



## BioNeurofeedback Treatment Center

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### WIDENER UNIVERSITY'S **NEUROFEEDBACK BCIA PREPARATORY**

#### POWERPOINT COURSE SYLLABUS

**This course material is designed to meet the didactic requirements for BCIA (Biofeedback Certification International Alliance) certification in neurofeedback.**

**Catalog Description:** Applied Psychophysiology using bioneurofeedback has emerged as a valuable behavioral-based treatment intervention for a wide variety of disorders of the autonomic and central nervous system. This course will focus exclusively on EEG-biofeedback (neurofeedback).

**Educational Objectives:** Provide the required didactic instruction for BCIA certification in Neurofeedback. Discuss clinical assessment, protocol development, and client care in the use of neurofeedback

**Course Text:** Demos, John, 1st ed. (2005). Getting Started with Neurofeedback, Norton, New York.

**DO NOT PURCHASE THE 2nd EDITION** (this covers more advanced materials)

**Grading/Evaluation:** complete the 2 post-lecture tests and send them to Dr. De Bease for grading (via email or traditional mail). You need to pass with a grade of 75%. You can retake any test after a review of the correct responses. Once the 2 tests are completed, you will receive a Certificate of Completion from BioNeurofeedback and BCIA will be notified that you have completed the didactic requirement towards certification in neurofeedback (if you are seeking certification).

**Note regarding readings:** Articles in pdf format are provided in the course. Links to web sites for demonstrations are also provided.

Also provided are note pages of the slides with either 3 per page or 9 per page

## **Lecture 1 Orientation to Neurofeedback (4 hours)**

Definition of Neurofeedback (EEG Biofeedback)  
History and Development of Neurofeedback  
Overview of principles of human learning as they apply to neurofeedback  
Assumptions underlying Neurofeedback

*Readings:* Demos – Chapter 1  
Conditioning of Induced EEG Sleep Patterns in the Cat.pdf  
Operant Conditioning of EEG Rhythms.pdf

*Optional:* Deactivation of the Brain Areas during Self-Regulation.pdf  
Discourse on the Development of EEG Diagnostics & Biofeedback for ADHD

## **Lecture 2 Basic Neurophysiology & Neuroanatomy (4 hours)**

Neurophysiology  
Functional Neuroanatomy

*Readings:* Demos – Chapter 2  
Differences between EPSP and Action Potential.pdf  
Coherence a measure of the brain networks.pdf

## **Lecture 3 Instrumentation & Electronics (4 hours)**

Essential Terms & Concepts  
Signal Acquisition  
Signal Processing  
Aseptic Techniques  
Instrumentation Demonstration

*Readings:* Demos – Chapters 3, 4, 5, 6, 7  
EEG Power-Spectral and Coherence Differences.pdf  
Infection Risk Mitigation.pdf

EEG Demo Videos:

<https://www.youtube.com/watch?v=vniog26Qp94> – Preparing for your EEG  
[https://www.youtube.com/watch?v=1xT\\_bnv0mCc](https://www.youtube.com/watch?v=1xT_bnv0mCc) – Measuring and Marking the Head  
<https://www.youtube.com/watch?v=XMizSSOejg0> – Introduction to EEG

## **Lecture 4 - Research Evidence Base for Neurofeedback (2 hours)**

Determining levels of efficacy and effectiveness of neurofeedback  
Key research studies establishing current efficacy levels of major applications of Neurofeedback

*Readings:* Evidence Based Practice in Biofeedback and Neurofeedback Summary.pdf

## **Lecture 5 Psychopharmacological Considerations (2 hours)**

Potential effects of prescribed and non-prescribed drugs on clinical presentation, on EEG measures, and on neurofeedback assessment and training

## **Lecture 6 Patient/Client Assessment (4 hours)**

Intake Assessment

EEG Assessment

Ongoing Assessment

Instrumentation Demonstration

*Readings:* Demos – Chapters 8, 9, 10, 11  
QEEG Tutorial.pdf  
QEEG Sample Report 1.pdf  
QEEG Sample Report2.pdf

EEG Demo Video - <https://www.youtube.com/watch?v=-5djHvFo7IQ>

## **Lecture 7 - Developing Treatment Protocols (6 hours)**

Evolution of neurofeedback protocols

Steps in protocol development and treatment planning

Demonstration and case example exercises for practice

*Readings:* Demos – Chapter 12, re-read chapters assigned for Lecture 3

## **Lecture 8 - Treatment Implementation (6 hours)**

Client preparation for neurofeedback

Therapeutic relationship, coaching, and reinforcement strategies

Procedures and mechanics of conducting a neurofeedback session

Introduction to Alpha-Theta Training

Guidelines and Cautions for Remote Training

Full Neurofeedback Session Demonstrations

EEG Demo Video (montages) <https://www.youtube.com/watch?v=AcW97nMLGEs&t=622s>

*Readings:* Demos – Chapter 13  
Alpha-Theta\_Therapeutic\_Implications.pdf  
ISNR\_Guidelines\_Remote.pdf  
Handout-10-10-System.png  
First, Do No Harm.pdf

## **Lecture 9    Current Trends in Neurofeedback (2 hours)**

Identify current trends such as z-score training, LORETA z-Score training, etc.  
Combining neurofeedback with other modalities

*Readings:*        Demos – Chapter 14  
                          ILFNB.pdf

## **Lecture 10        Ethical & Professional Conduct (2 hours)**

Ethical and Legal Practice Familiarity, Clinical Practice, Scope of Practice, Client rights, Supervision, and Professional relationships

*Readings:*        Demos – Chapters 15, 16, 17  
                          ISNR Code of Ethics.pdf  
                          ISNR Practice Guidelines.pdf  
                          Duffy: The State of EEG.pdf  
                          Professional Standards and Ethical Principles in Biofeedback