

END-1911: END DIRECTED PRACTICE I

Cuyahoga Community College

Viewing: END-1911 : END Directed Practice I

Board of Trustees:

March 2025

Academic Term:

Fall 2025

Subject Code

END - Electroneurodiagnostic

Course Number:

1911

Title:

END Directed Practice I

Catalog Description:

Clinical electroencephalography experience in a selected neurodiagnostic lab or an affiliated health care facility under the direct supervision of an EEG technologist or physician. Emphasis on EEG concepts. Performance of EEG testing on clinical patients, medical record keeping, and clinical history taking.

Credit Hour(s):

3

Lab Hour(s):

4.5

Other Hour(s):

8

Other Hour Details:

Directed Practice: 8 hours per week for 15 weeks

Requisites

Prerequisite and Corequisite

END-1350 Introduction to Electroencephalography (EEG) and concurrent enrollment in END-1450 Intermediate Electroencephalography (EEG).

Outcomes

Course Outcome(s):

Apply basic clinical knowledge of electroencephalography principles while setting up electroencephalograms in various clinical settings, and perform and discontinue electroencephalograms under supervision.

Objective(s):

1. Develop and display work setting preparedness.
2. Prep the scalp for electrode placement to achieve adequate and balanced electrode impedance levels of ≤ 5000 Ohms.
3. Complete the patient preparation by applying electrodes in an accurate, secure and neat fashion with collodion or electrolyte paste with the entire prep and application within 60 minutes on uncomplicated patients.
4. Consistently pass electrode verification sheets within tolerance limits (< 1.0 cm.) for patient electrode application.
5. Discuss the importance of inter-electrode impedance measurement and resistance measurements.
6. Acquire the EEG or evoked potential (EP) (run the machine) per lab protocol.
7. Perform calibrations, activation procedures and enter comments during the acquisition, per lab protocol.
8. Understand and employ display montage, filter, sensitivity, time base changes to enhance the recording and illustrate suspected abnormalities, per lab protocol.
9. Remove electrodes and adequately clean the scalp after testing has been completed.
10. Escort patient out of the laboratory area, per protocol.

11. Review the recording noting various electrographic states (wake, drowsy, sleep) and recognizing some abnormalities, if present.
 12. Review and discuss patient history with instructor.
 13. Compile paperwork and transfer data as necessary per lab protocol.
 14. Attend bedside (portable) and intra-operative EEG acquisition the clinical site may afford.
 15. Demonstrate acceptable personal characteristics (e.g. professionalism) which do not interfere with patient's care and complement that of the health care team.
 16. Develop and display best practices for infection prevention including the use of personal protective equipment (PPE), hand washing before patient encounter and after glove removal, proper disposal of single use items, correct and proper cleaning and disinfection of reusable items such as scalp electrodes, tape measures, combs, hairclips, etc. to achieve the appropriate level of disinfection, within the lab protocol.
 17. Develop and demonstrate professionalism and interpersonal skills including prompt arrival and readiness, communication with clinical site and preceptor for any changes in schedule (planned or unplanned).
 18. Demonstrate understanding and compliance with Occupational Health and Safety Administration (OSHA), Joint Commission on Accreditation of Healthcare Organizations (JCAHO), Health Insurance Portability and Accountability Act (HIPAA) and any other laboratory accreditation bodies.
 19. Demonstrate principles of patient safety and electrical safety.
 20. Participate in physician-lead learning symposium, integrate clinical activities and experiences into the total learning process.
 21. Display age/condition appropriate interactions with patient and family members in greeting patient and explain the application and testing procedure: EEG or EP to the patient.
 22. Address any questions or concerns posed by the patient or family members and provide additional interaction during the prep.
 23. Develop rapport with patient/family.
 24. Use personal communication skills to achieve patient relaxation/cooperation.
 25. Demonstrate beginning initiative for the testing situation.
 26. Explain the various activation or stimulation procedures used during recording EEG or EP.
 27. Perform head measurement for placement of electrodes according to the International 10-20 electrode placement. Adjust the electrode placement for anatomical defects or anomalies.
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Methods of Evaluation:

1. Clinical site final evaluations
2. Preceptor observations
3. Written homework log sheets
4. Weekly 10-20 verification forms
5. Written physician interaction assignment to reflect EEG pattern/ recording analysis

Course Content Outline:

1. Directed Practice Orientation (2-day session on campus)
 - a. Welcome to clinical rotations
 - i. Student badge distribution
 - ii. Clinical sites and what to expect
 - iii. Student appearance/proper attire
 - iv. Clinical preceptor vs. clinical instructors
 - v. Communication rules
 - b. Student expectations
 - i. Attendance rules
 - ii. Performance standards
 1. Directed Practice I
 2. Directed Practice II
 3. Directed Practice III
 4. Polysomnography (PSG) Directed Practice I
 - iii. Homework
 - c. EEG as a diagnostic tool in practice
 - d. Seizures and epilepsy in practice
 - e. HIPAA training/quiz
 - f. END code of ethics/scope of practice/student limitation
 - g. Grading/evaluation methods

- i. Clinical site evaluations
 - ii. Preceptor evaluations/preceptor site visits
 - iii. 10-20 verification form standards
- 2. Clinical orientation activities
 - a. Departmental orientation
 - i. Meet medical director
 - ii. Meet technical director
 - iii. Classroom and meeting area
 - 1. Departmental reports
 - 2. Departmental in-services
 - 3. Procedural priorities
 - iv. Parking facilities
 - v. Equipment storage
 - vi. Equipment handling
 - b. Hospital orientation
 - i. Knowledge of management of information
 - 1. Admissions
 - 2. Medical records
 - ii. Admissions
 - iii. Medical records
 - c. Knowledge of environmental care standards
 - i. Safety education/emergency procedures
 - ii. Infection control policies
 - 1. Hospital reporting structures
 - 2. Usage of standard precautions (universal)
 - iii. Equipment cleaning
 - 1. Disinfecting
 - 2. Sterilization
 - iv. Soiled linen/clothing
 - 1. Technologist responsibilities
 - 2. Ordering of clean linens
 - 3. Disposal of soiled linens
 - 4. Environmental services responsibilities
 - 5. Contact with bodily fluids
 - 6. Infectious waste policies
 - v. Use of disposable supplies
 - vi. Personal protective equipment
 - vii. Infectious waste policies
 - d. Clinical orientation
 - i. Safety
 - 1. Student responsibility
 - 2. Clinic's policies
 - 3. Patient's safety
 - 4. Fire procedures
 - 5. Emergency procedure plans
 - a. Active shooter
 - b. Bomb threat
 - c. Earthquake
 - d. Explosion
 - e. Fire
 - f. Medical emergency
 - g. Power outage
 - h. Suspicious item
 - i. Terrorism
 - j. Severe weather
 - 6. Equipment safety, performance testing, and maintenance
 - 7. Collodion and acetone usage and storage
 - 8. Material Safety Data Sheets (MSDS)
 - 9. Oxygen precautions

- ii. Medical emergencies
 - 1. Definition
 - 2. Safety of patient
 - 3. Documentation
 - 4. Cardiopulmonary resuscitation (CPR) training and certification
 - 5. Seizure precautions and first aid
 - 6. Psychiatric emergencies
 - a. Assessment of patient
 - b. Notification of security/medical personnel
 - c. Suicide precautions
 - d. Documentation
 - 7. Cardiac/arrhythmia procedures
 - 8. Respiratory arrest/arrhythmia procedures
- iii. Patient charts
- iv. Charting procedures
- v. Review student notebook
- vi. Procedures for calling in late or sick
- vii. Attendance
- viii. Lesson plans
- 3. Clinical proficiencies
 - a. Electrical theory
 - b. Instrumentation
 - c. 10-20 set up
- 4. Clinical activities
 - a. Performing electroencephalograms
 - i. Explanation of procedure
 - ii. Set up/placement of electrodes
 - b. Troubleshooting
 - i. Artifact
 - 1. Physiological
 - 2. Non-Physiological
 - ii. Methods and concepts
 - 1. Artifact rejection
 - 2. Raw input
 - 3. Electrodes
 - 4. Equipment
 - 5. Cables
 - c. Patient protection, safety, and environmental issues
 - i. Hazardous items
 - 1. Collodion
 - 2. Acetone
 - 3. Needles and sharps
 - ii. Patient sedation
 - iii. Patient management
 - iv. Infection control
 - 1. Bloodborne pathogens
 - 2. Respiratory pathogens
 - v. Patient rights and confidentiality
 - vi. Electrical safety
 - 1. Grounding
 - 2. Leak current
 - 3. Connections
 - vii. Cardiopulmonary resuscitation
- d. Time organization
- e. Physician rounds
- f. Procedural priorities
- g. Patient transport
- h. Equipment processing

- i. Expand knowledge base
- j. Development of professional, interpersonal, and communication skills
- 5. Laboratory activities (on campus)
 - a. Patient set up
 - i. Measuring and marking (human head)
 - ii. Skin prep
 - iii. Paste application
 - iv. Collodion application
 - v. Post-test cleanup
 - b. Patient testing
 - i. Test explanation/patient communication
 - ii. Impedances
 - iii. Test start up
 - iv. Loss of consciousness (LOC) assessment
 - v. Activations
 - vi. Test ending

Resources

American Society of Electroneurodiagnostic Technologists. *EEG Recording Techniques and Instrumentation*. 2nd ed. ASET, 2000.

American Society of Electroneurodiagnostic Technologists. *EEG Montages and Polarity*. ASET, 1999.

American Society of Electroneurodiagnostic Technologists. *EEG Electrodes, Application and Infection Control*. ASET, 2001.

American Society of Electroneurodiagnostic Technologists. *EEG Activation/Artifacts*. 2nd ed. ASET, 1999.

Marcuse, Lara V., et al. *Rowan's Primer of EEG*. 2nd ed. Elsevier Biomedical Press, 2016.

Ebersole, John S. editor, et al. *Current Practices of Clinical Electroencephalography*. 5th ed. Wolters Kluwer Health, 2023.

Yamada, Thoru, and Elizabeth Meng . *Practical Guide for Clinical Neurophysiologic Testing: EEG*. 2nd ed. Wolters Kluwer, 2018.

Resources Other

1. *American Journal of Electroneurodiagnostic Technology (AJET)* by the ASET; 4 issues annually; which reflects most recent changes and updates in the field.
2. Best Practices - ASET - The Neurodiagnostic Society (<https://www.aset.org/best-practices/>). 2025.
3. Education - ASET - The Neurodiagnostic Society (<https://www.aset.org/education/>) 2025.

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