NATIONAL
ACADEMY OF
NEUROPSYCHOLOGY

CLINICAL PSYCHOPHARMACOLOGY
SYLLABUS

OVERVIEW

The goal of this CE course is to provide participants with our current understanding of the molecular sites and mechanisms of action by which the major drugs used to treat psychiatric disorders act in the brain. The course will review the principles of electrical and chemical signaling in the central nervous system (CNS) and will cover the neurotransmitter receptors, ion channels and associated synaptic proteins that are the targets of the most widely utilized psychotropic agents. The underlying neuropathological changes in brain structure and neurotransmitter pathways implicated in psychiatric disorders, such as depression and psychoses will be presented and discussed. Finally, the clinical benefits and unwanted (or adverse) side-effects of the different classes of psychopharmacological agents will be compared in relation specific patient groups.

COURSE DIRECTORS

Robert F. Halliwell, BSc, MSc, PhD.
Professor of Pharmacology and Neuroscience

William A. Kehoe, Pharm.D., MA, FCCP, BCPS
Professor of Pharmacy Practice and Psychology
Director, Office of Academic Success and Instructional Support

Thomas J. Long School of Pharmacy and Health Sciences
University of the Pacific, Stockton, California

REQUIRED MATERIALS

Preston JD, O'Neal JH & Talaga MC, Handbook of Clinical Psychopharmacology for Therapists, 7th edition, New Harbinger Publications Inc. ISBN 978-1-60882-664-3 (Hardback).

Note: Participants should purchase the Preston text from the vendor of your choice immediately after registration. Neuroscience Education Institute provides membership at discount for Military personnel and students with active student ID cards. O**n the assigned and optional readings:** Participants will need to read all the assigned chapters in the Preston text. Where appropriate we have supplemented the text with articles or other resources that we feel will expand on the text. These are indicated as "recommended" in the Modules. We have attempted to limit the amount of reading required to what we think is essential. But we also would encourage participants to consider the optional readings as they will provide a deeper understanding of the use of drugs in the mentally ill.

DURATION, WORKLOAD, CREDITS

This is a 15-week online educational program that combines text readings, supplemental discussion questions and student-instructor interactions *via* the online discussion board. The course is divided into 9 modules. The DistanCE program expects that a minimum workload of 3-4 hours of work is necessary to keep up with the course.

Students who successfully complete all course requirements are eligible to receive 30 CE credits for psychologists. The National Academy of Neuropsychology is approved by the American Psychological Association to offer continuing education for psychologists. The National Academy of Neuropsychology maintains responsibility for the program.

COURSE FEES:

NAN Members: $450
Non-members: $750

OBJECTIVES

Upon completion of the course, the learner will be able to:

1. Describe the structure and function of neurons and glia, as well as key elements of synaptic neurotransmission.
2. Recognize the key elements of signal transduction, receptor and neurotransmitter transporter function and appreciate the pharmacodynamics and pharmacokinetics of psychotropic agents.
3. Identify the receptors, ion channels and enzymes that are the primary targets of psychopharmacological drug actions.
4. Describe the contribution of genetic factors to the neuropathological and neurochemical changes associated with psychiatric disorders.
5. Examine key psychopharmacological circuits and be able to "deconstruct" psychiatric syndromes to introduce rationale treatment strategies
6. Describe current medication strategies for psychiatric disorders based on evidence-based treatment guidelines or algorithms and future directions of novel treatments for the following mental disorders:
    a. Major depressive disorder
    b. Psychoses & Bipolar disorder
    c. Anxiety disorders
        i. Generalized anxiety disorder
        ii. Social anxiety disorder
        iii. Post-traumatic stress disorder
        iv. Panic disorder
    d. Insomnia
    e. Attention Deficit/Hyperactivity Disorder
    f. Dementias
    g. Substance use disorders

7. Recognize warnings, precautions, and appropriate referrals for medical interventions for side effects as they relate to the use of psychotropic medications.
8. Formulate a monitoring plan for patients receiving psychotropic medications.
9. Compare and contrast the pharmacological mechanisms of action, clinical efficacy, side effect profiles and role in therapy of medications in the following psychotropic classes:
    a. Antipsychotics (typical and atypical agents)
    b. Antidepressants (all classes including MAO inhibitors)
    c. Mood stabilizers (anticonvulsants and lithium)
    d. Anxiolytics
    e. Sedative hypnotics
    f. Psychostimulants and atomoxetine
    g. Acetylcholinesterase inhibitors and memantine
    h. Medications used to treat substance use disorders (naltrexone, acamprosate, buprenorphine, methadone, disulfiram)

COURSE REQUIREMENTS

To pass course requirements and earn continuing education credits or a certificate of completion, students must 1) complete all multiple choice post-test examinations, earning a cumulative percentage >74% correct and 2) participate in assigned course discussions and activities as judged by the instructor. **The DistanCE online system automatically records performance on our multiple-choice exams, which may be taken multiple times.**

COURSE OUTLINE AND SCHEDULE

Introduction to Course
Review of Course Syllabus and Requirements
Technology Issues/Getting on the DistanCE Website
Obtaining Materials

Modules:

Module 1: Functional Neuroanatomy & Principals of Signaling in the Nervous System

Assignments (Required)

1. Read ***Preston*** *et al.*, chapters 1-3, pages 3-43.
2. Review Power Point
3. Module 1 quiz

Module 2: Fundamental Principles in Psychopharmacology

Assignments (Required)

1. Read ***Preston*** *et al.*, chapter 4, pages 45-56; Appendix A, pages 275-279.
2. Review Power Point
3. Module 2 quiz

Module 3: Psychoses, Schizophrenia and Pharmacotherapy

Assignments

1. Aetiology, Signs & Symptoms, Clinical Pharmacology of Antipsychotics (Dr. Halliwell)
    a. Required Reading
        i. ***Preston*** *et al.*, chapter 11, pages 127-136
        ii. ***Preston*** *et al.*, chapter 19, pages 223-233.
        iii. Psychoses and anti-psychotic drug pharmacology Power Point
2. Pharmacotherapy (Dr. Kehoe)
    a. Readings
        i. ***Preston*** *et. al.*, chapters listed above for schizophrenia
        ii. Texas Medication Algorithm Project Clinician's Manual pages 7-16, 20, 23-26, Appendices C and D (optional but recommended)
        iii. Study Guide on Schizophrenia from Dr. Kehoe
        iv. Review the treatment of schizophrenia in the Harvard Psychopharmacology Algorithm Project (http://psychopharm.mobi)
3. Module 3 quiz

Module 4: Mood disorders: depression, bipolar disorders and their treatment

Assignments

1. Signs, symptoms, aetiology and clinical pharmacology (Dr. Halliwell)
    a. Required reading
        i. ***Preston*** *et al.*, chapter 7, pages 75-93
        ii. ***Preston*** *et al.*, chapter 16, pages 173-196.
        iii. ***Preston*** *et al.*, chapter 17, pages 197-211.
        iv. Mood disorders and anti-depressant drug pharmacology Power Point
2. Pharmacotherapy (Dr. Kehoe)
    a. Readings
        i. ***Preston*** *et. al.*, chapters listed above (Required)
        ii. ***Preston*** *et. al.* chapter 8, pages 93-104 (Required)
        iii. Texas Medication Algorithm Project (Depression) Clinician's Manual pages 4-29, Appendices A, C, D, and E (optional but recommended)
        iv. Texas Medication Algorithm Project (Bipolar Disorder) Clinician's Manual pages 5-20, 23-24, Appendices C, D, and E (optional but recommended)
        v. Study Guides on Depression and Bipolar Disorder from Dr. Kehoe
        vi. Review the treatment of bipolar mania and depression in the Harvard Psychopharmacology Algorithm Project (http://psychopharm.mobi)
3. Module 4 quiz

Module 5: Anxiety disorders: GAD, SAD, PTSD, Panic disorders and their treatment

Assignments

1. Signs & Symptoms, Aetiology & Clinical Pharmacology of Anxiolytics (Dr. Halliwell)
        i. Required Reading From ***Preston*** *et al.*,:
        Chapter 9, pages 105-120
        Chapter 10, pages 121-125
        Chapter 12, pages 137-144
        Chapter 18, pages 213-221
        ii. Anxiety disorders and anxiolytic drug pharmacology Power Point
2. Pharmacotherapy (Dr. Kehoe)
    a. Readings
        i. ***Preston*** *et. al.* chapters listed above.
        ii. Koen and Stein, Pharmacotherapy of anxiety disorders: a critical review. *Dialogues Clin Neurosci* 2011; 13: 423-37. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3263390/pdf/DialoguesClinNeurosci-13-423.pdf (optional but recommended)
        iii. Study Guide on Anxiety Disorders from Dr. Kehoe
        iv. Review the treatment of PTSD and social anxiety disorder in the Harvard Psychopharmacology Algorithm Project (http://psychopharm.mobi)
    b. Optional
        i. IPAP guidelines for GAD and PTSD (available at: www. IPAP.org)
3. Module 5 quiz

Module 6: Insomnia

Assignments

1. Pharmacotherapy (Dr. Kehoe)
    a. Required
        i. Morin and Benca, Chronic insomnia. *Lancet* 2012;379:1129-41 (available at: http://www.sciencedirect.com/science/article/pii/S0140673611607502)
        ii. Buysse D. Insomnia, JAMA 2013;309(7):706-16. (available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3632369/)
2. Module 6 quiz

Module 7: Childhood disorders: ADHD and its treatment

Assignments

1. Pharmacotherapy (Dr. Kehoe)
    a. Required
        i. ***Preston** et. al.* chapter 23, pages 251-258.
        ii. Implementing the key action statements: An algorithm and explanation for Process of Care for the evaluation, diagnosis, treatment, and monitoring of ADHD in children and adolescents. American Academy of Pediatrics, 2011. Available at http://www.cdc.gov/ncbddd/adhd/guidelines.html. If you go to this site you will see a link to a pdf of the AAP guide to the implementation of these recommendations. You should read this guideline.
        iii. Study Guide on ADHD by Dr. Kehoe
        iv. Minzenberg M. Pharmacotherapy for attention-deficit/hyperactivity disorder: from cells to circuits. Neurotherapeutics 2012;9:610-21. (available at http://link.springer.com/article/10.1007%2Fs13311-012-0128-7) (optional)
2. Module 7 quiz

Module 8: Geropsychiatry: dementias and their treatment

Assignments

1. Alzheimer's disease, Neuropathology, Diagnosis and Clinical Pharmacology of Anti-dementia Agents (Dr. Halliwell)
    a. Required
        i. **Preston *et al.,*** Appendix E, pages 309-312.
        ii. Power Point by Dr Halliwell
        iii. *Recommended*, if available to you: chapter 10 of Basic Psychopharmacology for Counselors and Psychotherapists, 2nd edition (2012) Sinacola & Peters-Strickland, ISBN-13-978-0-13-707980-3.
2. Pharmacotherapy (Dr. Kehoe)
    a. Readings
        i. ***Preston** et al.* pages listed above
        ii. Treatment of Alzheimer Disease. American Family Physician 2011. Available at http://www.aafp.org/afp/2011/0615/p1403.pdf
        iii. Study Guide on Geropsychiatry from Dr. Kehoe
3. Module 8 quiz

Module 9: Substance abuse and its treatment

Assignments

1. Drugs of Abuse and Clinical Pharmacology (Dr. Halliwell)
    a. Required
        i. ***Preston** et al.,* chapter 14, pages 151-158.
        ii. Power Point on Drugs of Abuse
2. Pharmacotherapy (Dr. Kehoe)
    a. Readings
        i. ***Preston** et. al.* pages listed above.
        ii. VA/DoD Clinical Practice Guideline for Management of Substance Use Disorders (available at: http://www.healthquality.va.gov/guidelines/MH/sud/)
            1. Required: pages 3-7, Modules P and S
            2. Optioinal: Modules A, B, C, and Appendices
        iii. Study Guide on Substance Abuse (Alcoholism)
3. Module 9 quiz

Course Evaluation