





Minnesota State University, Mankato  
Curriculum Proposal

\*\*\*Signature Page\*\*\*

**Department**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

Rosemary Krawczyk 9-27-06  
 Department Chair Date

Comments:

**College Curriculum Committee**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

[Signature] 10/27/06  
 Committee Chair Date

Comments:

**College Dean**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

[Signature] 10/13/06  
 Dean Date

Comments:

**General Education Subcommittee**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

\_\_\_\_\_  
 General Education Subcommittee Chair Date

Comments:

**Undergraduate Curriculum and Academic Policy Committee**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

[Signature] 11/9/06  
 UCAP Faculty Chair Date

Comments:

**Faculty Association Graduate Committee**

Recommended  
 Not Recommended

\_\_\_\_\_  
 Faculty Association Graduate Chair Date

Comments:

**Graduate Dean**

Recommended  
 Not Recommended

\_\_\_\_\_  
 Graduate Dean Date

Comments:

**Academic Affairs Council**

Recommended (Category/ies \_\_\_\_\_)  
 Not Recommended (Category/ies \_\_\_\_\_)

[Signature] 12/1/06  
 Assistant Vice President Date

Comments:

**Senior Vice President and Vice President for Academic Affairs**

Approved (Category/ies \_\_\_\_\_)  
 Not Approved (Category/ies \_\_\_\_\_)

[Signature] 12/1/06  
 Sr. Vice President / Vice Pres. Academic Affairs Date

Comments:

**Curriculum Proposal**  
PSYC 4/523 – Neuroscience  
Department of Psychology

Course Description: The goal of neuroscience is to understand the human mind. This goal is approached by revealing the brain processes involved in how we perceive, think, remember, and move. Brain development, communication, and plasticity at the neural level are described.

A. Syllabus or course outline.

The course outline will be as follows:

- Introduction
- The neurobiology of behavior
  - Brain and behavior
  - Nerve cells and behavior
  - Genes and behavior
- The neuron
  - How it works
  - Receiving neural signals
  - Sending neural signals
- The synapse
  - Overview of synaptic transmission
  - Neurotransmitters
  - Modulation of the signal
  - Drug interaction sites
- Neural development
  - Proliferation, migration, differentiation, myelination, and synaptogenesis
  - Formation and regeneration of synapses
  - Sensory experience and fine-tuning
  - Sexual differentiation
  - Aging and disease
- Cognition
  - Anatomical organization
  - Functional organization
  - Association areas of the cortex
  - Internal representations
- Perception
  - Coding sensory information
  - Bodily senses
  - Touch, taste, smell, hearing, vision
  - Perception of pain
- Movement
  - Organization of movement
  - Reflexes and voluntary movement
  - Locomotion
  - Vestibular system and posture

- Arousal and emotions
  - Consciousness, sleeping, and dreaming
  - Seizures and epilepsy
  - Emotional states and feelings
  - Motivation and addiction
- Language and thought
  - Language and aphasia
  - Disorders of thought and mood
- Learning and memory
  - Cellular mechanisms of learning
  - Memory systems
  - Biological basis of individuality

B. Course's student learning outcomes.

Upon the completion of this course, students will have a basic understanding of the following concepts:

- Development of the brain
- Communication between nerve cells in the brain
- Origination of different perceptions and motor acts resulting from interconnected patterns of nerve cells
- Modification of nerve cell communication by experience
- Alterations in nerve cell communication resulting from disease

C. A list of resources required to offer and support this course.

No additional resources are required for this course.

D. A description of how teaching this course will affect department staffing.

This course will be offered either once a year or once every other year. Currently, there are two faculty members qualified and interested in teaching this course. Since the course will be split between these faculty members and is offered only occasionally, no changes in departmental staffing are anticipated.

E. If 400/500 level course, an explanation of added expectations of graduate students.

Every student taking the course will be expected to write an original research paper describing the neural basis of a known disorder. Additional requirements for this paper will be included for graduate students, as well as an oral presentation of their paper.