YEAR 1 ELECTIVE COURSE

TITLE: Neuroanatomy Lab Assistant Practicum

COURSE NO.: SOMN 728

DEPARTMENT: Neurosciences

DIRECTOR: Richard Mooney

SEMESTERS AVAILABLE: spring (Block 3)

NUMBER OF STUDENTS: 6-8

LOCATION: Block Health Science Gross Anatomy Labs

CONTACT HOURS: 20 (training sessions 8 hrs; teaching lab sessions 12 hrs)

COORDINATOR: Richard Mooney

FACULTY: Richard Mooney, John Wall & Neuroscience Course Lab Faculty as “Preceptors”

GENERAL DESCRIPTION: The purpose of this elective is to review neuroanatomy of the brain and spinal cord; gain neuroanatomical teaching experience, as well as general communication skills and self-confidence; and then apply this knowledge and skill by serving as an assistant lab instructor (“lab assistant”) during the laboratory portion of the Neuroscience Course. Lab Assistants have been trained and used in teaching Neuroscience Course labs since 2005 as a volunteer experience without a formal academic structure, the lack of which is addressed in this proposed elective. Medical education standard ED-24 of the LCME requires that non-faculty educators of medical students receive training, monitoring, and evaluation by the faculty, and these features are incorporated into this elective. Outside of tutoring programs, peer to peer education in didactic courses is uncommon in the medical curriculum but has clear advantages in breaking communication barriers for learners and provides an unusual opportunity for professional growth for the student in the teacher role.

Terminology used below: “lab assistants” = students taking this elective; “lab students” = students currently enrolled in the Neuroscience Course with its labs; “training sessions” = preparatory sessions for lab assistants; “lab sessions” = labs for the Neuroscience Course, in which the lab assistants provide content expertise.
EDUCATIONAL CONTENT & PERFORMANCE OBJECTIVES:

1. Describe, diagram, and/or point out on anatomical specimens the gross surface and internal features of the brain (cerebrum, cerebellum, & brainstem) and spinal cord including lobes, major gyri and sulci/fissures, principle arteries and veins and their territorial distributions, meninges and dural sinuses, origin and ventricular flow patterns of cerebrospinal fluid, tracts, nuclei, peripheral ganglia and spinal nerves, and cranial nerve nuclei and brainstem attachment sites. (EPO: K1)

2. Relate major structures listed above to homologous regions of the central nervous system depicted in CAT and MRI images. (EPO: K1)

3. Recognize and point out on specimen brains or scans certain basic gross pathological features or evidence of surgical interventions: brain tumors, sites of tumor resection, subarachnoid and parenchymal hemorrhages, signs of infarct or vascular abnormalities. hydrocephalus, cortical loss resulting from aging or possibly associated with dementia. (EPO: K4)

4. Actively engage lab students to give them direction and assess their progress and understanding during brain dissections. Answer lab student questions to the best of the lab assistant’s ability and seek additional help or lab resources (models, prosections, plastinization demos, etc) to demonstrate or clarify concepts, structures, and anatomical relationships (EPO: S1)

5. Adhere punctually to scheduled teaching commitments as well as attendance at all training sessions. (EPO: P1)

6. Engage in Self-study and Self-assessment: Review, as needed -- outside of training sessions, the protocols and procedures for each lab and relevant content (structures), which lab assistants may be called upon to identify during the lab sessions. Consult with faculty lab instructors during lab sessions whenever uncertain in responding to questions posed by lab students. (EPO: P3)

7. Display professional deportment in dress and speech while serving during lab sessions. (EPO: P4)

EPO Key:

- **K1** Demonstrate knowledge of the normal structure and function of the body and each of its major organ systems
- **K4** Demonstrate knowledge of altered structure and function (pathology and pathophysiology) of the body and its major organ systems that are seen in various disease and conditions
• S1 Communicate effectively, both orally and in writing, with patients, patients’ families, colleagues, and others with whom physicians must exchange information in carrying out their responsibilities.
• P1 Demonstrate ethical, responsible, reliable and dependable behavior in all aspects of their professional lives and a commitment to patients, society and the profession.
• P3 Demonstrate the capacity to recognize and accept limitations in one’s own knowledge and clinical skills, and a commitment to continuously improve one’s knowledge and ability.
• P4 Demonstrate professionalism in dress, grooming, manner of speech and personal interactions with colleagues, faculty, staff, patients, patients’ families.

METHODS OF TEACHING:

AAMC curriculum inventory descriptors: demonstration, workshop, preceptorship, team-based learning

Senior neuroscience faculty (e.g., Mooney & Wall) will provide a training session typically the week before each respective lab session. It is important to note that the students participating in this elective are selected to become lab assistants based on their high achievement level in the Neuroscience Course the previous year; so that the information content of training sessions is actually review material. Training sessions entail demonstrations and discussions of educational objectives, teaching methods, and specific content for the upcoming lab. Feedback from the previous lab session is obtained from the lab assistants and discussed. Using brain specimens, the lab assistants then break into small groups of 2 or 3 to work on their own through the major procedures of the upcoming lab to refresh their own ability to identify structures, share their knowledge with team members, discover errors or ambiguity in the lab manual, and question the faculty about structures, functions, and clinical relevance. Finally, this elective has a preceptorship component in that each lab assistant selects, or is assigned, one of the course faculty to become their preceptor throughout the four labs. A portion of each lab session is spent with the lab assistant and preceptor working together to engage several groups of lab students (this arrangement is further described in the following section).

METHODS OF EVALUATION:

AAMC curriculum inventory descriptors: narrative assessment, peer assessment, self assessment

Credit will be given for this elective only if the lab assistant attends every training session and participates in at least one lab section for all four labs (approximately 20 hours minimum in training and lab class, plus self study). Quality of performance is also a factor for awarding credit, and the preceptor must give an overall favorable written evaluation of the assistant’s performance during their joint engagements of lab groups, in which the lab assistant is to take
instructional leadership. Specifically, the preceptor gives formative oral evaluations on the lab assistant’s demonstrated knowledge, teaching approach, and professionalism following each lab session and a summative narrative assessment across all sessions following the final lab. Each lab assistant is to provide a written self-evaluation after the fourth lab. Peer-assessment is covered in the following section.

STUDENT FEEDBACK:

The lab assistants are classmates (peers) of the lab students, although they have already taken Neuroscience through the MSBS program. Each table of lab students will be asked to provide a collaborative peer-assessment (Likert scale items and written comments) of the individual lab assistants assigned to work closely with them over the four labs. Assessed variables parallel those used by preceptor evaluations and both the preceptor narrative assessment and peer assessments are given to the lab assistants.

LINKAGE TO EPOS: see OBJECTIVES section

QUALITY ASSURANCE: Along with their written self-assessments, the lab assistants will be asked to include an evaluation of the quality of their experience in this elective during training and lab sessions. The preceptor faculty will also be asked to comment on how well this elective prepared the lab assistants for teaching neuroanatomy.

PREREQUISITS:

Students are invited to become lab assistants by the Elective Director based on their achievement in the Neuroscience Course taken while they were enrolled in the MSBS program, thus prior to matriculation as medical students. Since a limited number of lab assistant positions are available for this pool, class standing in Neuroscience (NERS 5810) will be the primary determinant in selection.