student will undergo a comprehensive examination of the material learned during that year administered by an Examining Committee selected by the Curriculum/Graduate Program Committee. In addition, students will be expected to have identified a major advisor, developed an advisory committee, and submitted their graduate degree plan. In the second year, students will be expected to register their remaining neuroscience electives and the Neuroscience Colloquium. Following the second year, doctoral students will be expected to schedule a preliminary examination with their advisory committee. Upon successful completion of the preliminary examination and the acceptance of a dissertation proposal, the student will be admitted to candidacy in the doctoral program.

Interdisciplinary Faculty of Neuroscience and the Interdisciplinary Graduate Program in Neuroscience will promote the education of masters level graduate students, as well as doctoral students, by providing both thesis and non-thesis degrees. Additionally, the faculty and program with provide valuable educational resources for undergraduate majors in a diversity of departments, especially with regard undergraduate research supervision and academic coursework towards an undergraduate minor in neuroscience.

Program Needs:

Neuroscience, the study of the brain and behavior, is the most rapidly developing field of intellectual inquiry today. As an example, the Society for Neuroscience, just one of over 200 organizations concerned with the brain, is the world's largest society of scientists dedicated to basic research with over 26,000 members. The National Institutes of Health devote a large proportion of its intramural and extramural funding to this field, particularly within the National Institute of Mental Health (NIMH), the National Institute of Neurological Disorders and Stroke (NINDS), The National
Institute of Drug Abuse (NIDA), and the National Institute on Aging (NIA) to name only a few. The brain is by far the most complex of all biological organs and therefore represents the greatest challenge of all integrative life sciences. Since the brain is the organ through which we think, some believe that this offers the supreme philosophical challenge: understanding how the brain enables us to understand how we understand. Neuroscience is important in medicine. Everything we learn about nervous system function brings us closer to the prevention and/or cure for a multitude of neurological diseases. Thus, neuroscience is important, and its practice is an ever increasing component of Texas A&M’s research, teaching and service missions. An Interdisciplinary Graduate Program in Neuroscience will attract new faculty and graduates and enhance the united mission of neuroscientist across the University and Health Science Center. We also hope that the development of an excellent neuroscience program with foster an increased enthusiasm for collaborative teaching and research efforts between the neuroscience community and faculty in bioengineering sciences and computational sciences.

The Faculty of Neuroscience has made a tremendous amount of progress in its ten years of existence, in large part due to hard work by its members. In order to further enhance the program’s standing in the eyes of university, state and national scientific communities, a curriculum has been developed which will evolve into a premier training program in this important area. Approval of this degree and curriculum is critical for the development of this discipline at TAMU and the TAMUSHSC. The program will begin to recruit new graduate students for study and the Faculty of Neuroscience will strive to become a premier neuroscientific community by building on current strengths and growing into a truly interdisciplinary graduate studies program.

Goals:
The goal of the program is to attract high-quality students who wish to pursue neuroscience careers in higher education, in government, in medicine, or in private industry. By providing an excellent core curriculum and premier research experiences, the program will ensure that highly qualified individuals receive broad training in neuroscience.

Program Design:
The program will focus on formal coursework and research activities. Essential components of the program will be:

1. Interdisciplinary instruction directed by the Faculty of Neuroscience. The training, from members and adjunct members, will span many interdisciplinary units of TAMU, those of the TAMUSHSC (its School of Medicine, Institute for Biosciences and Technology, and Scott and White Hospital), Texas A&M University at Kingsville and Texas A&M University at Corpus Christi.
2. A core curriculum of two broad-based NRSC courses, and four advanced courses from which the student must select two.
3. A requirement that the student take both the Neuroscience Colloquium and a two-semester series of research rotations.
4. A qualifying examination in the first year and a preliminary examination after the second year (for doctoral students only) are required.
5. Also required is an extensive research experience, a significant body of neuroscientific discovery, and the writing of an approved doctoral dissertation.
Degree Options:
Students will earn a Doctor of Philosophy in Neuroscience with 96 total semester credit hours or 64 semester credit hours with an approved Masters degree at admission to the program. A Master’s degree, thesis option, is available for students with this educational need.

Admission:
Students will meet all the requirements for admission to graduate studies at Texas A&M University. The overall admission criteria for the University are based on the entire record of the applicant and the availability of space and resources within the Graduate Program in Neuroscience and participating Colleges and Departments.

Prospective Student Demand and Job Market:
This proposed program and degree is unique among Neuroscience programs in Texas and may be unique among Neuroscience programs across the country in that it incorporates basic and clinical neuroscientists from traditional Colleges, Schools of Medicine and of Veterinary Medicine. Further, it spans at least four Institutions within The Texas A&M System, Texas A&M University, Texas A&M University System Health Science Center, the Institute of Biosciences and Technology in Houston, and adjunct faculty members at two additional Texas A&M University System Campuses.

Interdisciplinary Program in Neuroscience (IDPN) Activities:

The Faculty of Neuroscience and the Interdisciplinary Program it has developed conduct a range of research, teaching, and service activities across the participating institutions. The activities are conducted to promote the major goals of the Program:

- to recruit new graduate students who otherwise would not consider TAMU,
- to provide excellent educational opportunities for undergraduate and graduate students through truly interdisciplinary training,
- to facilitate departmental and college research strengths in the neurosciences,
- to foster development of new research areas and extramural funding in the neurosciences,

and, through the above, to become a premier neuroscientific community of high national ranking and strong international reputation.

Our goal of becoming a premier program in the neurosciences is bolstered by the fact that several Colleges have identified neuroscience as an area to expand during the ongoing Reinvestment Plan at Texas A&M University. The Faculty of Neuroscience counts among its membership researchers with broad interests in neurobiology, neuropsychology and medical neuroscience, including 19 from the TAMUS HSC School of Medicine and 26 from the TAMU Colleges of Agriculture, Education, Liberal Arts, Science and Veterinary Medicine. The College of Science has recently hired three new neuroscientists in their Department of Biology and has plans to hire at least two more in this area over the next two years. The College of Liberal Arts has hired two new behavioral neuroscientists and has plans to hire a third. The College of Veterinary Medicine has
recently hired a new neuroscientist, is searching for another position, and has plans to invest in at least one more basic neuroscientist. The Veterinary College is also committed to hiring in the area of Clinical Neurology. Therefore, the future is very bright for expansion of Faculty of Neuroscience membership and its associated goals and missions. Still, several areas of neuroscience research are not well represented at TAMU. Areas such as neuroscience engineering and computational neuroscience, to name a few, should be expanded at TAMU with hires in appropriate departments and colleges. Growth of the program in this and other neuroscience fields would benefit both the interdisciplinary program in neuroscience and the home departments and colleges.

The Faculty of Neuroscience possesses critical strength in several areas of neuroscience research, including neurodegenerative diseases, recovery of function, drugs of abuse, neural development, biological clocks, the aging nervous system, and neuroendocrine regulation of behavior. In these and other areas of research, the faculty of neuroscience members published 209 research papers in 2002-2003 and 19% of these publications were a result of interdisciplinary research efforts with IDPN. Since neuroscience research is a particularly well-funded area, especially by the National Institutes of Health, it is not surprising that our faculty members have successfully competed for high levels of extramural research dollars. Annual reports (2003) from 35 members of the IDPN indicated greater that $31M of research funding in multi-year, single- or multi-investigator grant awards. IDPN investigators also cite funding from various sources, including:

- NIH Program Project PO1
- NIH Institutional Training Grant T32
- NIH Physician Scientist Awards
- NIH NRSA Minority Neuroscientist Awards
- NIH MBRS SCORc cle Grants
- and, TAMU Life Science Task Force Graduate Training Grants.

The Faculty of Neuroscience is dedicated to administering a graduate program that promotes diversity in its faculty and students. The current faculty membership includes 15 women neuroscientists and five underrepresented minority neuroscientists. The faculty will aggressively target these underrepresented groups in its future recruiting efforts.

The Interdisciplinary Program in Neuroscience conducts several import public service activities for the local scientific and lay community. These activities include:

- a faculty colloquium that invites top neuroscientists to present public lectures at associated institutions (e.g., the IDPN has hosted 58 guest speakers over the last 3 years) and co-sponsors seminars in participating departments,

- special events such as Grass Lectureships for visiting scientists (e.g., the 2003 lecture was given by Dr. Clifford Saper, Chair of Neurology, Harvard Medical School) and
telecommunication of lectures between participating institutions (e.g., in the spring of 2004 Daniel R. Weinberger, M.D., Director of the National Institute of Mental Health, presented a visiting lecture on "Genes, Cognition, and Emotion"),

- and, scientific and social activities for the local neuroscience community including annual meetings, symposia (e.g., in the spring of 2004 a public symposium on neurodegenerative disease and recovery of function research was hosted at TAMU) and poster sessions.

The IDPN also awards meritorious graduate students with fellowships for tuition remission and travel grants to attend scientific meetings. In the past three years, the program has supported the travel of 16 students per year with $500 awards.

Finally, the IDPN is dedicated to providing excellent training for future neuroscientists. The current proposed graduate degree programs and their associated curricula have been designed to be the central venue for this neuroscience educational effort. Additionally, the Faculty of Neuroscience is leading an effort to offer an undergraduate minor in neuroscience, thereby introducing our students to neuroscience education and research much earlier in their career.
I. PROGRAM ADMINISTRATION

A. Describe how the program would be administered.

1. Indicate the name and title of person(s) who would be responsible for curriculum development and on-going review.

Because the program will be interdisciplinary in that the degree requirements combine courses from multiple colleges, the program will be administered under Texas A&M University’s Administrative Framework for Interdisciplinary Programs as outlined in Appendix A. Based on this framework, program oversight will be accomplished by an Administrative Council composed of the Vice President for Research and Graduate Studies of TAMU, the Vice President for Research and Graduate Studies of TAMUSHSC, and the Council of Participating Deans from both units involved in the joint administration of the programs. The Administrative Council will meet semi-annually to ensure that adequate personnel and resources are available to the program. Each of the heads of the participating departments will collectively form an Internal Advisory Board. The Internal Advisory Board will meet annually to provide departmental input. The Chair of the Interdisciplinary Faculty of Neuroscience, will oversee the day-to-day administration of the program. A Program Coordinator will assist the Chair in their duties and administration of the graduate programs. Additional oversight of the program will be provided by the Executive Committee of the Faculty of Neuroscience. A graphical depiction of the described program administration is shown in Figure 1.
2. Describe the responsibilities for student advisement and supervision.

The by-laws of the Faculty of Neuroscience (see Appendix B) stipulate that one member of the executive committee is the Chair of the Curriculum Committee. Approval and implementation of the proposed Graduate Program in Neuroscience will require a change in this committee such that its role is expanded to that of a Graduate Programs Committee, with the committee chair serving as Graduate Advisor for the program. The role of the Graduate Advisor will be to communicate information regarding graduate student issues between the student, faculty and Programs Committee and between the Graduate Program and the Office of Graduate Studies.

Upon admission to the Neuroscience program, the Recruiting/Admissions Committee will assign the new student an interim advisor from the Faculty membership, based upon the student’s research interests and the wishes of the Faculty member. The interim advisor will provide guidance for the student as he/she progresses through the first year Core Curriculum and research rotations. Following the first year, the student must pick a permanent advisor and advisory committee, comprising four members of the graduate faculty at Texas A&M University and/or Health Science Center. This committee will advise and supervise the student throughout his/her academic career at this institution. At least one member of the committee must be from outside the student's home Department. The Graduate Advisor, assisted by the Program Coordinator, will maintain overall supervisory authority for advising all graduate students in the program with respect to assisting in registration, thesis or dissertation deadlines, etc., and will report to the Chair of the Program.

3. If the program would be administered by more than one administrative unit, what factors would make this desirable?

The membership of the Interdisciplinary Faculty of Neuroscience spans two Texas A&M System units, Texas A&M University and the Texas A&M University System Health Sciences Center, and comprises faculty from six colleges and a research institute that are united in their interest in the brain and behavior. Therefore, the program will be jointly administered by Texas A&M University and The Texas A&M University System Health Science Center. Graduate degrees will be offered by both unites. No single unit within the System contains the breadth and depth of expertise that comprises the Interdisciplinary Faculty of Neuroscience. Further, the combination of basic and clinical scientists in the Arts and Sciences with both Medical and Veterinary Medical professionals makes the program at Texas A&M University unique among Neuroscience programs in Texas and in the United States.

B. If a non-academic administrative unit, e.g. "institute" or "center" would be involved in administering the program, describe the relationships.
No non-academic units will be involved in the *administration* of the Ph.D. program in Neuroscience, although membership in the faculty includes researchers at the TAMSHSC Institute of Biosciences and Technology.

C. If a new organizational unit would be created, or an existing organizational entity modified as a result of this program, identify and describe the anticipated result.

No new organizational unit would be created beyond what is already described in the By-laws of the Faculty of Neuroscience, which are attached in Appendix B of this proposal.
II. PROGRAM DESCRIPTION

A. Educational Objectives

1. Describe the educational objectives of this program. (Include reference to preparation of students for licensure or certification, if appropriate and any special outcomes or competencies which the program would provide that are not available from existing degree programs)

*Doctoral Program in Neuroscience*

The educational objectives of the Ph.D. program in Neuroscience are threefold: 1) To provide comprehensive education to graduate students so that they can become independent and productive neuroscientists in institutions of higher education, the government, industry or non-profit agencies. 2) To train young neuroscientists to become highly qualified researchers in the field. 3) To produce highly educated members of society who will make informed choices on health and public policy issues.

Neuroscience Graduate Studies will take advantage of a diversity of courses that already exist at the Texas A&M University System. Additionally, new courses will be developed under the aegis of the NRSC prefix, to target core knowledge required of all students and important new areas of neuroscience as they arise. The proposed Ph.D. program consists of a first-year core curriculum, a comprehensive examination at the end of the first year, a second year of neuroscience electives, and a preliminary examination following the second year in the program. Successful completion of each of these steps will be required for advancement to candidacy.

The first year comprises comprehensive courses, including a two-semester, core course covering the principles of neuroscience and required courses currently offered by existing graduate programs. In addition, student will register for the Neuroscience Colloquium, a core quantitative analysis course and a two-semester sequence of research rotations. In addition, students will be expected to add elective courses and/or courses in areas where their undergraduate education may have been weak. At the end of the first year in the Neuroscience Training Program, all students will undergo a comprehensive examination of the material learned during that year. This exam will be administered by an Examining Committee, which is selected by the Curriculum/Graduate Program Committee. In addition, students will be expected to identify a major advisor, an advisory committee and to submit their degree plan at this time. In the second year, students will register for the Neuroscience Colloquium, the remaining neuroscience electives of his/her curriculum, for a total of 3 electives, and courses directed toward the student’s special interests, such as courses in molecular biology, genetics or behavior.

At the end of the second year, a student will be expected to schedule a preliminary examination with her/his advisory committee. The nature of this preliminary examination will be determined by the major advisor and the advisory committee but will be linked to the submission of a dissertation proposal. Upon successful completion of the preliminary examination and the acceptance of the proposal, the student will be
admitted to candidacy. Each student will be expected to register for the Neuroscience Colloquium throughout the remainder of his/her graduate career. Research must be conducted in a timely fashion, a dissertation must be produced and orally defended in a public forum within four years following advancement to candidacy.

**Master’s Program in Neuroscience**

Students with interests in careers in neuroscience may desire to pursue a Master’s degree rather than a Ph.D. For these students, we propose to offer a Master of Science in Neuroscience (thesis option). The proposed M.S. program consists of a first-year core curriculum, a comprehensive examination at the end of the first year, and a second year of neuroscience electives. Students in this thesis option program will enroll in a 32 credit hour curriculum listed below. Following completion of the Master’s degree plan and the approval of their master’s thesis research, students will be required to satisfactorily complete a final examination.

**Additional Objectives of the Interdisciplinary Program in Neuroscience**

The Faculty of Neuroscience and its proposed interdisciplinary graduate programs will foster several additional objectives that compliment the primary educational goals of the program. These equally important objectives are:

a. To establish a functional connection between current neuroscience research efforts in various departments and colleges, to facilitate collaboration towards the academic and research vision of the proposed graduate degree program, and to foster development of extramurally-funded interdisciplinary training and research grants.

b. To prepare students for professional careers in neuroscience in Texas as well as both at the national and international levels, within academic, industrial, governmental, national research laboratories, or academic/corporate cooperative institutes.

c. To provide a teaching and research base for an ongoing series of collaborations that will improve exchange of knowledge and resources (both physical and human) between Texas A&M University students and faculty, as well as other students and researchers from The Texas A&M System Health Science Center, The Institute for Biosciences and Technology, and other Texas A&M University System units, specifically TAMU, Kingsville and TAMU, Corpus Christi.

d. To improve undergraduate and graduate education programs across the university by facilitating the recruitment and retention of faculty and graduate students throughout the broad, interdisciplinary scope of neuroscience and foster the development of neuroscience strength in areas currently underrepresented at Texas A&M University.

2. If the program design includes multiple curricula (concentrations, emphases, options, specializations, tracks, etc.), describe the educational objectives of each
(Each of these curricula must be identified on the title page, including the Texas CIP code).

The program does not include multiple curricula.

B. Admission Standards

1. State admission requirements for the program (if there are different categories for admission, e.g. unconditional, probationary, etc., describe each).

Students will be required to meet all requirements for admission to graduate studies at Texas A&M University. Specifically, the overall graduate admission criteria for the University are based on the entire record of the applicant and availability of departmental resources. Admission to the Graduate Program in Neuroscience will be based upon the following criteria:

1) Hold a four-year baccalaureate degree from a college or university of recognized standing (i.e., a degree recognized as equivalent to a baccalaureate degree from an accredited institution in the U.S.), overall transcript evaluation, and grade point ratio in the last 60 hours of coursework.

2) Show promise of intellectual and academic ability, a minimum of three letters of recommendation from persons capable of judging the applicant's capabilities, and an evaluation of the Statement of Purpose essay.

3) Submit, with application, scores on the General Test of the Graduate Record Examination (GRE), which will be evaluated in a manner that complies with House Bill 1641.

4) Additionally at the program level, an applicant from another country seeking admission to graduate studies must demonstrate the ability to read, write, speak, and understand the English language. Prospective students whose native language is not English must take the Test of English as a Foreign Language (TOEFL), which is administered by the Educational Testing Service in over 200 centers around the world. All applicants from non-English-speaking countries must present a computer-based TOEFL score of at least 213 to be admitted to graduate studies at the University.

Since the faculty anticipates initial acceptance of only 4–6 students into the program per year, standards of acceptance will be highly competitive. Students who enter the Neuroscience graduate degree program upon completion of their Bachelor of Science degree and plan to pursue a Doctor of Philosophy degree may elect to either complete a Master of Science degree first or go directly into the doctorate program.

C. Degree Requirements
1. In tabular form, indicate the semester credit hours (SCH) requirements in each of the following categories applicable to the proposed degree program; include the total SCH requirements for the degree:

The graduate curricula required of students in the Interdisciplinary Graduate Programs in Neuroscience are outlined below. The degree requirements as shown in Tables 1-3 for each graduate degree in Neuroscience include four types of courses: a) foundation (prerequisite/leveling) courses as needed; b) required courses; c) directed electives; and d) free electives. The required courses include a new course covering the fundamental knowledge of the neurosciences (NRSC 601 and 602). A syllabus for each of these new courses is provided in Appendix C. The directed electives include currently offered courses as enumerated in Neuroscience Course List (Appendix D); however, it is anticipated that several current and future special topics courses in various fields designated by 689 will be adopted as regularly offered courses in the TAMU Graduate Catalog and will subsequently be added to the Neuroscience Course List.

**Table 1. Master of Science (with Thesis) Degree Requirements**

<table>
<thead>
<tr>
<th>MS with Thesis Degree Requirements</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Prerequisite/Leveling Courses:</td>
<td>0-12</td>
</tr>
<tr>
<td>-assigned on an individual basis as needed</td>
<td></td>
</tr>
<tr>
<td>Required Courses:</td>
<td>6</td>
</tr>
<tr>
<td>NRSC601 Principles of Neuroscience I (Syllabus in Appendix C)</td>
<td></td>
</tr>
<tr>
<td>NRSC602 Principles of Neuroscience II (Syllabus in Appendix C)</td>
<td></td>
</tr>
<tr>
<td>Designated Electives:</td>
<td>19</td>
</tr>
<tr>
<td>-two graduate courses from IDPN Course List A (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>-one course from IDPN Course List B (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>-4 credits of NRSC681 Neuroscience Seminar</td>
<td></td>
</tr>
<tr>
<td>-up to 6 credits of NRSC685 Rotations</td>
<td></td>
</tr>
<tr>
<td>Free Electives:</td>
<td>7</td>
</tr>
<tr>
<td>-two graduate courses from IDPN Course Lists A or C (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>-up to 9 credits of 489/689 Special Topics</td>
<td></td>
</tr>
<tr>
<td>-up to 8 credits of NRSC691 Research</td>
<td></td>
</tr>
<tr>
<td>Total SCH Required for Degree</td>
<td>32</td>
</tr>
</tbody>
</table>

**Table 2. Doctor of Philosophy (Entering with a MS) Degree Requirements**
### PhD (entering with a MS) Degree Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Prerequisite/Leveling Courses:</td>
<td>0-12</td>
</tr>
<tr>
<td>- assigned on an individual basis as needed</td>
<td></td>
</tr>
<tr>
<td>Required Courses:</td>
<td>6</td>
</tr>
<tr>
<td>NRSC601 Principles of Neuroscience I (Syllabus in Appendix C)</td>
<td></td>
</tr>
<tr>
<td>NRSC602 Principles of Neuroscience II (Syllabus in Appendix C)</td>
<td></td>
</tr>
<tr>
<td>Designated Electives:</td>
<td>19</td>
</tr>
<tr>
<td>- two graduate courses from IDPN Course List A (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>- one course from IDPN Course List B (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>- 4 credits of NRSC681 Neuroscience Seminar</td>
<td></td>
</tr>
<tr>
<td>- up to 6 credits of NRSC685 Rotations</td>
<td></td>
</tr>
<tr>
<td>Free Electives:</td>
<td>39</td>
</tr>
<tr>
<td>- three graduate courses from IDPN Course Lists A or C (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>- up to 9 credits of 489/689 Special Topics</td>
<td></td>
</tr>
<tr>
<td>- credits of NRSC691 Research</td>
<td></td>
</tr>
<tr>
<td><strong>Total SCH Required for Degree</strong></td>
<td>64</td>
</tr>
</tbody>
</table>

Table 3. Doctor of Philosophy (Entering with a BS) Degree Requirements

### PhD (entering with a BS) Degree Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>SCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Prerequisite/Leveling Courses:</td>
<td>0-12</td>
</tr>
<tr>
<td>- assigned on an individual basis as needed</td>
<td></td>
</tr>
<tr>
<td>Required Courses:</td>
<td>6</td>
</tr>
<tr>
<td>NRSC601 Principles of Neuroscience I (Syllabus in Appendix C)</td>
<td></td>
</tr>
<tr>
<td>NRSC602 Principles of Neuroscience II (Syllabus in Appendix C)</td>
<td></td>
</tr>
<tr>
<td>Designated Electives:</td>
<td>19</td>
</tr>
<tr>
<td>- two graduate courses from IDPN Course List A (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>- one course from IDPN Course List B (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>- 4 credits of NRSC681 Neuroscience Seminar</td>
<td></td>
</tr>
<tr>
<td>- 6 credits of NRSC685 Rotations</td>
<td></td>
</tr>
<tr>
<td>Free Electives:</td>
<td>71</td>
</tr>
<tr>
<td>- three graduate courses from IDPN Course Lists A or C (Appendix D)</td>
<td></td>
</tr>
<tr>
<td>- up to 9 credits of 489/689 Special Topics</td>
<td></td>
</tr>
<tr>
<td>- credits of NRSC691 Research</td>
<td></td>
</tr>
<tr>
<td><strong>Total SCH Required for Degree</strong></td>
<td>96</td>
</tr>
</tbody>
</table>
Tables 1-3 include a) foundation (prerequisite/leveling) courses; b) required courses; c) directed electives; and d) free electives. All of these course requirements for the various graduate degrees in neuroscience can be summarized as follows:

a. Foundation (leveling) courses. [0 - 12 SCH]

All new students will be expected to have a solid background in the biological sciences, behavioral or medical sciences, as well as a good foundation in chemistry, physics and mathematics.

1) For undergraduate programs, general education/core curriculum;

Since no undergraduate degree programs are being proposed, this is not applicable.

2) For graduate programs, prerequisite/leveling courses;

Prospective students who do not have a B.S. in Neuroscience or a closely related discipline may be required to take undergraduate courses as prerequisites for the graduate-level courses in the degree programs. All leveling coursework will be assigned on an individual basis after a review of the student’s academic background.

b. Core courses required of all students in the proposed program. [6 SCH]

All students are required to take a two semester, core of course totaling 6 credit hours. This core course will be taught in a two-semester course covering the fundamental principles of neuroscience (NRSC 601** and NRSC 602**).

NRSC601** Principles of Neuroscience I (3 credit hours)
NRSC602** Principles of Neuroscience II (3 credit hours)

All new courses being proposed for this program will be marked with **. The syllabi for all new courses are included in Appendix C.

c. Elective courses prescribed for students (designated electives). [19 SCH]

For all program degrees (M.S. and Ph.D.), student will choose from several lists of designated courses for a total of 19 credit hours. These prescribed courses are:

Two graduate-level course in neuroscience-related fields (6 credit hours)
- from IDPN Course List A (Appendix D)
One course in statistics for research (3 credit hours)
- from IDPN Course List B (Appendix D)
Four semesters of NRSC681 Neuroscience Seminar (4 credit hours)
Two semesters of NRSC685 Rotations (6 credit hours)
d. Courses freely elected by students.

On an individual basis, a student will consult with their graduate advisory committee to choose additional undergraduate and/or graduate courses with restrictions as noted below:

1) For a Master of Neuroscience degree (non-thesis) [7 SCH]

Two graduate courses in neuroscience-related fields (6 credit hours)
-from IDPN Course Lists A or C (Appendix D)
Courses in special topics 489/689 as needed (up to 9 credit hours)

2) For a Master of Science degree (with thesis), [11 SCH]

Two graduate courses in neuroscience-related fields (6 credit hours)
-from IDPN Course Lists A or C (Appendix D)
Courses in special topics 489/689 as needed (up to 9 credit hours)
Graduate research hours (NRSC691) as needed

3) For a Doctor of Philosophy degree entering with a M.S., [39 SCH]

Two graduate courses in neuroscience-related fields (6 credit hours)
-from IDPN Course Lists A or C (Appendix D)
Courses in special topics 489/689 as needed (up to 9 credit hours)
Graduate research hours (NRSC691) as needed

4) For a Doctor of Philosophy degree entering with a B.S., [71 SCH]

Two graduate courses in neuroscience-related fields (6 credit hours)
-from IDPN Course Lists A or C (Appendix D)
Courses in special topics 489/689 as needed (up to 9 credit hours)
Graduate research hours (NRSC691) as needed

e. Other required courses
A student may petition to use alternate classes to those specified above if he/she has already taken equivalent courses.

f. Total hours by degree:

Master of Science (with thesis) [32 SCH]
Doctor of Philosophy (entering with Master of Science) [64 SCH]
Doctor of Philosophy (entering with Bachelor of Science) [96 SCH]

g. Residence
Thesis or Dissertation option students must spend at least 2 semesters in residence at the TAMU campus.

h. Student's Advisory Committee

The Committee will consist of at least four members for doctoral and at least three members for master’s committees, each of whom must have a graduate faculty appointment at TAMU and or the TAMUSHSC. The Chair of the Committee and one other committee member must both be members of the Faculty of Neuroscience. At least one member must be from a different academic department than the student’s home department.

Committee members outside the University, i.e. qualified scientists at other academic institutions, governmental agencies, or industries, will be authorized as Adjunct or Associate Graduate Faculty, if they have expertise beneficial to the guidance and/or completion of the student's research. These appointments will be made through academic departments as outlined by the TAMU rules for graduate faculty appointments in Appendix E.

i. The Degree Plan

Courses in the degree plan will be chosen by the student in conjunction with his/her Committee Chair and committee members. The limitations on certain courses, as prescribed by the Texas A&M University Graduate Catalogue and the Texas A&M University System Health Science Center Graduate Catalogue, will be in effect.

j. Use of transfer, and certain other courses

In accordance with the TAMU Graduate Catalog:

1. The maximum number of transfer hours shall not be greater than 12.

2. A maximum of 9 undergraduate credit hours from 300 and 400 level courses will be allowed.

3. A maximum of 12 credit hours of any combination of 1 – 2 above may be used.

k. Time limit

All degree requirements must be completed within 10 years of entering the degree program, in accordance with provisions contained in the TAMU Graduate Catalog.

l. Applications and deadlines
All applications and deadlines will be in accordance with provisions of the Office of Graduate Studies, Texas A&M University.

m. Final examination

A final examination will be required of both Ph.D. and M.S. students.

2. Identify and describe special requirements for the program, e.g. clinicals, field experience, internships, practicum, thesis, etc.

All students will be required to rotate among three of the forty Neuroscience laboratories in their first academic year in order to: 1) identify a likely major advisor, 2) foster interdisciplinary research among research laboratories at Texas A&M University and The Texas A&M University Health Science Center, and 3) to apprise students of technological capabilities and philosophical diversity among neuroscientists. Following the first academic year, students will undergo a comprehensive examination to ascertain whether the student has achieved a minimal competence in a broad spectrum of neuroscientific theory and experimental practice. The Curriculum/Program Committee will supervise this examination. Following completion of the second academic year, students will undergo a preliminary examination to determine whether the student can be advanced to doctoral candidacy. Finally, following completion of an independent research project, doctoral candidates will be required to write a doctoral dissertation and to defend this dissertation to a committee.

3. If transfer students would be admitted to the program, list articulation agreements completed, in negotiation, or planned.

No articulation agreements currently exist, or are planned. Special cases will be reviewed initially by the Recruiting/Admissions Committee and then by the Curriculum/Program Committee.

D. Curriculum

1. Identify by prefix, number, title, and description (including prerequisites) courses to be required or elected in the proposed program. (Identify with an asterisk (*) courses added during the last three academic years, and with two asterisks (**) courses to be added if the program is authorized.

**BICH/GENE 631 Biochemical Genetics. (3-0). Credit 3.** Genetic control of cellular metabolism, mechanisms of gene action; gene-enzyme relationships; regulation of gene expression; structure and organization of genomes; biochemical manipulation and characterization of genetic molecules.
BIOL 601 Biological Clocks. (3-0). Credit 3. Introduction to the formal properties of biological rhythms; cellular and molecular bases for rhythmicity; temporal adaptations of organisms using clocks.

BIOL 611 Molecular Biology of Differentiation and Development. (3-0). Credit 3. Major paradigms of eukaryotic gene regulation in terms of the role of gene expression during ontogeny and the effects of dysfunction in these processes on the neoplastic state.

BIOL 644 Neural Development. (3-0). Credit 3. Cellular and molecular neural science focusing on the development of the animal nervous system.

MANA 607 Methods of Behavioral Brain Research. (0-3). Credit 1. Advanced course in brain and behavior research with a focus on neural plasticity and mechanisms of learning and memory; direct supervision in brain surgery techniques, electrical stimulation, recording, behavioral training; brain imaging using autoradiography; computerized data collection and analysis. Uses laboratory animals.

MANA 609 Neurochemistry. (2-0) Credit 2. Emphasis on mammalian neurotransmitter systems.


MATH 669 Seminar in Mathematical Biology. (3-0). Credit 3. Problems, methods and recent developments in Mathematical Biology.

MPHM 603 Neuropsychopharmacology. (4-0) Credit 4. Pharmacology as it relates to behavior and the central nervous system.

**NRSC 601 Principles of Neuroscience I. (3-0) Credit 3. Introduction to the fundamental current knowledge of neural science from cells to systems.

**NRSC 602 Principles of Neuroscience II. (3-0) Credit 3. Introduction to the fundamental current knowledge of neural science from cells to systems.

**NRSC 681 Neuroscience Colloquium. (1-0) Credit 1. Presentation of current research in Neuroscience and related areas.

**NRSC 685 Problems. Neuroscience Laboratory Rotations. (0-9) Credit 3. Research internships within the laboratories of prospective major advisors.

PSYC 606 Learning. (3-0) Credit 3. Procedural and theoretical issues in the study of basic learning mechanisms in animals and humans, including Pavlovian and instrumental conditioning.

PSYC 615 Perceptual Processes. (3-0) Credit 3. Complex sensory and perceptual phenomena with emphasis on relationship between perception and motivation, cognition, creativity and instinctive/ethological; learning/experiential factors in higher level perceptual processes.

PSYC 671 Experimental Design for Behavioral Scientists. (2-3) Credit 3. Practical studies of design and measure for the behavioral sciences.

PSYC 649 Seminar in Behavioral Neuroscience. (3-0) Credit 3. Behavioral neuroscience; including behavioral pharmacology, neuropharmacology, methods, techniques, drug reinforcement, behavioral toxicology, pain perception and ingestive behavior.

STAT 601 Statistical Analysis. (3-2). Credit 4. Introduction to probability, statistical inference, and hypothesis testing.

STAT 651 Statistics in Research I. (3-0). Credit 3. Statistics for graduate students in disciplines other than math and statistics.

VAPH 603 Neuroanatomy. (2-6). Credit 4. Gross, developmental and microscopic anatomy of nervous system of selected laboratory and domestic animals.

VAPH 604. Neuroendocrine Anatomy. (2-6) Credit 4. Comparative morphology of the neuroendocrine system of selected laboratory and domesticated animals: the light and electron microscopy of the hypothalamus, pituitary, thyroid, parathyroid, adrenal, testes, ovary and pineal glands.

VAPH 640 Neurobiology. Credit 1-5. Biology of the mammalian nervous system with emphasis on neurodegenerative diseases.

ZOOL 634 Comparative Neurobiology. (3-0). Credit 3. Cellular, molecular and systems neurobiology, together with neuroethology using a comparative approach.

ZOOL 681 Seminar in Neurobiology and Behavior. (1-0) Credit 1. Behavioral neurobiology; including cellular, molecular and systems-level approaches to the study of neural correlates of animal behavior.

2. If the program design includes multiple curricula (concentrations, emphases, options, specializations, tracks, etc.), identify courses unique to each alternative.

Multiple curricula are not planned.
3. Provide a semester-by-semester projection for offering of the required and prescribed courses during the first 5 years.

A projection of neuroscience curriculum graduate offerings for the 2006-07 academic year through the 2010-11 academic year is shown in Table 4-9. The two common knowledge core courses will be offered once each academic year. Most of the other existing courses listed in Appendix D will be offered at least once a year while some will be offered only occasionally based on student demand.

### Table 4. Projected NRSC Course Offerings for First Five Years

<table>
<thead>
<tr>
<th>Years</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
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<tr>
<td>NRSC 601**</td>
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<tr>
<td>NRSC 602**</td>
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<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>NRSC 681**</td>
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<td>X</td>
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</tr>
<tr>
<td>NRSC 685**</td>
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<td>NRSC 691**</td>
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</table>

### Table 5. Projected College of Science Offerings for First Five Years

<table>
<thead>
<tr>
<th>Years</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
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</thead>
<tbody>
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<td></td>
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<tr>
<td>BIOL 611</td>
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<td>MATH 669</td>
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<td>STAT 601</td>
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<td>STAT 651</td>
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<td>ZOOL 681</td>
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</table>

### Table 6. Projected College of Liberal Arts Course Offerings for First Five Years

<table>
<thead>
<tr>
<th>Years</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
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<tr>
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<td>PSYC 671</td>
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<td>X</td>
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</tbody>
</table>

**Table 7. Projected College of Veterinary Medicine Course Offerings for First Five Years**

<table>
<thead>
<tr>
<th>Years:</th>
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<th>2</th>
<th>3</th>
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<td>Fall</td>
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<tr>
<td>VAPH 603</td>
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<td>VAPH 640</td>
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**Table 8. Projected Health Science Center Course Offerings for First Five Years**

<table>
<thead>
<tr>
<th>Years:</th>
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<th>2</th>
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<td>MPHM 603</td>
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</table>

**Table 9. Projected College of Agriculture and Life Science Course Offerings for First Five Years**

<table>
<thead>
<tr>
<th>Years:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
<td>BICH 631</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

4. Describe arrangements that would serve nontraditional students, e.g., non-traditionally scheduled classes, delivery of instruction by telecommunications and/or off-campus instruction sites, library services, student advisement, etc., if applicable.

Because Neuroscience is an experimental field, many "non-traditional" situations involving off-campus research opportunities and course-work may arise. Examples of such opportunities include graduate studies at Woods Hole Oceanographic Institution or
at the National Institutes of Health (NIH) and specialized research training at other institutions. These will be primarily the responsibility of each student's advisory committee. However, no programmatic arrangements for such instruction are planned as of yet.

5. **If the general education/core curriculum component of the proposed program differs from that required for all or most other undergraduate programs at the institution, indicate how and why.**

This does not apply to the proposed graduate program.

E. **Supporting Fields.**

1. **Identify existing programs and support areas in your institution which would complement this program; describe the relationship of each to the proposed program.**

   Texas A&M University and Health Sciences Center currently offers 15 complementary graduate (M.Ed., M.S. and Ph.D.) and professional (M.D. and D.V.M.) degrees in 13 departments. These are organized by system unit (University vs. HSC), by Interdisciplinary Faculty, and by College within the University. The departments that offer these degrees in related disciplines are listed below. The degrees are listed parenthetically following each department/program offering the degree.

   **Texas A&M University**

   **College of Agriculture and Life Sciences**
   Department of Animal Science (M.S., Ph.D. in Animal Science, Genetics and Physiology of Reproduction)
   Department of Biochemistry and Biophysics (M.S., Ph.D. in Biochemistry)
   Department of Entomology (M.S., Ph.D. in Entomology)

   **College of Education**
   Department of Educational Psychology (M.Ed., M.S., Ph.D. in Educational Psychology, Counseling Psychology, and School Psychology)

   **College of Liberal Arts**
   Department of Psychology (M.S., Ph.D. in Psychology)

   **College of Science**
   Department of Biology (M.S., Ph.D. in Biology and Zoology)

   **College of Veterinary Medicine**
   Professional (D.V.M)
Department Veterinary Anatomy and Public Health (M.S., Ph.D. in Veterinary Anatomy)
Department of Veterinary Physiology and Pharmacology (M.S., Ph.D. in Physiology or Toxicology)

Interdisciplinary Faculty of Genetics (Ph.D. in Genetics)

Interdisciplinary Faculty of Toxicology (M.S., Ph.D. in Toxicology)

Texas A&M University System Health Science Center

College of Medicine
Professional (M.D.)
Department of Human Anatomy and Medical Neurobiology (M.S., Ph.D. in Medical Science)
Department of Medical Pharmacology and Toxicology (M.S., Ph.D. in Medical Science)
Department of Pathology and Laboratory Medicine (M.S., Ph.D. in Medical Science)

2. If the existing programs or supporting fields would require updating or expansion because of the new program, explain how and why.

No updating or expansion would be needed.

F. Effect on Existing Programs.

1. Describe how existing courses would be affected by enrollment generated in the proposed program, including but not limited to, the potential need for additional sections or increased class sizes, faculty, library resources, equipment, supplies, and/or space.

Since the Faculty of Neuroscience has been operating as an “emerging faculty” since 1993, virtually no changes in existing courses will be immediately necessary. The sole change in these courses will be the additional enrollment of graduate students recruited into the program. This would constitute an enrollment increase of potentially 5 students or less per course per offering. No additional sections will be required. As the program matures and the scope neuroscience at TAMU expands, we anticipate that new courses will be created in response to these changes in faculty, research and educational objectives. For example, several important areas of neuroscience, like neuroscience engineering and mathematical/computational neuroscience, are currently not represented at TAMU and might be strengthen in future years.

2. For a graduate program, describe how related undergraduate program would be affected by enrollment in the proposed program, including changes anticipated in the rank and/or credentials of faculty teaching in the undergraduate program, and
use of graduate student Teaching Assistants, Graduate Assistants, Assistant Instructors, etc., and their credentials. Provide evidence that faculty (full-time, part-time or TA’s) in the proposed program, or who would replace current faculty reassigned to the proposed program, would meet Southern Association minimum standards for credentials and experience.

Most of the courses proposed for this program are currently listed in the Texas A&M University Graduate Catalog. Therefore, there will be little, if any, negative impact on undergraduate instruction due to reassignment of graduate assistants or faculty to cover these courses. Similarly, since all members of the Faculty of Neuroscience must hold graduate faculty status, they more than meet the Southern Association minimum standards (Master’s degree and expertise in the field).

G. Accreditation.

1. If there is a professional program procedure in this field, attach current standards.

No accreditation procedures for Neuroscience programs exist, but the Faculty of Neuroscience is already an active program in the Association for Neuroscience Departments and Programs (ANDP).

2. State intention regarding accreditation.

Accreditation will be through the Southern Association of Colleges and Schools (SACS) concomitant with the Texas A&M University accreditation process, which occurs every 10 years.

III. EVALUATION

A. Describe planned procedures for evaluation of this program and its effectiveness in the first five years of the program, including admission and retention rates, program outcomes, assessments, placement of graduates, changes of job market need/demand, ex-student/graduate survey, or other procedures. How would evaluations be carried out?

1. Student Progress Assessment

Rigorous admissions standards will be applied toward admitting only highly qualified students into this new program. Once admitted, progress toward a degree will be formally evaluated on an annual basis. At the end of the first year, all students will undergo a comprehensive examination covering the core curriculum and basic foundations of Neuroscience. The core curriculum courses (NRSD 601 and 602) and the comprehensive qualifying examine will be used as the primary assessment tool for monitoring educational outcomes of the program. These courses and examination form the educational foundation of the graduate program and together are the basis for the IDPN educational objectives
delivery and learning outcomes assessment. Students will be required to pass this exam, to continue in the program, both master’s and doctoral. A student that fails this examination will have the opportunity to take the examination again, if the examining committee deems this to be a worthwhile course of action. A student that does not pass the comprehensive exam on the second attempt, must leave the program. At the end of the second year, doctoral students will undergo their preliminary examination for advancement to candidacy. Again, a student must pass this examination, to progress through the doctoral program. Failure will result in the same options as those stated above. From the third year onwards, the advisory committee will review the students’ performance annually, to ensure progress toward the Ph.D., following advancement to candidacy. The graduate advisor and graduate programs committee will conduct annual evaluations of each student’s progress.

2. Program Evaluation and Assessment

The Administrative Council will develop an appropriate annual review process to evaluate the program’s impact. This assessment will likely include annual reviews by the internal advisory council and the executive committee, conducted in conjunction with annual university reports on interdisciplinary programs. This review will include evaluations of graduate recruitment, retention, curriculum, and faculty. Regarding faculty teaching, research, and service to the neuroscience program, results of the review will be shared with related department heads to incorporate into tenure, promotion, recognition, and annual report deliberations.

Annual evaluations of the program will be conducted in a timely fashion to assure proper assessment of the previous year’s activities and to ensure adequate funding for future activities. An annual report will be compiled that includes all of the information addressed above, as well as assessment of education, community, outreach, and diversity goals of the program.

An annual review of the interdisciplinary program, required by the Office of Vice President for Research and Graduate Studies will involve assessment of the Graduate Programs and will be presented to the Council of Participating Deans. We anticipate an external review of the program every 5 years, as is mandated by the University for all graduate programs. During this review, a panel of 3-5 internationally recognized neuroscientists, each associated with a neuroscience training program, would assess the quality of the educational and scientific products of the program. They will then site-visit Texas A&M in order to evaluate the program in person. This external review board will be asked to provide a report of the program’s progress and recommendations as to whether the program should continue and, if so, what changes should be made to improve it.

IV. PROGRAM NEED/DEMAND

A. Identify similar programs.

1. At Texas public and independent universities
According to the Association of Neuroscience Departments and Programs (ANDP), of which the Texas A&M Faculty of Neuroscience is a member, there are currently eleven Neuroscience "programs" in the State of Texas. Of these, only three offer degrees in Neuroscience per se. These are Baylor College of Medicine Division of Neuroscience (45 faculty; 34 students), Baylor University, which offers a Neuroscience degree (15 faculty; 10 students), and the University of Texas at Austin (64 faculty; 22 students). The remaining programs offer Neuroscience or Neurobiology "emphases" or "concentrations" but confer degrees in Biology (e.g. University of Texas-San Antonio; 25 faculty, 31 students) or Biomedical Science (University of Texas-Houston; 47 faculty, 40 students) or MD/PhD degrees (University of Texas Medical Branch, Galveston; 49 faculty, 29 students). The Texas A&M program currently offers a clearinghouse for recruiting students interested in Neuroscience, a seminar series in the field and an interdisciplinary environment fostering this important area, but students ultimately receive their degrees through the home departments of their major advisors. This is similar to the situations in most programs in Texas.

The proposed doctoral degree program at Texas A&M would be unique among these in several regards. First, it combines efforts of faculty at several academic/clinical institutions in the Texas A&M University System Health Sciences Center and its association with the Scott and White Hospital in Temple and the Institute of Biosciences and Technology in Houston. Second, Texas A&M University possesses neuroscientist in a wide range of basic science disciplines as well as emerging groups on other fields of research. Thirdly, it is unique in combining basic and clinical researchers from medical and veterinary medical schools with academic researchers at the University. Finally, it includes adjunct faculty from two southern Texas A&M University System campuses, strengthening research ties with these faculty and fostering recruitment of Texas minority students to our training program.

2. At out of state universities

Neuroscience is one of the largest fields of scientific inquiry on Earth. As such, there are many undergraduate and graduate programs involved either directly or indirectly in neuroscientific research and training. Indeed, the Association of Neurosciences Departments and Programs (ANDP) lists more than 100 American institutions among its membership, and some of these have as many as three distinct Neuroscience degree-granting (e.g. University of Alabama at Birmingham, The University of California at Berkeley and Boston University each have three programs in Neuroscience and/or Neurobiology). It is remarkable to think that if one looks at the top three most populous states, California boasts 17 Neuroscience/Neurobiology degree-granting programs or departments, New York has 22, while Texas offers just three. This is similar to the situations in Alabama, Kentucky and Oregon, considerably smaller states, which each offer three Neuroscience degree-granting programs.
B. Describe justification for the proposed program in terms of the following, as applicable:

1. Local, regional, national, and international needs (as appropriate)

Neuroscience is a very important field. It is fundamentally linked to academic pursuits of excellence and is a critical component in the burgeoning areas of biotechnology and pharmaceutical research. Most major research universities have interdisciplinary or departmental programs in neuroscience. With the emergence of interdisciplinary efforts at TAMU and the TAMUSHSC over the past decade, the need now exists to formalize these efforts and provide a cohesive, interdisciplinary graduate training opportunity for students with this career and educational objective.

2. The long-range academic plan of the institution

Texas A&M has paid much heed to the idea of improving the status of Texas A&M among the top tier of Universities (Vision 2020) and, more importantly, the status of Texas in general as a top state in terms of higher education. Yet, if one looked at the top twenty Universities in the United States of America, you would not find a single school without a degree-granting program in Neuroscience. A comprehensive program in Neuroscience as described in this proposal will make it possible for the University, through committed independent faculty, to be competitive for large group grants such as Training Grants, Program Projects and NSF Centers. Without an institutional commitment, these types of financial support are not likely, if not impossible altogether. It is therefore imperative that Texas A&M offer this degree.

3. Demand from prospective students.

It is difficult to estimate the inquiries of prospective students for neuroscience programs since the Faculty of Neuroscience has been represented by individual departmental graduate recruiting committees. However, we estimate that between the 5 primary participating departments we receive an estimated 100 inquiries from graduate students interested in neuroscience each year. The Faculty of Neuroscience feels strongly that the creating of a Graduate Program in Neuroscience will create a much larger (and higher quality) graduate application pool than now exists.

4. Job market needs (identify specific potential employers and supply names, addresses and phone numbers where possible).

The Association of Neurosciences Departments and Programs (ANDP) have recently reported that although PhDs in the neurosciences have increased dramatically in last 20 years, the job market is still strong for doctoral and postdoctoral trainees. Ads from specific potential employers indicate the job opportunities in the neurosciences. Some of these job listings are provided in Appendix I.
5. Educational and cultural needs of the community

Neuroscience is one of the last true frontiers in biology and medical science with vast areas of knowledge that remain largely mysteries. Since much of what we are, and much of what we as a society need (in terms of education and health), stems from the roots of neural behavioral, and neuromedical sciences, the case for such education and research in this field is are clear. As the century moves on, we predict that the brain and its function and dysfunction will command a significant percentage of educational effort, research dollars, medical care, and community interest. Therefore, Texas A&M University must meet this need with equivalent effort and support.

V. PROGRAM POTENTIAL

A. Estimate the cumulative headcount and full time equivalent (FTE) enrollment for each of the first five years (majors only, considering expected attrition and graduation) and indicate the number expected to be new to the institution each year.

During the first three years, it is expected that some current students in other graduate degree programs will transfer to the Interdisciplinary Neuroscience Degree Programs. The numbers of students who are expected to transfer are estimated in the first rows of Tables 10 and 11. Estimates of annual recruitment of new students, attrition, and graduation for each degree are also shown. After an initial ramping up period, each program is expected to level off by year five to average enrollments of 5 M.S. and 22 PhD students per year. By the end of the five-year period, it is estimated that 7 M.S. and 5 PhD degrees will have been awarded. It is quite possible that the steady-state number of students in the program will gradually increase as new areas of neuroscience are strengthened or added to the program objectives, such as a stronger linkage between neuroscience and engineering or between neuroscience and computational sciences.

Table 10. First Five-Year Enrollment Projections for Master of Science

<table>
<thead>
<tr>
<th></th>
<th>Yr1</th>
<th>Yr2</th>
<th>Yr3</th>
<th>Yr4</th>
<th>Yr5</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfers in from Other Graduate Programs</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Returning Students from the Prior Year</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>New First-Year Students</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Total Graduate Enrollment this Year</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td>Attrition During this Year</td>
<td>0</td>
<td>(1)</td>
<td>(1)</td>
<td>(1)</td>
<td>(1)</td>
<td>(4)</td>
</tr>
<tr>
<td>Graduated During this Year</td>
<td>0</td>
<td>(1)</td>
<td>(2)</td>
<td>(2)</td>
<td>(2)</td>
<td>(7)</td>
</tr>
<tr>
<td>Total Students at Year End</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>
Table 11. First Five-Year Enrollment Projections for Doctor of Philosophy

<table>
<thead>
<tr>
<th></th>
<th>Yr1</th>
<th>Yr2</th>
<th>Yr3</th>
<th>Yr4</th>
<th>Yr5</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfers in from Other Graduate Programs</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Returning Students from the Prior Year</td>
<td>0</td>
<td>8</td>
<td>13</td>
<td>16</td>
<td>17</td>
<td>54</td>
</tr>
<tr>
<td>New First-Year Students</td>
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<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>25</td>
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<tr>
<td>Total Graduate Enrollment this Year</td>
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<td>15</td>
<td>18</td>
<td>21</td>
<td>22</td>
<td>84</td>
</tr>
<tr>
<td>Attrition During this Year</td>
<td>0</td>
<td>(2)</td>
<td>(2)</td>
<td>(2)</td>
<td>(2)</td>
<td>(8)</td>
</tr>
<tr>
<td>Graduated During this Year</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>(1)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Total Students at Year End</td>
<td>8</td>
<td>13</td>
<td>16</td>
<td>17</td>
<td>16</td>
<td>70</td>
</tr>
</tbody>
</table>

B. Explain assumptions used in making these estimates.

We assume that we will recruit five new Ph.D. students each year into the program. Our assumption is that an elite group of students will be recruited into this program and that the program will not be a drain on students from existing programs. However, students in those existing programs (for example, zoology, veterinary anatomy, or psychology) will clearly benefit from the recognition, faculty, research support and peers the new program will attract.

Several assumptions have been used to make the estimates reflected in Tables 9 and 10:

1. All admitted students are full time.
2. MS students will typically finish their program in two years
3. PhD students will typically finish in 5 years.
4. The “transfer-in” students will have already completed some coursework, thus reducing the time required to graduate from the program.
5. When the MS program reaches a steady state, an average of 3 new students will be admitted annually.
6. When the PhD program reaches a steady state, an average of 5 new students will be admitted annually.
7. By the end of the first five years, attrition rates will stabilize to one MS students per year and two PhD students per year.

VI. Resources

A. Personnel

1. Describe any personnel additions or changes in the past three years made in anticipation of the program.

The Faculty Reinvestment Plan, with a goal of recruiting some 400 new faculty members to Texas A&M University in the next 3 years, includes numerous neuroscientists in each of the participating Colleges. Although these
faculty positions were not designated as Neuroscience Program positions, nor were they specifically planned in anticipation of this graduate program, their recruitment to the university is positive evidence of support of the institution for expansion in the neurosciences. In addition, the recruitment of these new faculty members will assist in the availability of neuroscience educational opportunities at the graduate and undergraduate levels.

2. **Indicate for the first five years the cumulative number of FTE personnel who would be involved in delivery of the program in each of the following categories.**

With the adoption of the proposed program, administrative and clerical FTEs will be required for delivery of the program. The addition of NRSC 601 and 602 will require faculty FTEs to coordinate this team-taught, core neuroscience course. The average class enrollments in currently existing classes are expected to increase over the first five years by an average of approximately one to two students per course offering. It is expected that a few new courses will be developed in existing programs and cross-listed to specifically support the newly proposed Graduate Program in Neuroscience. It is expected that there will be no need for additional sections of existing courses or additional faculty and only a modest need for increases in supplies and materials. It is also expected that some current course descriptions may be modified slightly over time to reflect the coverage of more interdisciplinary applications. With these expectations in mind, the following personnel needs are expected.

a. released time for administration and other services, 3.75 FTE

b. full-time faculty, 3.75 FTE

c. part-time faculty, none

d. graduate assistants, 25 FTE

e. clerical/support staff, 5 FTE

f. others, specify.

One student worker for clerical support: 1.25 FTE

The proposed program will annually award graduate teaching and research assistantships to qualified students who have been admitted to the graduate program. Graduate assistants will be eligible for graduate assistantship teaching (GAT), graduate assistantship non-teaching (GANT), or graduate assistantship research (GAR) positions.
Headcounts and the annual numbers used to calculate the five-year cumulative numbers of FTE personnel who will be involved in the delivery of the proposed program as listed above are shown below in Tables 12 and 13.

Table 12. Projected Headcounts of Personnel Assignments, Years 1-5

<table>
<thead>
<tr>
<th></th>
<th>Yr1</th>
<th>Yr2</th>
<th>Yr3</th>
<th>Yr4</th>
<th>Yr5</th>
<th>Totals</th>
<th>Details</th>
</tr>
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<tr>
<td>Released Time for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NRSC Chair and Graduate Advisor</td>
</tr>
<tr>
<td>Administration</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Full-Time Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professor</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>For NRSC 601 and 602</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>For NRSC 601 and 602</td>
</tr>
<tr>
<td>Lecturer</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
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<td>Part-Time Faculty</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Graduate Student</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistants</td>
<td>10</td>
<td>10</td>
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<td>10</td>
<td>10</td>
<td>50</td>
<td>10 GAT's/GANT's</td>
</tr>
<tr>
<td>Clerical/Support Staff</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>Program Coordinator</td>
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<td>Other:</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>Two for clerical/office support</td>
</tr>
</tbody>
</table>

Table 13. Projected Full-Time Equivalent (FTE) Personnel Assignments, Years 1-5

<table>
<thead>
<tr>
<th></th>
<th>Yr1</th>
<th>Yr2</th>
<th>Yr3</th>
<th>Yr4</th>
<th>Yr5</th>
<th>Totals</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Released Time for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chair = .5, Grad Adv =</td>
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<tr>
<td>Administration</td>
<td>0.750</td>
<td>0.750</td>
<td>0.750</td>
<td>0.750</td>
<td>0.750</td>
<td>3.750</td>
<td>.25</td>
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<td>Full-Time Faculty</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Professor</td>
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<td>0.375</td>
<td>0.375</td>
<td>0.375</td>
<td>0.375</td>
<td>1.875</td>
<td>each = .375 *</td>
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<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<td>0.000</td>
<td></td>
</tr>
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<td>0.375</td>
<td>0.375</td>
<td>0.375</td>
<td>0.375</td>
<td>1.875</td>
<td>each = .375 *</td>
</tr>
<tr>
<td>Lecturer</td>
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<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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</tr>
<tr>
<td>Part-Time Faculty</td>
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<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Graduate Student Assistants</td>
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<td>5.000</td>
<td>5.000</td>
<td>5.000</td>
<td>5.000</td>
<td>25.000</td>
<td>each = .5</td>
</tr>
<tr>
<td>Clerical/Support Staff</td>
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<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>5.000</td>
<td>each = 1</td>
</tr>
<tr>
<td>Other: Laboratory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Coordinator</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<td>Other: Student Workers</td>
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<td>7.75</td>
<td>7.75</td>
<td>7.75</td>
<td>38.75</td>
<td></td>
</tr>
</tbody>
</table>
3. List current faculty members, indicating highest earned degree/institution, field of study, current teaching and research assignments, dates of appointment, and anticipated contribution to the program. Specify course(s) each faculty member would teach.

Full Members of the Interdisciplinary Faculty

Texas A&M University:

College of Agriculture and Life Sciences
Department of Animal Sciences
Paul G. Harms
Purdue University, Ph.D., 1969
Field of Study: Animal Sciences
Current Research: Reproductive physiology; endocrine regulation of pregnancy
Current Appointment: Professor
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

Department of Biochemistry & Biophysics
Sumana Datta
University of California – San Diego, Ph.D., 1987
Field of Study: Biochemistry & Biophysics
Current Research: Development of the central nervous system in Drosophila melanogaster.
Current Appointment: Associate Professor
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

Department of Entomology
Tanya Pankiw
Simon Fraser University, Ph.D., 1996
Field of Study: Entomology
Current Research: Pheromone and genetic components of honey bee behavior.
Current Appointment: Assistant Professor
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

Department of Poultry Science
Luc R. Berghman
University of Leuven, Belgium, Ph.D., 1988
Field of Study: Poultry Science  
Current Research: Immuno-neuro-endocrine interaction in avian species  
Current Appointment: Assistant Professor  
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

College of Education  
Department of Educational Psychology  
Cecil R. Reynolds  
University of Georgia, Ph.D., 1978  
Field of Study: Educational Psychology  
Current Research: Neuropsychology of memory in children; relationship of affective disorder to neuropsychological processing deficits.  
Current Appointment: Professor  
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

Cynthia A. Riccio  
University of Georgia, Ph.D., 1993  
Field of Study: Educational Psychology  
Current Research: Attention-Deficit Hyperactivity Disorder (ADHD), Pediatric Neuropsychology, Individual Assessment, Language Disorder  
Current Appointment: Associate Professor  
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

College of Liberal Arts  
Department of Psychology  
Antonio Cepeda-Benito  
Purdue University, Ph.D., 1994  
Field of Study: Psychology  
Current Research: Theories and psychological constructs associated with substance use disorders with emphases on animal models of drug addiction, drug and food cravings, and prevention of drug use (the latter two within a cross-cultural perspective)  
Current Appointment: Associate Professor  
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

Jennifer Bizon  
Johns Hopkins University, Ph.D., 2002  
Field of Study: Psychology  
Current Research: Neurobiological changes that contribute to individual differences in cognitive aging
Current Appointment: Assistant Professor
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

James W. Grau
University of Pennsylvania, Ph.D., 1985
Field of Study: Psychology
Current Research: Learning and memory, spinal plasticity, and pain modulation.
Current Appointment: Professor and Division Head (Behavioral Neuroscience)
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.
Courses: PSYC 606

Mary W. Meagher
University of North Carolina, Ph.D., 1989
Field of Study: Psychology
Current Research: Pain modulation, animal models of anxiety and mood disorders; learning and memory.
Current Appointment: Associate Professor
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

Jack R. Nation
University of Oklahoma, Ph.D., 1974
Field of Study: Psychology
Current Research: Neurochemical and neurobehavioral effects associated with environmental pollutants and drugs or abuse.
Current Appointment: Professor
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.
Courses: PSYC 606

Barry Setlow
University of California – Irvine, Ph.D., 1998
Field of Study: Psychology
Current Research: Investigating the role of the nucleus accumbens and related brain systems in associative learning and goal-directed behavior. Investigating interactions between drug addiction and learning/motivation.
Current Appointment: Assistant Professor
Contributions to Program: Chair graduate students pursuing Neuroscience degrees, perform research in Neuroscience, and teach graduate courses.

Paul J. Wellman
Iowa State University, Ph.D., 1980
Field of Study: Psychology
Current Research: Neurochemical basis for feeding and food intake.