On the Origins of the Proposal for a Temple PhD Neuroscience Specialization

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This proposal was conceived as a component of the Temple Neuroscience Program. The Program began as a loose confederation of neuroscientists at Temple who tended to see each other more at national meetings than in our own back yard. Years ago, on our own initiative, neuroscience related faculty from the Biology, Psychology, Pharmacology, Neurology, and Ophthalmology departments, with invited speakers from M.I.T. and Johns Hopkins, jointly taught a graduate course on vision. Topics included development of the eye and retina, physiology and pharmacology of the visual pathway, behavioral and neurological aspects of vision, clinical aspects of visual impairment and rehabilitation. We came out of this course with an appreciation of each others' work and amiable feelings. We decided to formalize our liaisons to foster and strengthen neuroscience research and teaching at Temple. We canvassed faculty across the University and found that there were more than 40 of us studying aspects of neuroscience including molecular biology, biophysics, electrical activity of single neurons, sensory/motor transformations, cognition, philosophy of mind, plus lots of other stuff.

We organized ourselves and simulated an academic entity by forming committees on research, education, seminars and (the ever lugubrious) administration. We selected co-directors, one from the main campus (Ed Gruberg, Biology) and one from the health sciences campus (Jim McElligott, Pharmacology). We took a sacred oath that committee meetings, colloquia, get-togethers, and journal clubs would alternately take place on the two campuses. So far, we have stuck to our principle. We have had the support and approval of Provost England and Acting Provost Caldwell. They have provided modest sums to get us going and have watched us with a healthy, skeptical, wait-and-see attitude.

The Education Committee has focused on generating two projects - A PhD Specialization in Neuroscience and an Undergraduate Concentration in Neuroscience. Both of these are conceived of as enhancements to departmental programs not as substitutes. Putting aside discussion of the Undergraduate Concentration, which was approved at a second reading of the CST Collegiate Assembly of 17 March 1999, we will focus on the PhD specialization.

In essence, PhD students in the neuroscience specialization will still be required to meet all PhD requirements of their home departments. In addition, they will have at least three neuroscientists on their thesis committee; they will be required to take courses in 4 areas of neuroscience; and, they will also regularly attend a monthly journal club associated with a monthly colloquium featuring, alternatively, neuroscientist/speakers from outside and from within the University. The journal club and colloquia have been been running in tandem since September 1998 with attendance by approximately 25 graduate students from 4 departments in 4 different colleges of the University. The students and neuroscience faculty have been interacting in lively discussions.

This is a program that helps unite the University. If it works, we should be able to bring in outside funding to support our efforts. It is also a potentially good recruiting tool for attracting serious students.

Proposal for Doctoral Specialization in Neuroscience

Admission

Doctoral students are accepted provisionally into the Neuroscience Program after they have been admitted by their home department (currently, Biology, Pharmacology, Physical Therapy or Psychology). This acceptance is based on an interest in pursuing research in neuroscience. Full acceptance into the Program is determined by the Education Committee of the Program and approved by the Co-Directors at the time of doctoral candidacy determination. Acceptance is based on fulfillment of the Program requirements and relevance of the thesis proposal to neuroscience.

Specific Requirements

To receive a Specialization in Neuroscience, a student must fulfill the following requirements:

1. Meet all obligations of the student's home Department.

2. Attain a grade of B or better from a course in each of the following neuroscience categories: Behavioral and Cognitive Neuroscience; Systems Neuroscience; Cellular/Biophysical/Molecular/Developmental Neuroscience; and Research Methods in Neuroscience. (see attached list).

3. Complete a dissertation on a neuroscience topic that has been approved by the Neuroscience Program Education Committee and co-Directors of the Program. Three members of the student's thesis committee, including the principal advisor, will be active research members of the Temple Neuroscience Program. Any substantial changes to the dissertation proposal must be approved by the Education Committee and the co-Directors to confirm that the thesis is still within the area of neuroscience research.

4. A student must demonstrate interest in neuroscience by regular attendance and participation in the Program's Journal Club and seminar program.

Co-Directors

The Co-Directors of the Program will monitor the progress of the doctoral candidates in the program. They will facilitate the admission of students into neuroscience courses outside the candidates' department and college. They will also work with the College Deans and other administrative officials so there is equitable distribution of costs for tuition in neuroscience courses taken by the doctoral candidates.

Neuroscience Courses at Temple University by Category Satisfying Distribution Requirement

I Behavioral and Cognitive Neuroscience

COMM SCI 526 [G] Adult Language Disorders 1. Offered every spring Instructor: E. Saffran. A lecture course**.** Text: Language: Structure, Processing, Disorders by Caplan; assorted papers.

PHIL 444 [U & G] Philosophy of Mind. Instructor: M. Tye. Texts: Ten Problems in Consciousness by Tye; Matter and Consciousness by Churchland.

PSYCH 703 [G] Topical seminar in behavioral pharmacology. Instructor: D. Overton.

PSYCH 708 [G] Topical seminar in cognitive neuroscience. Instructor: D. Woodruff-Pak

PSYCH 709 [G] Topical seminar in behavioral neurochemistry. Instructor: D. Overton.

PSYCH 711 [GI Topical seminar on the neuropsychology of aging. Instructor: D. Woodruff-Pak

PSYCH 809 [G] Physiological psychology. Instructors: M. Lewis & R. Baenninger. Offered each fall. Texts: Biological Psychology by Rosenzweig et al.; assorted papers.

II Systems Neuroscience (including Sensory/Motor transformations)

BIO 315/415 [U & G] Behavioral and Neural Genetics. Offered every other fall. Instructor: L.Tompkins. Last offered fall 1997. A lecture course. Text: papers and review articles.

BIO 354/454 [U & G] Neural Basis of Behavior. Offered occasionally in fall. Instructor: E. Gruberg. A lecture course. Texts: Neuroethology by Camhi; Vehicles by Braitenberg and assorted papers. Next offered in fall 1998.

BIO 356/456 [U & G] Organization and Development of the Nervous System. Offered every other fall. Instructor: E. Gruberg. A lecture course. Texts: Principles of Neural Development by Purves and Lichtman; Fundamental Neuroanatomy by Nauta and Feirtag plus supplementary material. Last offered in fall 1996.

PT 513 [G] Neuroanatomy. Offered each spring. Instructor: M. Barbe. Lecture and laboratory. Texts:Neuroanatomy by Haines; Kingsley

PT 619 [G] Life-Span Motor Development. Instructor: A. VanSant. Text: Various papers.

PT 620 [G] Neural Regulation of Posture and Movement. Instructor: R. Newton. Texts: Balance by APTA; The Neural Basis of Motor Control by Brook; Principles of Neural Science by Kandel et al.

PT 623 [G] Atypical Human Movement Instructor: R. Cromwell. Text: various papers.

PT 624 [G] Biomechanics of Posture and Movement. Instructors: A. Barr, R. Cromwell, M. Lockard, S. Michlovitz.

III Cellular/Biophysical/Molecular/Developmental Neuroscience

BIO 315/415 [U & G] Behavioral and Neural Genetics. Offered every other fall. Instructor: L.Tompkins. Last offered fall 1997. A lecture course. Text: papers and review articles.

BIO 3 56/456 [U & G] Organization and Development of the Nervous System. Offered every other fall. Instructor: E. Gruberg. A lecture course. Texts: Principles of Neural Development by Purves and Lichtman; Fundamental Neuroanatomy by Nauta and Feirtag; plus supplementary material. Last offered in fall 1996.

BIO 381/481 [U & G] Membrane Biophysics and Biochemistry. Offered every other spring. Instructor: J. Ramirez-Latorre. A lecture course. Texts: Ionic Channels of Excitable Membrane by Hille; Transporters ed. by Harvey and Nelson.

PHARM 519 [G] Neuropharmacology. Offered fall of even years. Instructor: J. McElligott and others. Texts: Biochemical Basis of Neuropharmacology by Cooper et al.; Basic Neurochemistry by Siegel et al.

PHARM 520 [G] Pharmacology of Analgesics and Drugs of Abuse. Last offered: fall 1997. Instructor:A. Cowan and others.

PHYSIO 520 [G] Molecular and Cellular Physiology. Instructor: S. Driska and others. Last offered fall 1997. Texts: Molecular Biology of the Cell by Alberts et al.; An Introduction to Membrane Transport and Bioelectricity by Byrne and Schultz; handouts.

IV Research Methods in Neuroscience (Techniques)

BIO 304/804 [U & G] Neurophysiological Techniqucs. Offered every other fall. Instructor: E. Gruberg. Last offered fall 1997. A laboratory course.

PHARM 507 [G] Mathematical Biology. Offered fall of odd years. Instructor R. Tallarida. Texts: Instructor's notes.

PHARM 529 [G] Neuroelectric Data. Offered occasionally. A laboratory course. Instructor: J. McElligott.

PHARM 542 [G] Experimental Pharmacology. A laboratory course offered each fall. B. Ashby and others. Exercises in 5 research laboratories.

PT 622 [G] Instrumentation and Motion Analysis. Instructors: A. Barr, R. Cromwell.

PT 655 [G] Qualitative Research Strategies for Health Care. Instructor: K. Shepard.

PSYCH 759 [G] Methods in Behavioral Neuroscience.. Instructor: M. Lewis.

Temple Neuroscience Program Faculty Members August 1998

faculty.doc on neurosci disk

Mary Barbe	Physical Theraphy/CAPH
Ann Barr	Physical Theraphy/CAPH
Brian Clark	School Podiatry
Branch Coslett	Neurology/MED
Alan Cowan	Pharmacology/MED
Ronita Cromwell	Physicial Theraphy/CAPH
Thomas Gordon	Communication Science/SCAT
Ed Gruberg	Biology/CST
Robert Hilfer	Biology/CST
Ralph Hillman	Biology/CST
Micha Hohenberger	Electrical Engineering/CST
Glenn Isaacson	Otorhinology/MED
Jeffrey Kochan	Diagnostic Imaging/MED
Michael Lewis	Psychology/CLA
Lee Liu-Chen	Pharmacology/MED
Nadine Martin	Neurology/MED*
James McElligott	Pharmacology/MED
Michael Mote	Biology/CST
Paul Myers	Biology/CST
Roberta Newton	Physical Therapy/CAPH
Don Overton	Psychology/CLA
Henry Parkman	Medicine/MED
Helen Pearson	Anatomy & Cell Biology/MED
Robert Raffa	Pharmacology /PHARM
Jose Ramirez-Latorre	Biology/CST
Michael Ruggeri	Pharmacology/MED
Eleanor Saffran	Communication Science/SCAT
Joel Sheffield	Biology/CST
Michael Sirover	Pharmacology/MED
Gerry Sterling	Pharmacology/MED
Ken Strauss	Neurosurgery/MED
Laurie Tompkins	Biology/CST
Michael Tye	Philosophy/CLA
Ann VanSant	Physicial Theraphy/CAPH
Jerry Vision	Philosophy/CLA
Mark Wheeler	Psychology/CLA
Diana-Woodruff-Pak	Psychology/CLA