LCS Use Only
Number: _____
Action: _____
Date: _____

UWUCC Use Only
Number: 93-17
Action: App 12/14/93
Date: Sen App 3/1/94

CURRICULUM PROPOSAL COVER SHEET
University-Wide Undergraduate Curriculum Committee

I. Title/Author of Change

Course/Program Title: PC 356 Biopsychology
Suggested 20 Character Course Title: Biopsychology
Department: Psychology
Contact Person: R. Pavloski

II. If a course, is it being proposed for:

X Course Revision/Approval Only
_____ Course Revision/Approval and Liberal Studies Approval
_____ Liberal Studies Approval Only (course previously has been approved by the University Senate)

III. Approvals

_____ Department of Psychology Curriculum Committee

_____ Department of Psychology Chairperson

_____ College of Natural Sciences and Math Curriculum Committee

_____ College of Natural Sciences and Math Dean

_____ Director of Liberal Studies (where applicable)

_____ Provost (where applicable)

*College Dean must consult with Provost before approving curriculum changes. Approval by College Dean indicates that the proposed change is consistent with long range planning documents, that all requests for resources made as part of the proposal can be met, and that the proposal has the support of the university administration.

IV. Timetable

Date Submitted to LSC: _____
to UWUCC: _____

Semester to be implemented: _____

Date to be published in Catalog: _____

IV. DESCRIPTION OF CURRICULUM CHANGE

Catalog Description

PC 356 Biopsychology 3 credits
3 lecture hours
(3c-01-3sh)

Prerequisites: PC101
Study of the relationship between behavior and the anatomy and physiology of the nervous system.

Course Syllabus

I. Catalog Description

PC 356 Biopsychology — 3 credits, 3 lecture hours (3c-01-3sh)

Prerequisites: PC101

Study of the relationship between behavior and the anatomy and physiology of the nervous system.

II. Course Objectives

1. Students will learn basic neuroanatomy and neurophysiology.

2. Students will know the major techniques employed to collect information on brain-behavior relationships.

3. Students will acquire the basic accepted facts and theories regarding relationships between neural structures and their functioning, and psychological processes including: sensation and perception, sensorimotor activity, sleep and arousal, motivation, learning and memory, addictive behavior, language, and psychological processes the brain substrates of which are lateralized.

III. Course Outline

A. Basic Neuroanatomy and Neurophysiology (9 lectures)

Divisions of the nervous system.
Gross neuroanatomy.
Structure and classifications of neurons.
Basics of neural transmission.
Neurotransmitter substances and neuromodulators.
Techniques for studying brain-behavior relationships.

B. Sensation and Perception (7 lectures)

The hierarchical structure of sensory systems.
The visual system.
The auditory system.
Olfaction and gustation.
Somatosensation.

C. Sensorimotor mechanisms and sleep and arousal (7 lectures)

The hierarchical structure and interdependence of sensory and motor mechanisms in the production of movement.
The major pathways: pyramidal and extrapyramidal.
Sleep: circadian and recuperative theories, brain structures, and disorders.

D. Motivation (6 lectures)

The motivational systems to be considered.
Control of eating and drinking and temperature regulation.

E. Neural development, neural plasticity, and drug and reward circuits (7 lectures)

Development of the mammalian nervous system.
Theories of axon growth and synapse formation and redistribution.
Effects of early experience on neural development.
Learning in simple systems: non-associative and associative learning in Aplysia; the hippocampal slice preparation.
Regeneration and neural transplantation.
Abused drugs, routes of administration, metabolism.
Metabolic and functional tolerance; theories of tolerance.
Theories of addiction.
Neural circuits that may mediate rewarding effects of drugs.

F. Memory and amnesia; laterality (6 lectures)

Early findings on neural representation of memory,
Interpreting the effects of discrete, sudden damage versus slow, progressive damage.
The effects of brain damage: bitemporal amnesia, diencephalic amnesia, Korsakoff's syndrome, Alzheimer's disease.
The results of experimental animal lesions: bitemporal lesions, diencephalic lesions, prefrontal lesions.
Lateralization of cerebral function: neurological studies; the classic experiment of Myers and Sperry; commissurotomy results; theories of cerebral lateralization; the Wernicke-Geschwind model of language.

IV. Evaluation Methods

The final grade for the course will be based on examinations that cover readings, lecture and laboratory material, and on a course paper.

1. Examinations - Material for the exams will be drawn from readings and lecture material. A variety of question types (e.g., multiple choice, short answer, matching, short essay) that are appropriate for the type of material involved will be used. There will be six in-class examinations and a comprehensive final that will be given according to the schedule published by the university. The unit exams count for 70% of the course grade, and the final counts for 15%. The lowest grade of the 6 unit exams will be dropped, excluding exam 6 which everyone must take.

2. Paper - You are required to write a 10-15 page, typewritten and double-spaced APA style paper on some topic having to do explicitly with the physiological mechanisms underlying some

psychological phenomenon. It is suggested that you choose a topic that you find interesting from the readings or lectures, and then find at least one major review article in a journal that deals with the topic in more detail. In your paper you are to describe the psychological issue, to summarize what you have read regarding how this psychological process or phenomenon is thought to occur (i.e., the physiological mechanisms), and to conclude with your own thoughts. The paper is due on the final class meeting before the final. The paper is worth 15% of the course grade.

V. Required Textbook, Supplemental Books and Readings

Pinel, J. P. J. (1993). Biopsychology (Second edition. Boston: Allyn and Bacon.

Suggested: Study guide for the Pinel textbook.

Handouts covering various aspects of the course will be supplied to students as required.

VI. Special Resource Requirements

None.

VII. Bibliography

Galluscio, E. H. (1990). Biological psychology. New York: Macmillan.

Kalat, J. W. (1992). Biological psychology (Fourth edition). Belmont, CA: Wadsworth.

Kimble, D. P. (1992). Biological psychology (Second edition). Philadelphia: Harcourt Brace Jovanovich.

Pinel, J. P. J. (1993). Biopsychology (Second edition). Boston: Allyn and Bacon.

Rosenzweig, M. R., and Leiman, A. L. (1989). Physiological psychology (Second edition). New York: Random House.

Course Analysis Questionnaire

Section A: Details of the Course

A1. This course fulfills the need for a lecture-based course on brain-behavior relationships. It is proposed in concert with the plans of the psychology department to offer core-curriculum courses both with and without laboratories. We will continue to offer Physiological Psychology, PC350, a course on brain-behavior relationships that includes a laboratory component. The course is designed for majors. It is not proposed for inclusion in the Liberal Studies course list.

A2. This course does not require changes in the content of existing courses.

A3. It is traditional.

A4. No.

A5. No.

A6. It is not to be offered for variable credit.

A7. As indicated above, this course has been offered for many years at IUP. The proposal simply makes the lecture course available without a laboratory component.

A8. No.

Section B: Interdisciplinary Implications

B1. The course will be taught by one instructor.

B2. No.

B3. As indicated above, this proposal simply aims to make available a core-curriculum course, without laboratory, for psychology majors. There is no conflict with courses offered by other departments.

B4. No

Section C: Implementation

C1. No additional resources are required.

C2. No.

C3. Once per year.

C4. One.

C5. Twenty-five to thirty.

C6. No.

C7. No.

IUP

93 - 17

Indiana, Pennsylvania 15705

Date: May 7, 1993

To: Dr. Hilda Richards
Provost

From: William G. Cale W.G.C. AK
Dean, NS&M

Subject: Curriculum Proposals

Attached please find several curriculum proposals submitted by departments in the College of Natural Sciences and Mathematics. Program changes for the BS in Education/Biology, BS in Geology, BS in Environmental Geoscience, BA in Psychology, and BA in Psychology/Applied Track, will not require an increase in the number of credits required or faculty workload hours.

Similarly, the proposed new courses do not necessitate additional resources. Those courses, BI 450/550 Pymatuning: Field Studies, MA 320 Mathematics for Early Childhood, PC 315 Experimental Developmental Psychology, PC 335 Experimental Social Psychology, PC 345 Human Cognition, PC 355 Animal Behavior, PC 356 Biopsychology, PC 390 Industrial- Organizational Psychology, PC 425 Experimental Organizational Psychology, are proposed in place of courses earlier deleted, courses previously offered as Special Topics, or as an alternative choice between laboratory or lecture versions of existing offerings. There will be no increase in the number of credits required and present faculty are well qualified to teach the proposed courses.