Student Learning Outcomes (SLOs) Report for <u>Non-Accredited Programs</u>

(***updated 9/19/23***)

Program Type: **Non-Accredited Program**

Program Name: BS in Neuroscience

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Submission Date: October 2, 2023

Review Cycle:
- o   Even Year
- X   Odd Year

Review Round:

- o   **Round A** (Associate Dean review)
- X   **Round B** (Associate Dean + VPAA review)

All SLO reports are archived here: https://www.eiu.edu/assess/majorassessment.php

DUE: **October 15th** to your Associate Dean or designee

BS in Neuroscience Year 4 Assessment Report
Fall 2021 to Spring 2023 Data

Student Learning Outcomes (SLOs) for Neuroscience Majors
First approved by the Department of Psychology on December 11, 2020

We have collected direct assessment data of the NRO student learning outcomes through embedded course assessments covering the last 2 years. PSY courses from which we report NRO student performance include the following:

- PSY 3310: Biological Psychology
- PSY 3450: Neuropsychology
- PSY 3518: Psych of Language Development
- PSY 3680: Sensation and Perception
- PSY 3820: Cognitive Neuroscience
- PSY 4810: Neuropsychopharmacology

Embedded course measures included quizzes, exams, reaction papers, journal article critiques, term papers, and oral presentations.

SLO(s) *Note: Measures might be used for more than 1 SLO*	ULG*	Measures/Instruments *Please include a clear description of the instrument including when and where it is administered*	How is the information Used? *(include target score(s), results, and report if target(s) were met/not met/partially met for each instrument)*
I. CONCEPTUAL KNOWLEDGE:			
1. Basic understanding of the development, structure, and function of the nervous system	NA	PSY 3680 Tests PSY 3820 Tests PSY 3450 Exams PSY 3450 Term Paper PSY 3518 Term Paper PSY 3310 Cumulative Quizzes PSY 3310 Quizzes PSY 4810 Quizzes	**83.5** (n = 51)
2. Basic understanding of the cellular and molecular biology of the nervous system	NA	PSY 3680 Tests PSY 3820 Tests PSY 3450 Exams PSY 3310 Cumulative Quizzes PSY 3310 Quizzes PSY 4810 Quizzes	**82.8** (n = 41)
3. Basic understanding of systems and behavioral approaches to neuroscience	NA	PSY 3680 Tests PSY 3820 Tests PSY 3450 Exams PSY 3310 Cumulative Quizzes PSY 3310 Quizzes PSY 4810 Quizzes	**82.8** (n = 41)

SLO(s) *Note: Measures might be used for more than 1 SLO*	ULG*	Measures/Instruments *Please include a clear description of the instrument including when and where it is administered*	How is the information Used? *(include target score(s), results, and report if target(s) were met/not met/partially met for each instrument)*
4. Broad-based and integrated knowledge acquisition in fields that intersect with neuroscience	NA	PSY 3680 Tests PSY 3820 Tests PSY 3450 Final Exam PSY 3450 Term Paper PSY 3518 Term Paper PSY 3310 Cumulative Quizzes PSY 3310 Quizzes PSY 4810 Quizzes	**84.1** (n = 51)
II. ANALYTIC AND SCIENTIFIC THINKING:			
1. Ability to collect, analyze, and interpret quantitative information	C, Q	PSY 3680 Journal Critique PSY 3310 Journal Critique PSY 3310 Reaction Paper PSY 4810 Reaction Paper	**88.6** (n = 24)
2. Abilities in scientific inquiry, such as hypothesis development, experimental design, and data analysis and interpretation	C	PSY 3680 Journal Critique PSY 3310 Cumulative Quizzes PSY 3310 Journal Critique PSY 3310 Quizzes PSY 3310 Reaction Paper PSY 4810 Quizzes PSY 4810 Reaction Paper	**86.2** (n = 44)
3. Ability to read and critically analyze a primary research paper	C, W	PSY 3680 Journal Critique PSY 3820 Term Paper PSY 3450 Term Paper PSY 3518 Term Paper PSY 3310 Journal Critique PSY 3310 Reaction Paper PSY 4810 Reaction Paper	**88.8** (n = 42)
III. RIGOROUS AND RESPONSIBLE CONDUCT OF RESEARCH:			
1. Basic understanding of scientifically rigorous experimental design and execution, as well as data analysis and interpretation	C, Q	PSY 3450 Term Paper PSY 3518 Term Paper	**86.2** (n = 10)
2. Basic understanding of research ethics, such as: Research misconduct and research integrity, including data falsification or manipulation; Policies regarding human subjects, live vertebrate animal subjects in research, and safe laboratory practices; Responsible authorship, peer review, and publication processes	R	PSY 3310 Cumulative Quizzes PSY 3310 Quizzes PSY 3310 Reaction Paper PSY 4810 Quizzes PSY 4810 Reaction Paper	**84.4** (n = 35)
IV. COMMUNICATION SKILLS:			

SLO(s) Note: Measures might be used for more than 1 SLO	ULG*	Measures/Instruments Please include a clear description of the instrument including when and where it is administered	How is the information Used? (include target score(s), results, and report if target(s) were met/not met/partially met for each instrument)
1. Ability to present scientific information orally in an organized and coherent manner	S	PSY 3820 Presentation	**96.3** (n = 8)
2. Ability to communicate scientific information in written format for scientific publication	W	PSY 3450 Term Paper PSY 3518 Term Paper	**86.2** (n = 10)
3. Ability to communicate scientific information to the lay public in both oral and written formats	S, W	PSY 3680 Journal Critique PSY 3310 Journal Critique PSY 3310 Reaction Paper PSY 4810 Reaction Paper	**88.6** (n = 24)
4. Listening carefully and asking pertinent questions	S	PSY 3820 Presentation	**96.3** (n = 8)
5. Visual presentation of data and preparation of figures	W	PSY 3820 Presentation	**96.3** (n = 8)
V. INDIVIDUAL DEVELOPMENT AND PROFESSIONALISM:			
1. Responsible and ethical behavior	R	PSY 3450 Term Paper PSY 3518 Term Paper	**86.2** (n = 10)
2. Teamwork and professional interpersonal skills	R	Faculty Evaluation of Student Researchers	See section 5.4 of the PSY Assessment table below
3. Exposure to the cultural diversity of the neuroscience community	R	PSY 3820 Term Paper PSY 4810 Reaction Paper	**95.5** (n = 16)
4. Advocacy and community outreach	R	Not assessed	
5. Awareness of career opportunities and the paths to achieve career goals	NA	PSY 3450 Final Exam	**87.5** (n = 8)

*Please reference any University Learning Goal(s) (ULG) that this SLO, if any, may address or assess. C=Critical Thinking, W=Writing & Critical Reading; S=Speaking and Listening; Q=Quantitative reasoning; R=Responsible Citizenship; NA=Not Applicable

PSY Faculty Evaluation of NRO Student Researchers

The table below contains faculty ratings of NRO majors enrolled in PSY 3900 (Independent Study) or PSY 4100 (Undergraduate Research). Sample sizes range from 4 to 8 students depending on the learning goal. Ratings are on a 4-point scale from 1 (Not at all) to 4 (A lot). Our target goals are mean ratings above 3.5, and 90% indicating "Some" or "A lot." A considerable number of these goals overlap with the NRO major learning goals.

We assessed the NRO students using the PSY major learning goals below, but we are planning to create similar assessments for the NRO major learning goals in the future.

1. Knowledge Base

Student Learning Objectives (ULG)	Measures/Instruments	Results
1.1 Describe key concepts, principles, and overarching themes in psychology	Faculty Evaluation of Student Researchers	M = 3.62, 100% Some/A lot
1.2 Develop a working knowledge of psychology's content domains	Faculty Evaluation of Student Researchers	M = 3.75, 100% Some/A lot
1.3 Describe applications of Psychology	Faculty Evaluation of Student Researchers	M = 3.75, 100% Some/A lot

2. Scientific Inquiry & Critical Thinking
(EIU LG "Critical Thinking" and "Quantitative Reasoning")

Student Learning Objectives (ULG)	Measures/Instruments	Results
2.1 Use scientific reasoning to interpret psychological phenomena	Faculty Evaluation of Student Researchers	M = 4.00, 100% Some/A lot
2.2 Demonstrate psychology information literacy	Faculty Evaluation of Student Researchers	M = 4.00, 100% Some/A lot
2.3 Engage in innovative and integrative thinking and problem solving	Faculty Evaluation of Student Researchers	M = 3.75, 100% Some/A lot
2.4 Interpret, design, and conduct basic psychological research	Faculty Evaluation of Student Researchers	M = 3.75, 100% Some/A lot
2.5 Incorporate sociocultural factors in scientific inquiry	Faculty Evaluation of Student Researchers	M = 3.20, 100% Some/A lot

3. Ethical & Social Responsibility in a Diverse World
(EIU LG "Responsible Citizenship")

| Student Learning Objectives (ULG)	Measures/Instruments	Results
3.1 Apply ethical standards to evaluate psychological science and practice	Faculty Evaluation of Student Researchers	M = 3.88, 100% Some/A lot
3.2 Build and enhance interpersonal relationships	Faculty Evaluation of Student Researchers	M = 3.71, 100% Some/A lot
3.3 Adopt values that build community at local, national, and global levels	Faculty Evaluation of Student Researchers	M = 3.00, 100% Some/A lot

4. Communication
(EIU LGs "Writing and Critical Reading" and "Speaking and Listening")

Student Learning Objectives (ULG)	Measures/Instruments	Results
4.1 Demonstrate effective writing for different purposes	Faculty Evaluation of Student Researchers	M = 3.75, 100% Some/A lot

4.2 Exhibit effective presentation skills for different purposes	Faculty Evaluation of Student Researchers	M = 3.80, 100% Some/A lot
4.3 Interact effectively with others	Faculty Evaluation of Student Researchers	M = 3.57, 100% Some/A lot

5. Professional Development

Student Learning Objectives (ULG)	Measures/Instruments	Results
5.1 Apply psychological content and skills to career goals	Faculty Evaluation of Student Researchers	M = 3.71, 100% Some/A lot
5.2 Exhibit self-efficacy and self-regulation	Faculty Evaluation of Student Researchers	M = 3.88, 100% Some/A lot
5.3 Refine project-management skills	Faculty Evaluation of Student Researchers	M = 4.00, 100% Some/A lot
5.4 Enhance teamwork capacity (This item is similar to NRO Goal V.2)	Faculty Evaluation of Student Researchers	M = 3.83, 100% Some/A lot
5.5 Develop meaningful professional direction for life after graduation	Faculty Evaluation of Student Researchers	M = 3.86, 100% Some/A lot

NRO Majors and Graduates by Semester
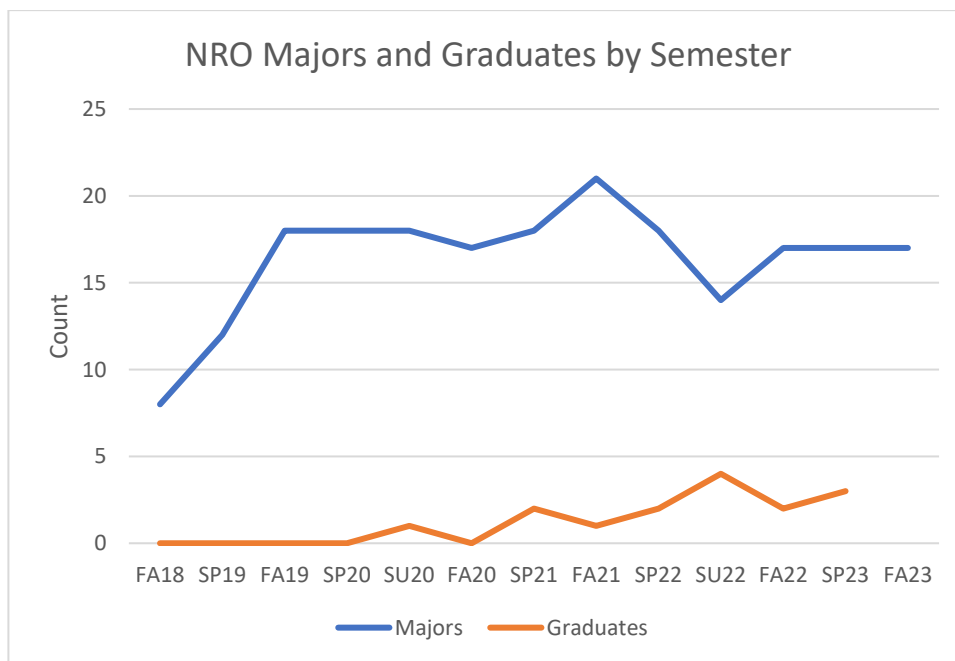
Improvements and Changes Based on Assessment

1. Provide a short summary (1-2 paragraphs or bullets) of any curricular actions (revisions, additions, and so on) that were approved over the past two years as a result of reflecting on the student learning outcomes data. Are there any additional future changes, revisions, or interventions proposed or still pending?
   a. Although not directly the result of reflecting on the student learning outcomes, we have eliminated an advising barrier for NRO majors who take BIO 1500. Instead of requesting a waiver for each student to apply the BIO 1500 course toward their BIO gen ed curriculum, it is now an automated process in Banner, which reduces the confusion about how to meet the BIO gen ed requirements.

     b. We have created a NEU prefix for the independent study, undergraduate research, internship, and research methods courses that will better designate their coursework experiences on their transcript.

     c. In the Biology Group requirements, we replaced *BIO 4833 Neurobiology of Diseases* with *BIO 4835 Advanced Neurobiology* and made *BIO 4833 Neurobiology of Diseases* an elective course. The change takes advantage of the timing of course offerings in the Biology Group sequence to facilitate graduation and prevent students from being forced to take a summer course (when *BIO 4833 Neurobiology of Diseases* is offered). Typically, *BIO 4834 Neurobiology* is offered in the Fall and is a prerequisite for *BIO 4835 Advanced Neurobiology,* which is offered in the Spring.

2. Please provide a brief description or bulleted list of any improvements (or declines) observed/measured in student learning. Be sure to mention any intervention made that has not yet resulted in student improvement (if applicable).

     a. This is the first assessment report with data so it is not possible to notice trends over time yet.

3. Using the form below, please document annual faculty and committee engagement with the assessment process (such as the review of outcomes data, revisions/updates to assessment plan, and reaffirmation of SLOs).

History of Annual Review		
Date of Annual Review	**Individuals/Groups who Reviewed Plan**	**Results of the Review (i.e., reference proposed changes from #1 above, revised SLOs, etc…)**
September 22, 2023	Neuroscience Committee	1. We affirmed the learning goals for the NRO major. 2. We established benchmark performance for each learning goal as achieving a mean of 85% on the embedded assessment measures for each learning goal. Based on the new criteria, learning goals I.1 to I.4 (Conceptual Knowledge) and III.2 (Research Ethics) did not meet the benchmark. 3. We need to continue discussion of how to assess V.4 Advocacy and community outreach. 4. Students in the NRO major were included in some direct assessments that were designed for rating psychology majors in the independent study and undergraduate research courses. We plan to create parallel direct assessments tailored just to the NRO learning goals.

Dean Review & Feedback: See Below

CLAS Dean's Comments

The BS in Neuroscience assessment plan is well-conceived with clearly identified and mapped out SLOs and measurements tied to instruments in specific courses in the program. The Neuroscience committee completed an annual review in September 2023 which resulted in an affirmation of the major's learning goals along with plans to revise program assessment based on an analysis of the data. Assessment data also informed decisions to revise program curriculum and led to streamlining student advisement procedures. Overall, the program report is well-done and we look forward to seeing the progress at the 4-year mark (2025).

Dean or designee: Michael Cornebise   Date: 11/17/2023

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VPAA or designee   Dr. Suzie Park, Asst VPAA Interim   Date: 4/2/24