



BioNeurofeedback Treatment Center

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WIDENER UNIVERSITY'S BCIA **GENERAL BIOFEEDBACK** DIDACTIC COURSE SYLLABUS

This course material is designed to meet the didactic requirements for BCIA (Biofeedback Certification Institute of America) certification in **General Biofeedback.**

Course Text:

Schwartz, M. & Andrasik, F., 4rd ed. (2016). Biofeedback-A Practitioner's Guide, Guilford, New York.

Course Educational material:

Biofeedback Tutor; Dr. Fred Shaffer, Biosource Software. (can be purchased from my web site <http://www.bioneurofeedback.com/courses.htm> or any other approved vendor)

Lecture 1 **Orientation and Overview** **Psychophysiological Paradigms**

Theoretical concepts: history of biofeedback & forces leading to its emergence

Operant conditioning of physiological processes: from Skinner to Miller

Classical conditioning of physiological processes: PNI

The Stress-Disease Model

We will examine an overview of the mind's complex processes and gain some perspective on the massive body of knowledge that surrounds the topic of how the mind and body interact in the areas of wellness and disease.

Readings: Schwartz: 1, 2

Shaffer: Core: History, Concepts

Selected web readings:

What Kinds of Problems Can Biofeedback Help

<https://bio-medical.com/resources/what-kinds-of-problems-can-biofeedback-help/>

Lecture 2 Stress, Coping and Illness

The central and peripheral nervous systems

The autonomic nervous system and its innervations of skeletal, cardio, GI and respiratory systems

The Stress Response: Acute/Chronic; Canon, Selye

The Relaxation Response: Benson

Dysfunction caused by hyperarousal of autonomic responses

Overview of psychophysiological remedies: why and how they work

Readings: Schwartz chapter 12 [Relaxation Today], 16 [this chapter covers negative rxns]

Shaffer: Core: Psychophysiology; Stress

Lecture 3 Psychophysiological Recording

Biofeedback and essential electronic terms/concepts

Working with the equipment: attaching temperature probe & SEMG sensors: frontal, trapezius, masseter muscles

Working with the signal: means, standard deviations, artifact and assessments

Essential electronic terms and concepts for biofeedback applications

Working with the patient: patient orientation/preparation

Readings: Schwartz chapters 3 [Primer...BFB Instrumentation]

Shaffer: Core: Electricity

Lecture 4 Research Methodology

Research Designs and concepts. Fundamental statistics. Some key research studies for the use and efficacy of biofeedback.

Readings: Schwartz: chapter 19

Shaffer: Core:Research

4R Template for Developing Guidelines for the Evaluation of the Clinical Efficacy of Psychophysiological Interventions

4R Evidence based practice in Biofeedback and Neurofeedback

Lecture 5 SEMG Applications

Psychophysiological Function & Pathology: Skeletal Muscle System

Dysfunction of the skeletal system: tension headache, TMJ, chronic pain, CNS injuries

Muscle anatomy and physiology: overview

Psychophysiological recordings: SEMG biofeedback - surface Electromyography

SEMG biofeedback sensors and sensor placements

Assessment of muscular tension; co-contraction and dysponesis

Readings: Schwartz chapters 4, 20, 21, 31, 36

Shaffer: Anatomy: Skeletal Muscles

Shaffer: Hardware: EMG

Shaffer: Applications: Musculoskeletal

Selected web readings:

<http://bio-medical.com/resources/emg-or-electromyography/>

EMG or Electromyography

Lecture 6 ANS Applications – Electrodermal Activity

Psychophysiological Function & Pathology: Somatic Anxiety

Electrodermal Activity

Comparison of somatic anxiety and emotional/cognitive anxiety

Skin Conductance Activity (SCA) or GSR biofeedback (Galvanic Skin Response)

Assessments of GSR patterns

Readings: Shaffer: Anatomy: Electrodermal

Selected web readings: <http://bio-medical.com/resources/gsr-or-galvanic-skin-response/>
GSR or Galvanic Skin Response

Lecture 7 ANS Applications – Cardiovascular/Thermal

Psychophysiological Function & Pathology: Vascular System

Dysfunction of the Vascular system: Raynauds, migraine, hypertension, neuropathies & diabetes

Peripheral Temperature biofeedback

Assessment of vasoconstriction patterns

Introduction to Heart Rate Variability biofeedback

Methods of recording HRV

Readings: Schwartz chapters 5 (section on HRV), 13, 22, 23

Shaffer: Anatomy: Cardiovascular

Shaffer: Hardware: Cardiovascular

Shaffer: Applications: Cardiovascular

Selected web readings: Temperature Biofeedback Articles: *Hand Warming Explanation*
<http://bio-medical.com/resources/temperature-biofeedback-hand-warming-explanation/>

Lecture 8 Respiratory Applications

Respiratory Psychophysiology

Breathe patterns and their meaning

Assessment of respiratory patterns

Readings: Schwartz: chapter 5 (up to HRV)

Shaffer: Anatomy: Respiration

Shaffer: Hardware: Respiration

Shaffer: Applications: Respiration

Lecture 9 Intervention & Intake

Psychophysiological Profiling – the diagnostic intake assessment

Differential diagnostics is an all-important skill for the development of cohesive treatment plans.

The PSP is THE most important diagnostic tool for the psychophysiologicalist.

Conducting a PSP, Interpreting a PSP, Using other diagnostic tools to complement and supplement the PSP

Readings: Schwartz chapters 8 and 14

Selected web reading: <http://www.futurehealth.org/psp.htm> Psychophysiological Stress Profiling (PSP) © 1995 Rob Kall

Lecture 10 Professional Conduct

Licensure and Certification

Clinician responsibility and competence

Supervision compared to consultation (mentoring)

Legal and Ethical issues

Record keeping in psychophysiology

Readings: Schwartz chapters 17 and 18

Shaffer: Core: Ethics

10R - Professional Standards and Ethical Principles of Biofeedback