Includes:

1. Course Curriculum Recommendations*
2. Preceptorship Module Recommendations*

*These are the criteria utilized by AMP to accredit psychopharmacology training programs, psychopharmacology preceptorship experiences, and to evaluate AMP applicants.

Acknowledgements:

American Psychological Association
Recommended Guidelines for Psychologist Psychopharmacology Training (1996)

The Psychopharmacology Institute
Coursework and Preceptorship Training in Psychopharmacology for Psychologists (1997)

American Society for The Advancement of Pharmacotherapy
(APA Division 55)

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Clinical Anatomy & Physiology

A. Anatomical and Medical Terminology
B. Anatomical Variations
C. Skin and Fascia
D. Skeletal System
E. Muscular System
F. Circulatory & Cardiovascular System
G. Lymphatic System
H. Respiratory System
I. Reproductive System
J. Endocrine System
K. Gastrointestinal System
L. Urinary System
M. Nervous System

Biochemistry

A. Psychoactive brain receptor responses
B. Functioning of neurotransmitters
C. Enzymatic actions
D. Generating energy
E. Carbohydrates
F. Lipids
G. Amino acids
H. Peptides
I. Proteins
J. Enzymes
K. Hormones
L. Vitamins
M. Genetics
Pathophysiology

A. Concepts of Health & Disease
B. Genetic and Congenital Disorders
C. Alterations in Nutrition and Metabolism
D. Dysfunctions of Hematopoietic Functions
E. Alterations in Immunity
F. Cardiovascular Dysfunctions
G. Respiratory Dysfunctions
H. Pathologies in Renal Functions, Electrolytes and Fluid Balance
I. Review of Imbalances in Acid/Base of the Human Body
J. Gastrointestinal Dysfunctions
K. Neoplasms
L. Endocrine Pathologies
M. Genitourinary and Reproductive Pathologies
N. Nervous System Dysfunctions
O. Alterations in Vision, Vestibular and Auditory Functions
P. Dysfunctions in Musculoskeletal System
Q. Review of pathologies of the Integumentary System
R. Special Consideration of the Iatrogenic Pathologies
   1. General Care
   2. Specific to Psycho Pharmacology
Neurobiology

A. Neuroanatomy
1. Overview of anatomy, physiology, and pathophysiology
2. Brain: basic anatomy
   a. Brain stem, hind brain, mid-brain, and reticular formation
   b. Pathways for major neurotransmitter systems
   c. Complex inter-relationships between limbic system, hypothalamus and the pituitary gland
   d. Diencephalon
   e. Basal ganglia
   f. Cortical regions
   g. Lateralization and inter-hemispheric communications
3. Functional neuroanatomy (anatomy, normal brain functioning, and manifestations of pathology)
   a. Brain stem, hind brain, mid-brain, and reticular formation
   b. Pathways for major neurotransmitter systems
   c. Complex inter-relationships between limbic system, hypothalamus and the pituitary gland
   d. Diencephalon
   e. Basal ganglia
   f. Cortical regions
4. Nervous system on a cellular level
   a. Intercellular communication
   b. Intracellular electrochemical activity
      i. Gene expression
      ii. Second messenger systems
   c. Receptors
5. Functional neuroanatomy, neurophysiology and psychiatric disorders
   a. Depression/bipolar depression and monoamine hypothesis
   b. Photic stimulation and seasonal affective disorders
   c. Medication effects, side effects, on multiple organ systems
6. Neuropathology: overview of clinical features of common neurological disorders (focusing specifically on those disorders that may present with psychiatric symptomatology)
7. Neuroimaging technologies: CT, MRI, PET, SPECT, functional MRI, and applications in psychiatric disorders.
8. Chronobiology: biological rhythms, e.g., the circadian rhythm
B. Neurophysiology

1. Neurotransmitters that play a role in biologic rhythms, environmental cues and their impact on biologic rhythms

2. Advanced study of cellular and molecular biology: structure and functioning of the neuron with special emphasis on mechanisms
   a. Underlying intraneuronal signaling, synthesis of neurotransmitters
   b. Second messengers
   c. The impact of second messengers on gene expression
   d. Gene expression
      i. DNA and RNA
      ii. Transcription and translation into proteins
      iii. Posttranslational regulation of proteins
      iv. Action potential and events at the synaptic terminal

3. Rapid post-synaptic responses (glutamate and GA/BA receptors)

4. Longer term modulatory post-synaptic responses (including long term potentiation) and neural plasticity

5. Clinical aspects of neurotransmitters and neurochemicals

C. Neurochemistry

1. Neurocellular Anatomy

2. Neurocellular Excitation

3. Second Messenger Systems

4. Synaptic Transmission

5. Basal Ganglia

6. Neurochemistry at the Cell Membrane

7. Myelination

8. Biological Brain Differences

9. Neurochemistry of Psychological/Brain Disorders
10. Neurotransmitter systems
   a. Serotonin
   b. Acetylcholine
   c. Catecholamines
   d. Excitatory Amino Acids
   e. GABA
   f. Glycine

D. Neuroendocrinology
   a. Review of neuroendocrine pathways (e.g. HPA axis),
   b. Their anatomy and physiology
   c. Hormones (detailed review of classes of hormones and the specific actions)
   d. “Fight or flight” responses
   e. Activation of the sympathetic nervous system
   f. Additional endocrine responses
   g. Relationship between emotional stress and psychiatric disorders
   h. Development of psychosomatic illnesses (mechanisms of action, pathophysiology).

E. Genetics
   a. Modes of inheritance
   b. Dominant, recessive, and sex-linked traits
   c. Concepts of penetrance and expressivity
   d. Familial transmission of psychiatric disorders: twin and adoption studies
   e. DNA polymorphisms and linkage markers
   f. Gene-environment interactions
Basic & Advanced Principles of Pharmacology

A. Emotional affect improvement enhanced by administration of medications
B. Prescribing rationales for psychotropic medication
C. Language of psychotropic medication, psychopharmacology, and prescribing methods
   1. Generic and brand names of drugs explained.
   2. Pharmacodynamics: Effect of drug on the brain, and/or the CNS.
   3. Long term, short term, low and high potency utilization of medications
   4. Review of all classes of drugs other than psychotropics.
   5. Classes of prescribed psychotropic medications
      a. Anti-depressants
      b. Monoamine-oxidase inhibitors
      c. Anti-anxiety agents
      d. Pro-drugs
      e. Benzodiazepines
f. Mood stabilizers

g. Antipsychotics

h. Hypnotic sedatives are examples of prescribed drugs.

D. Basic pharmacology
1. Drug administration
2. Formulation
3. Route of administration

E. Dosing regimens and associated concepts
1. Half life
2. Loading dose
3. Maintenance dose
4. Dose response variables

F. Pharmacokinetics
1. Absorption
2. Biotransformation
3. Excretion and drug clearance discussed.

G. Drug actions
1. Cellular and organism levels
   a. Receptors and receptor theory
   b. Affinity
   c. Agonists and antagonists

H. Effects of drug actions
   a. Pharmacological
   b. Side effects & Therapeutic monitoring
   c. Allergic reactions.
   d. Drug interactions
   e. Dependence, tolerance, and withdrawal presented.

Basic & Advanced Principles in Psycho pharmacology

A. Stimulus-response specificity and psychological factors in individual responses to psychoactive medications

B. Medications
1. Presumed mechanisms of action
2. Choice of medication
3. Variables to consider
4. Treatment strategies
5. Monitoring response with eye to titration
6. Adequate trial
7. Adjustments to dosage
8. Laboratory tests monitoring blood levels for antidepressants.

C. Psychotropic medication options
   1. Medication's action
   2. Adverse effects
   3. Tolerance and withdrawal syndromes
   4. High risk groups

D. Psychotropic medication treatment strategies
   1. Initial dosing (levels and schedules)
   2. Patient education including side effects, dosing adjustment
   3. Monitoring the response
   4. Dosing adjustment
   5. Length of treatment related to follow-up
   6. Discontinuation
   7. Maintenance doses
   8. Relapse prevention

E. Basic medication treatment strategies in adverse effects
   1. Defining adequate trial dosing ranges
   2. Factors influencing decisions for increasing/decreasing doses
   3. Length of treatment
   4. Follow-up
   5. Discontinuation
   6. Maintenance doses and relapse prevention
   7. Combining benzodiazepines and antidepressant treatment in panic disorder
   8. Role of concurrent psychotropic and psychotherapy treatment in panic disorder and OCD.
   9. Alternative options in cases of treatment failures

F. Antidepressants
   1. Usual action
   2. Presumed action in panic disorder and OCD
   3. Brief review of side effects.

G. Anxiolytics-Special treatment considerations
   1. High potency role of benzodiazepines in panic disorder treatment
   2. Acute stress reactions and other adjustment disorders time limited treatment use
   3. Pros and cons of sleep disorder treatment
   4. Agitated/anxious depressives treated
   5. Noting risk of benzodiazepine use
   6. Generalized anxiety disorders
   7. Withdrawal of alcohol and the role of benzodiazepines.

H. Other medications to treat anxiety disorders
   1. Buspirone and other atypical anxiolytics
2. Beta blockers
3. MAO inhibitors
I. Chemical dependency/Substance Abuse
J. Advanced child and adolescent psychopharmacology
K. Depression and stimulants
L. Advanced geriatric psychopharmacology

Pharmacopsychology: The Integration of Diagnostics, Psychopharmacological Interventions, & Psychotherapy

A. Brief history of biological Psychiatry and Psychotherapy
B. Mood Disorders
1. Diagnostic issues
   a. Particular signs
   b. Symptoms
   c. History
   d. Course of illness
   e. Lab tests that indicate biological basis

2. Diagnostic groups
   a. Normal sadness (dysphoria) - grief reaction
   b. Major clinical depressions
   c. “Atypical” unipolar major depression
   d. Seasonal affective disorder
   e. Bipolar illness-specific symptoms and onset characteristics
   f. Substance induced mood disorders
   g. Depression or mania due to general medical conditions
   h. Minor chronic depression (dysthmic disorder)
   i. Psychotic depressions
   j. Axis II coincidence - Characterological factors
   k. Premenstrual dysphoria
   l. Depressive disorders NOS

C. Anxiety Disorders
1. Diagnostic Issues
   a. Biology of the flight-or-flight response
   b. Role of GABA in anxiety disorders
   c. Nor-adrenergic hypothesis of panic disorders
   d. Neurobiological dysfunction associated with traumatic stress
   e. Pathophysiology of anxiety disorders
2. Diagnostic groups addressed
   a. Panic disorder (i.e., societal phobia)
   b. Obsessive compulsive disorders
   c. Post traumatic stress syndrome
   d. Generalized anxiety disorder
   e. Adjustment disorders with anxiety symptomatology
   f. Sleep disorders
   g. Anxiety disorders NOS
   h. Phobic disorders without panic attacks
   i. Anxiety associated with general medical conditions
   j. Withdrawal syndromes seen in chemically dependent patients.
3. Steps to rule out general medical conditions and substance abuse
4. Review of theories of biological etiology
5. Presumed pathophysiology
   a. Role of nor-epinephrine in anxiety disorders
   b. Role of serotonin in anxiety disorders
c. Role of GABA in anxiety disorders
d. Role of serotonin in O.C.D.

6. Treatment of anxiety in context of
a. Post traumatic stress disorder
b. Psychosis
c. Depression
d. Substance abuse
e. Head trauma
f. Sleep disorders
g. Treatment options with psychotropics.

D. Psychosis
1. Neuromaturational and genetic factors in schizophrenia
2. Pathophysiology of Type I and Type II schizophrenia
3. Theories of bio genetic etiology and presumed pathophysiology
   a. Dopamine hypothesis
   i. The role of D4
   ii. The role of 5-HT2 receptors
   c. Positive vs. negative symptoms in schizophrenia
4. Newer theories of etiology of schizophrenia
5. Characterological disorders
6. Substance abuse
7. Psychotic disorders due to general medical conditions
8. Miscellaneous disorders
9. How antipsychotic medications work
   a. Theories regarding the effects of
   b. Antipsychotics on the blockade of D2 receptors
   c. Newer medicaments that affect dopamine receptors and 5HT receptors.
10. Choosing an antipsychotic medication
    a. Client profile
    b. Symptoms may dictate first choices of medications
    c. Patient variables
       i. Medical status
       ii. Age
       iii. Ethnicity
       iv. Gender
       v. Other concurrent medication use
       vi. Chemical dependency
    d. Adverse effects
    e. Risk factors
    f. Side effects
    g. Allergic reactions
    h. Drug interactions
i. Toxicity
j. Special attention to tardive dyskinesia
k. Impaired temperature regulation
l. Narcoleptic syndromes
m. Agranulocytosis

11. Treatment failures and augmentation strategies
12. Side effect management
13. Assuming a positive response
   a. Treatment length
   b. Related issues to follow-up
   c. Discontinuation
   d. Maintenance dose
   e. Relapse prevention

14. Special considerations in treating psychosis
   a. in the context of a dementing illness
   b. and treatment of impulse control disorders
   c. and severe irritability and aggression seen in patients who have sustained a closed head injury
   d. transient psychotic symptoms
   e. combined treatment with antidepressant and antipsychotic medications
   f. with affective components
   g. in the context of Tourette's disorder

E. Special Issues
1. Bi-Polar Disorder treatment (Type I, Type II)
   a. Side effects
   b. Lab work
   c. Combined treatment of medications
   d. Toxic symptoms
   e. Relapse prevention
   f. Chronic treatment
   g. Role of anticonvulsants
   h. Drug interactions

2. Paranoid disorders
3. Transient psychoses
   a. As in dissoiative disorders
   b. As in borderline personality disorder
   c. As in psychotic affective disorders

4. Drug interactions
5. Uses of antidepressants in
   a. Chronic pain
   b. Bulimia
   c. Fibromyalgia
   d. Chronic fatigue
e. Sleep disorders
f. Panic disorder

6. MAO inhibitors
   a. Special treatment indications
   b. Prescribing
   c. Precautions

F. Severe personality disorders
   1. Hypothesized neurobiological dysfunctions in severe personality disorders
   2. Treatments targeting
      a. Impulsivity and irritability
      b. Mild level thought disturbances such as schizotypal
      c. Transient psychotic
      d. Other manifestations of ego dysfunctions in low level borderline patients
   e. Extreme separation stress, co-morbid Axis I disorders

G. Medical Issues
   1. Depression-mania due to a general medical condition
      a. Clinical features raising suspicion it is primarily a medical condition
      b. Steps to rule out medical condition as primary
      c. Consulting physicians for
         i. Diagnosis
         ii. Evaluation
         iii. Treatment
         iv. Specific physical conditions commonly presenting mood disorder symptoms.
   2. Serious medical complications with antidepressants, their management
      a. Serious allergic reactions
      b. Overdoses
      c. Seizures
      d. Other issues
   3. Treating medically ill/compromised patients
      a. Drug interactions
      b. Comorbid illnesses such as
         i. Epilepsy
         ii. Cardiac disease
         iii. Pregnancy
         iv. Others
   4. Medical illnesses presenting with psychiatric illnesses resulting
      a. Peripheral nervous system, cardiovascular system, blood, electrolyte, body fluids, as related to administration of psychoactive drugs and other drugs prescribed for medical conditions.
      b. Endocrine glands, hormonal normal and abnormal functioning
c. Digestive system absorption and biotransformation, with special emphasis on liver functioning, and G.I. side effects, occurring in presence of psychoactive medications

d. Kidney functioning and special consideration to role in excretion of medications/metabolites which influence treatment

e. Reproductive system as involved when psychotropics influence sexual side effects

f. Medical conditions that often present with psychiatric symptoms: headaches, endocrine diseases, primary neurology diseases (e.g. brain tumors, dementing illnesses, traumatic brain injuries, multiple sclerosis, CNS effects of HIV, cerebral vascular disorders, neurological syndromes associated with toxins)

5. Basic medical screening: history, systems review, and basic lab tests, the overall diagnostic and decision-making strategy used by physicians.

6. Special issues in treating the medically ill patient:
   a. General principles and challenges, co-morbid medical illnesses (e.g. described).
   b. Treatment strategies, and collaboration with the internist (primary care physician) and other physicians

H. Associative Disorders - treatment strategies
   1. Refractory patients
      a. Psychological factors
      b. Symptom break-through/unexplained relapse
      c. Variables to consider with treatment strategies

2. Dysthymia
3. Premenstrual dysphoria
4. Psychotic depression with ECT
5. Seasonal affective disorders, presented.
6. Disorders due to primary brain pathology
   a. Multiple sclerosis
   b. Frontal lobe syndrome
   c. Postconcussion/closed head injury
   d. Parkinson's disease

I. Physical assessment with accompanying lab exams

J. Psychodynamics of prescribing
   1. Process of prescribing medications
   2. Impact of therapeutic relationship (i.e. transference, countertransference)
   3. Generic issues raised when medication is introduced into treatment
   4. Responses in certain types of clients (e.g. dependent, obsessional, paranoid, etc.)

K. Children and adolescents
a. Special issues in treating children:
   i. Metabolic functioning in children and how this relates to medication
   ii. Dosing strategies, demonstrated.
b. Diagnostic issues
   i. Attention deficit disorder
   ii. Depression
   iii. Anxiety disorders
   iv. Psychosis
   v. Hyperactivity
c. Overview of treatment options and strategies

L. Geriatrics
a. Diagnostic issues
   i. Biological basis-neurochemically based disturbance and/or neurochemical deregulation
   ii. Signs and symptoms
   iii. Disease onset and course
   iv. Family history
   v. Laboratory tests that verify diagnosis
b. Diagnostic groups
   i. Acute psychotic reactions
      a) schizophrenia and schizophreniform psychosis
      b) psychosis due to medical conditions
      c) substance-induced psychosis
   ii. Dementias
      a) Alzheimer’s disease
      b) Multi infarct dementia
      c) Other primary neurological syndromes and disorders
      d) Systemic, toxic, and alcoholic illnesses
   iii. Late onset psychotic disorders
   iv. Postpartum depression
   v. Disorders associated with Parkinson’s disease
c. Special issues
   i. Metabolic functioning in the elderly and how this relates to medication
   ii. Common problematic adverse effects of psychotropic medications in the elderly and side effect management.
   iii. Challenges of psychopharmacology in treating patients taking a host of other medications
   iv. Treating psychiatric symptoms in patients with dementing illnesses
   v. Recommended pre-treatment lab tests and precautions

M. Eating disorders
1. Hypothesized neurobiological dysfunctions in anorexia
2. Bulimia
N. Pain management
1. Neurobiology of pain
2. Cortical modulation of pain
3. Peripheral sensory receptors and afferent transmission (neuroanatomy)
4. Subcortical pathways
5. Cognitive factors in experience of pain, described.
7. Comorbidity: depression and chronic pain and their treatment implications, explained.
8. Medication compliance: psychological issues such as: problems that are commonly causing non-compliance, anticipating these problems, strategies aimed to ward increasing compliance, discussed.
9. Specific psychotherapies effective as adjuncts to psychopharmacology, (e.g. family therapy in treatment of schizophrenia, and bipolar disorder, behavioral therapy in treatment of panic and OCD; cognitive therapy and interpersonal therapy in the treatment of depression), pros and cons for the use of these approaches in combination with pharmacotherapy, explained.
10. Role of psychotherapy in brain changes, addressed.

O. Multicultural Perspectives in Pharmacopsychology/Ethnopsychopharmacology
1. Differences between groups
2. Differences within groups
3. Pharmacokinetics & Pharmacodynamics of differing ethnic populations
   a. Hispanic
   b. Asian
   c. African American
   d. Native American
   e. Eastern Indian
   f. Other Ethnic/Racial Population
Assessment and Laboratory

A. Basic concepts of behavioral medicine
B. Laboratory tests in clinical practice
   1. Common lab tests used in medicine
   2. Reading reports
   3. Consulting with others regarding the results
   4. Ordering appropriate lab tests in practice (for example: pre-medication, prescribing, EKG for children prior to prescribing tricyclics, monitoring changes during follow-up treatment process)
C. Physical assessment—Basic medical screening: history, systems review, and basic lab tests, the overall diagnostic and decision-making strategy used.
D. Physical assessment with accompanying lab exams
E. Referral for Neuro psychological assessment
F. Scans - MRI, CT, SPECT, etc.
Advanced Pharmacotherapeutics/ Ethical/ Legal/ Advocacy

A. Professional, Ethical, & Legal Issues
   1. Co-relations, referral and collaboration with professionals from other disciplines
   2. Informed consent, risk management, liability, writing prescriptions, record keeping of individual patient's prescriptions, etc., demonstrated.
   3. Legal and ethical issues

B. Pharmacoeconomics: prescribing cost factors influencing medications faced by the individual practitioner, economic/political issues decision making on larger-scale (e.g., HMO chosen formulary medications), cost factors short and long term, effective psychiatric treatment as it impacts health care costs.

C. Advanced Interrelations

D. Internet
   1. Computer/Internet application, professional use
   2. Computers and Internet use

E. Pharmacoepidemiology

F. Epidemiology including genetic psychiatric illnesses.
   G. Formulary Schedules
   H. Advocacy - legal and legislative for patients and for psychology.

PRECEPTORSHIP PSYCHOPHARMACOLOGY PROBLEM BASED TRAINING MODULES

- These are intended to be completed over the course of the 1 Year/100 Patient Preceptorship

- Consistent with Association of State and Provincial Psychology Board and American Psychological Association recommendations, The Academy of Medical Psychology requires the post-doctoral fellowship for licensed psychologists to be the equivalent of one full-time year (1500 hours) of supervised
experience. Fifteen hundred (1500) hours may consist of patient care, supervision, professional education, grand rounds and other associated activities. There will be no less than 100 hours of supervision with a qualified supervisor. The objective is for the post-doctoral fellowship to provide an opportunity for the fellow to integrate knowledge in medical psychology upon every patient contact, including the direct responsibility for psychopharmacological evaluation and management for a minimum of 100 patients.

1. Review of Antidepressants
2. Review of Anxiolytics & Antipsychotics
3. Review of Psychostimulants
4. Review of Antipsychotics
5. Review of Mood Stabilizers
6. Review of Antiparkinsonian Agents
7. Review of Sedatives and Emerging Agents
8. Problem #1 - Depression - Adult
9. Problem #2 - Parkinson's Dementia
10. Problem #3 - Attention Deficit Disorder
11. Problem #4 - Premenstrual Dysphoric Disorder
12. Problem #5 - Schizophrenia - Adolescent Onset
13. Problem #6 - Borderline Personality Disorder
14. Problem #7 - Adjustment Disorder
15. Problem #8 - Panic Disorder
16. Problem #9 - Insomnia
17. Problem #10 - Depression - Geriatric
18. Problem #11 - Pervasive Developmental Disorder
19. Problem #12 - Polysubstance Abuse
20. Problem #13 - The Suicidal Patient
21. Problem #14 - Management of Flord Psychosis
22. Problem #15 - Severe Mania in the Bipolar Patient
23. Problem #16 - Management of Bulimia/Anorexia
24. Problem #17 - A Medical Patient with Psychological Symptoms
25. Problem #18 - Generalized Anxiety Disorder
26. Problem #19 - Schizoaffective Disorder