

# Minnesota State University Moorhead

## BIOL 311: Neurobiology

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 3

OJT Hours/Week: \*.\*

Prerequisites:

This course requires either of these prerequisite categories

1. PSY 345 - Physiological Psychology

Or

2. Both of these

BIOL 111 - Cell Biology

CHEM 210 - General Chemistry II

Corequisites: None

MnTC Goals: None

This course is a survey of the biological principles that underlie the function of the nervous system. Lab is required.

**B. COURSE EFFECTIVE DATES:** 02/01/2018 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Neurons; glia; membranes at rest; action potential; synaptic transmission; neurotransmitters; neural development; phototransduction and retinal processing; central visual processing; motor control; diffuse modulatory systems; mechanisms of emotion; attention
2. Dorsal cortex; lateral and ventral cortex; brain stem; midsagittal; cerebellum; ventral midsagittal; brain sections
3. Mouse perfusion lab; crayfish nerve backfill; motor nerve recording; elegans and melanogaster lab

### D. LEARNING OUTCOMES (General)

1. Students will demonstrate knowledge in critical components of the nervous system.
2. Students will demonstrate knowledge in functional underpinnings of the action potential (electrical signaling).
3. Students will demonstrate knowledge in relevance of the action potential to nervous system function.
4. Students will demonstrate knowledge in development of the nervous system and the mechanisms that allow that to occur.
5. Students will demonstrate knowledge in structure and function of the entire visual system, from retina through the thalamus to the cortex.
6. Students will explore, assess, and integrate relevant primary literature into a larger context with appropriate citations of that literature.

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted