Pearson

Instructor's Manual

For

Basic Psychopharmacology for Mental Health Professionals

Third Edition

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Introduction

In most cases, faculty who teach in various schools of social work, colleges of education, and psychology departments, are not pharmacologists or biologists. It is not surprising then that when asked to teach courses in psychopharmacology, they feel ill prepared. In many instances, adjunct faculty with backgrounds in medicine, nursing, physiological psychology, or pharmacy, are brought in to handle this "non-counseling" course. They may have a strong background in pharmacology, chemistry, or science, but they often do not fully understand the interface between mental health treatment and biology. Many of these "hard scientists" are not licensed therapists. Should faculty who are licensed therapists attempt teaching such a course unless they have a strong science background? This depends on a few givens. If the prospective instructor of psychopharmacology can answer yes to all of the following questions, he or she should be able to offer a meaningful experience to graduate students seeking to learn the basics of psychopharmacology.

1. Does the instructor have a strong interest in the welfare of patients placed on various psychotropic medications?
2. Does the instructor have a strong interest in psychopharmacology?
3. Does the instructor have any formal graduate training in physiological psychology, psychopharmacology, pharmacology, or pharmaco-psychology?
4. Does the instructor have extensive clinical experience working with patients placed on psychotropic medications in either an outpatient setting or inpatient unit?
5. Has the instructor completed a training workshop on the topic, including a basic course in physiological psychology?

If the instructor was able to answer "yes" to all or most of the above questions, he/she may be able to attempt this course. Please keep in mind that this is not your typical "warm and fuzzy" social work or counseling course. Some students will resist learning these concepts claiming that it is "too scientific" and that they are not "doctors." They may also claim that learning these concepts means they are practicing medicine without a license. It is important to convey to the graduate student that learning about medications is in both their best interests and the best interests of their clients. After all, it is very likely that they will be working with all types of patients, many of whom are placed on medications for emotional reasons. It is very important that they learn what these medications do and do not do.

The following information was created to assist the prospective instructor with creating an effective course. Chapter outlines, topic goals/objectives, discussion questions and test bank items should prove helpful. The brief discussion and post-quiz questions in the text should also be useful in facilitating lively classroom environments.
For the ease of the reader, the answers to T/F and multiple choice questions are provided.

Thank you for your interest.

Richard S. Sinacola, Ph.D.,
Los Angeles, CA

Some Perspectives on Teaching Psychopharmacology

Each instructor may have several goals for teaching a course in psychopharmacology. Some of the typical goals include educating therapists to be aware of the various medications, so treatment recommendations could be made. Others may just wish to offer a general survey course to acquaint therapists with some typical or "popular" medications. Still others want graduate students to have a sound education in pharmacology, so they will understand the action and nature of various psychotropic agents. Regardless of the reason, many graduate schools today have decided that their graduate students (and in some cases their undergraduates) should be exposed to this topic. In fact, most graduate programs in counseling and clinical psychology, marriage and family therapy, counseling, and clinical social work in California now require a course on this topic. Unfortunately, finding qualified psychologists and other therapists to teach them is not easy.

While many psychologists have additional training in psychopharmacology or "prescribing principals," most do not hold advanced degrees in the hard sciences. Many have only taken a course or two in physiological psychology with perhaps a course in addiction studies. It is helpful, therefore, to offer some information to those who wish to undertake the task of teaching others about psychopharmacology.

Psychopharmacology, like many "scientific" topics often strikes fear into the hearts of students. Most students in mental health programs don't like "math" or "science" courses. They often ask how much math or statistics will be incorporated into the course. Obviously, we do talk about dosing, titrating, and half-lives, but most of the science and math are kept to a minimum. So often, psychopharmacology courses taught by hard scientists like pharmacists, physicians, pharmacologists and doctoral level nurses, tend to be rather heavy on the chemistry, and light on the practical concerns that therapists need to remember and apply in practice.

It is the goal of the text and this manual to assist the instructor with practical tips for making the teaching and learning experience both informative and enjoyable.

Syllabus Suggestions for a Psychopharmacology Course

I have never been an advocate for creating and distributing a 25-page syllabus. In my experience students tend not to read them, get confused when they do read them, and ask you repetitively to translate them! On the same note, I do not appreciate one page documents either. These "pocket-sized syllabi" tend to leave too much to the imagination, confuse students, and ultimately lead to grade challenges in the end. Syllabi should be just long enough to cover the essentials of the course, answer most students' questions and concerns, and provide a general outline of what will be covered and expected. At many institutions information on program goals and student learning assessment is also included. Remember, the syllabus should be thought of as a sort of "contract" between you and the student, so be sure to state your policies and the policies of your university clearly.

There are seven general sections of a good syllabus. They are:

1. Identifying information: Here you would include the title of the course; the course number or code; the date and time the class meets; your name, telephone numbers, email address and office hours; and finally, the university/department numbers for students to leave messages.
2. Textbook Selections: State the required textbooks first and then a list of suggested texts/articles. It is often helpful to add a note to inform the student if the textbook is mandatory or if an older edition of the book could be used. As you may remember from your grad school days, professors often required hundreds of dollars worth of textbooks that they never used, or they told students they were not needed, but ended-up testing them on the material. Inform your students early to avoid problems. Also, remember to write the textbook list in APA style and add the ISBN numbers after the title. This will assist the student in ordering the textbook from the college bookstore or from the publisher. If possible include the price of each text.
3. Course description: It is best to use the course description published in the college catalog or department bulletin. These descriptions have been written to reflect curricular changes and accreditation mandates. If you feel strongly that the course description does not match the content of the course, discuss this issue with your department chair to determine if a change in description is possible. Many department chairs would welcome the feedback and use your updated information when it is time for accreditation revisions.
4. Course objectives: List at least five course objectives here. Be sure that they are concrete and not illusive, i.e., say " To present and define the major classes and categories of psychotropic drugs" rather than, "To impart knowledge about drugs." Some professors and instructors prefer to list goals and then the specific objectives leading to their completion. This is acceptable, but may be unnecessary given the following proposed section. Do not create new objectives without checking with your department chair. These objectives were often created to reflect department goals and

program assessment data.

5. Learning objectives: In this section we describe specific tasks we expect students to learn and demonstrate. Try to state them in behavioral terms, i.e., what types of evidence will you need to observe to be assured that your student has met this objective? It is better to state; "Student will demonstrate a working knowledge of antidepressants by demonstrating on exam questions and classroom discussion that he/she knows when it is appropriate to suggest various medications for specific types of patients."
6. Major units of study: This section will inform the student or others who read the syllabus of what specific units or topics will be included in your course. If you plan to have a lecture on how pharmacology and substance abuse issues often arise with dual-diagnosis/co-occurring conditions, include this topic in this list. If you plan to have a mini symposium on current research articles, then include the topic here. Perhaps you will take a field trip to a drug research facility or laboratory. State the main learning purpose here.
7. Course policies: This is a very important section, as it informs the student about your personal policies and expectations, and university policies and regulations. You may state your attendance policies along with ramifications for non-attendance. Typically in a psychopharmacology course, a lot of material is covered in each lecture. I allow students to miss only one lecture or they may not receive a passing grade. Exceptions such as emergencies or serious illness are taken into consideration. It is also important to state the institution policies on cheating and plagiarism. Will you offer extra credit? Will you consider exam make-ups? State your policies here, as they become a working agreement between you and the student.
8. Methods of evaluation: Clearly list all course assignments here with their due dates. If you plan to give exams, state whether you will be giving a midterm and final, or a series of quizzes. It is always helpful to inform the student about the type and length of the exams, i.e., 50 items, essay and multiple choice. Be very specific about expected length of papers, style, references and type size. Remember to remind them if APA style is important and considered in their grade.
9. Grading procedures: State each assignment and its relative weight toward the final grade. A point system is suggested to avoid arguments with students about subjective grading and ambiguity. Be sure to spell-out how many points are needed for an "A" or "B" etc.
10. Course schedule: List the dates when the class meets with the related lecture topics and corresponding chapters from the text. Also mention any related reading from other sources like handouts or journal articles. Inform the student if certain assignments are due on that date.

Note to those who teach courses on-line or as hybrid courses: Where possible, instructors should try to post a wave type file on their teaching platform. This will allow students to hear directly about which points are most important. Posting lecture notes along with the oral lecture is also helpful allowing them to follow along as the instructor presents. Be careful about posting videos from the Internet or from pharmaceutical companies, as these may be copyright protected. Permission may need to be obtained from the company first.

Sample Syllabus

Manic State University
Department of Psychology
PSY 533: Clinical Psychopharmacology

Offered for 3 credits – Spring 2018 -Thursdays 6:00 -9:00 PM -Monty Hall Rm. 200
Instructor: Richard S. Sinacola, Ph.D. Email address: rsinaco@calstatela.edu
Office hours: Mondays and Wednesdays from 1-5 PM or by appointment 555-1234
Department hours: Monday -Friday 9-5 PM. call (800) 555-3456

Required Text:
Sinacola, R. & Peters-Strickland, T. (2012). *Basic psychopharmacology for counselors and psychotherapists (2nd. Ed.)* Boston: Allyn and Bacon.
Ross, D & Gordy, B. (2010). *Sing your way out of depression.* Detroit: Motown Books

Recommended texts:
Doe, J. (2009). *Better living trough chemistry.* New York: Totally Awesome Books

Other Bibliography:
Brown, W (2011)…
Green, L (2010)…
White, B (2014) … etc.

Catalog Description: An in depth examination of the behavioral and central nervous system effects of pharmacologic substance use and abuse, and the application of such substances to the prevention and treatment of psychopathological dysfunction. Topics include basic neuronal function, pharmacology principles, medication selection and side effects, novel application of various medications, and assessment of patients considered for treatment. The course will also examine the cultural and ethical concerns of prescribing medication and the role of the pharmaceutical industry in drug development, research, and sales. This fulfills requirements for California Board of Behavioral Science Examiners.

Prerequisites: Graduate standing. Abnormal Psychology , Biological Psychology, and permission of the instructor.

Course Objectives:

1. To introduce the concept of a drug as a recreational, prophylactic, and therapeutic substance.
2. To present and define the major classes of drugs.
3. To examine the pharmacologic effects of different drug classes on behavioral, cognitive, endocrinological, and central nervous system operations.
4. To examine the application of drugs to the prevention and treatment of specific psychopathological dysfunctions.
5. To examine the use of clinical diagnosis in determining pharmacologic prescriptions.
6. To examine the use of drugs in psychopharmacological research.

Major Units of Study:

1. Definition of a drug: Recreational versus Therapeutic.
2. Drug use and abuse: A historical perspective.
3. Classes of drugs and drug usage.
4. Drug effects: Systemic and Endocrinological.
5. Drug effects: Peripheral and Central Nervous System.
6. Drug effects: Behavioral and Cognitive.
7. Application of drugs to the prevention and treatment of specific psychopathologies.
8. The use of clinical diagnosis to aid in decisions concerning what drug is administered, how much is administered and for how long.
9. Psychopharmacological research.

Course Policies: Students are expected to attend all lectures and participate in classroom discussions. Missing more than one lecture results in a loss of class participation points. No student who misses more than two class periods will receive a passing grade in the course. Chronic tardiness my count against the student. Incompletes are given only in severe medical or otherwise documented instances. All late assignments and other course requirements not completed when due will be penalized 10 points. Exam retakes are only given for documented medical emergencies and must be completed within one week of the original exam. Students are asked to limited use of laptops and cell phones during class except for note taking.

Methods of Evaluation:

1. A midterm and final exam based on lecture and text material will be given. Each exam is worth 35 points. No make-ups are given without a documented medical or other reason. There will be four points of extra credit-bonus questions on each exam.
2. A 4-5 page typed report on a specific psychotropic drug. This report is due by the ninth class session and shall be presented to the class in a 5-7 minute mini-lecture. Be sure to include 1. A complete history of the drug and its uses; 2. Common side effects and contraindications; 3. A case example demonstrating correct usage; and 4. Complete bibliographic information (at least four sources).

You must present in class on the ninth lecture to receive full credit. Breakdown of points: Quality of written report 15 pts. Presentation 5 pts. Total possible points are 20. APA writing style must be utilized. Or… a small group of students may present a 20-minute mini lecture on a selected medication and present this lecture in the last week of the course.

3. Class participation is part-of professional development and required for this course. Missing more than one lecture will result is a loss of these 10 points regardless of the reason. Plagiarism and unprofessional conduct will not be tolerated and may result in a failing grade. All students must sign-in at the beginning of each class.

Breakdown of grading:

Midterm exam: 35

Final exam: 35

Drug Report or presentation: 20

Class participation: 10

Total: 100 points 108 with extra credit

94-100 = A, 90-93 = A-, 87-89 = B+, 84-86 = B, 80-83 = B-77-79 = C+, 70-76 = C, <70 =F

Course Schedule 2018:

Week one: Basic physiology -neuronal pathways and neurotransmitters, pharmacokinetics. Sinacola/Peters-Strickland Chapters 1-4, Ross/Gordy RG Chapter 1.

Week two: Conclude basic physiology. Drug use versus abuse -Dual Diagnosis and Co-occurring conditions: Chapter 13. Ross and Gordy (RG) Chapter 2. Read Journal article handout by Green and White...

Week three: Conclude drug use and abuse pharmacology and treatment issues. Review for midterm exam next week.

Week four: Midterm exam followed by the treatment of Unipolar and Bipolar disorders. The selection and use of antidepressants and mood stabilizers. Chapters 5 and 6. RG) chapters 3 and 4. Journal article by Black and Blue.

Week five: The treatment of Anxiety Disorders and the use of anxiolytics. Chapter 7. Effects of stress on the immune system: Read handout by Brown, Green and White, plus RG Chs. 5, 6, 7, and 8.

Week six: The treatment of Schizophrenia and the role of neuroleptics. Chapter 8. View film from UCSD: Psychopharmacology of Atypical Antipsychotics.

Week seven: The treatment of Personality Disorders, ADHD, Alzheimer's, eating and sleeping disorders, and aggressive tendencies. Chapters 9, 10, 11 and 12. Review journal articles in your course pack.

Week eight: Interview with an Alzheimer's patient. Review for final exam next week. The "name game.' Remembering your generic and brand names. Prizes will be given for the top three winners!

Week nine: Class presentation on drug reports: 45 minutes each.

Week ten: Final exam and course conclusion.

Course Evaluation Materials

While most universities and colleges provide some type of course evaluation at the conclusion of your term, many instructors prefer some specific feedback and direction. The following is a suggested format that could be used to help you gage how your students received your course. This format could also be used by those of you who present public lectures or in-service training workshops.

Course evaluation for Psychology 533: Psychopharmacology
Instructor: Richard Sinacola, Ph.D.

1. Over-all, I know more about psychopharmacology than I did before I took the course

No 1 2 3

2. In general, I found the instructor to be knowledgeable on the topic.

No 1 2 3

3. I was pleased with the way in which the class discussions and lectures were conducted.

No 1 2 3

4. I felt the grading criteria were fair.

No 1 2 3

5. Over-all I found the course to be interesting.

No 1 2 3

6. I would recommend this course to others.

No 1 2 3

7. I felt the instructor treated me with respect.

No 1 2 3

Comments:

Chapter One
Summary

In Chapter One we discussed the reasons for why a non-medical therapist would want to study psychopharmacology. The rationale has always been that they are not physicians and do not feel the need to practice what they believe is medicine without a license, however, a case was made for the need for therapists to be well versed on the types and uses of psychotropic medications because many of their patients come to the office placed on these medications by their primary care physician.

Another reason for learning more about these medications is to reduce the fear that many non-medical professionals feel when talking to psychiatrists and other prescribing professionals. As one becomes more knowledgeable of the various medications and their uses, he/she may feel more comfortable making suggestions to others on behalf of the patient. Increased knowledge is power!

Specific Discussion Suggestions:

1. Historically speaking, why have most non-medical psychotherapists decided not to study or discuss psychotropic medications with patients or others involved in the case?
2. In your opinion, does having knowledge of, or a discussion concerning medication, lessen your psychotherapeutic relationship with the client? If so, please explain.
3. Do you feel more comfortable talking with a psychiatrist or a family physician or other PCP practitioner about your patient's medications? How might you remedy this concern?
4. Historically speaking, there have always been "turf wars" between the various non-medical therapists. Some social workers resent insurance inclusion gains made by Licensed Professional Counselors and MFTs in many geographical areas. Many psychologists take great issue when social workers and other M.A. level therapists attempt to conduct "psychological evaluations" with clients, and psychiatrists are very concerned about the prescribing privileges of psychologists in various parts of the country. How would you propose a working model to get all disciplines to work together for better patient care?

Other Student Assignments for Chapter One:

1. Divide the class in two and ask the students take a side, for or against, therapists advocating for psychotropic medications with clients.
2. Ask your students to write a personal reaction paper to studying psychopharmacology. Are they interested? Are they scared? Do they feel it's too biological for them to learn?
3. Have your students write a reaction paper. Topic: Is it time for prescription privileges for properly trained psychologists?
4. How should one's religious or spiritual beliefs be addressed by a patient who feels taking medication is not in God's plan?

Chapter Two Summary

Chapter Two addressed the basic biological explanations of how the brain and the nervous system function and control human behavior. We examined the role of *exogenous and endogenous* substances in the body and how they affect various systems and conditions. We learned that via the central nervous system, the neurons communicate with each other through chemical messengers called neurotransmitters. Within the cell or neuron, electrical activity plays a role in activating the cell to fire or release a message to another cell within the system. A chemical message is released from the terminal button at the end of a neuron, crosses the physical space or synaptic gap, and activates receptor sites on a neighboring cell's dendrite. Some neurons are excitatory and others are inhibitory.

There are three major neurotransmitters responsible for human behavior and emotions. They are norepinephrine, serotonin, and dopamine. It is theorized that depleted levels of norepinephrine may contribute to depression and decreased learning, motivation, and attention. Lower levels of dopamine may lead to depression and reduced levels of attention and inhibition, while higher levels may lead to mania or psychosis. Dopamine is also implicated in the reward system associated with chemical abuse. Reduced levels of serotonin lead to depression, aggression, and often obsession, while higher levels may contribute to mania.

There are other substances endogenous to the body that play a role in behavior. Glutamate is the body's excitatory neurotransmitter, whereas GABA plays an inhibitory role.

Specific Discussion Questions:

1. Explain the main differences between *exogenous* and *endogenous* substances, and give specific examples of each.
2. Explain how various cells within the CNS communicate both electrically and chemically.
3. Explain the function of various parts of a neuron.
4. When a cell is stimulated or polarized, it fires an action potential. Explain the process and how neurotransmitters are dispersed to other neighboring cells across the synapse.
5. What are the four stages of exocytosis?
6. How do G proteins activate secondary messengers with the cell?
7. Explain how the neurotransmitters dopamine and norepinephrine are synthesized from tyrosine. Also, where does our body get tyrosine?
8. How does the body synthesize serotonin?
9. Why does dopamine play in role in various drugs of abuse?
10. Explain the process of re-uptake and how it ends neuronal transmission.

Possible True/False Questions:

1. Exogenous substances are produced within the body.
2. Endogenous substances include endorphins, insulin and adrenalin.
3. Exogenous substances include caffeine, vitamins, and herbs.
4. Cells within the central nervous system communicate both electrically and chemically.
5. Within cells this communication is electrical and between cells it is chemical.
6. There are three basic parts of a neuron.
7. The synapse is the physical space between neurons.
8. When the cell fires, or experiences an action potential, neurotransmitter substance is released from the dendrite.
9. The soma or cell body contains the vital parts of the cell including the nucleus, the mitochondria and the cytoplasm.
10. The most common ions found in the extracellular spaces are sodium and chloride ions.
11. We usually refer to the resting potential as -140 mV.
12. Cells are often bombarded by many signals both excitatory and inhibitory.
13. G proteins are so called because they bind guanine nucleotides.
14. Drugs that increase the availability or action of a neurotransmitter in called an antagonist.
15. Monosodium glutamate or MSG is often found in Chinese food.

Possible Multiple Choice Questions:

1. A drug of a substance that facilitates the effects of a particular neurotransmitter on the post-synaptic cell and likely to stimulate an action potential is known as a/an:
   a. antagonist
   b. agonist
   c. G protein
   d. None of these

2. The body's main inhibitory neurotransmitter/neuromodulator is:
   a. glutamate
   b. L-dopa
   c. GABA
   d. tryptophan

3. For exocytosis to occur _____ causes the docked neurotransmitter pods to release their contents:
   a. calcium
   b. MAO
   c. dopamine
   d. All of these

4. Which of the following does not fit with the others?
   a. norepinephrine
   b. dopa-decarboxylase
   c. serotonin
   d. L-dopa

5. Which of the following are found in the soma?
   a. Terminal button and axon.
   b. The dendrites and the terminal buttons
   c. The axon and the dendrites
   d. The nucleus and the mitochondria.

6. Which of these is the correct progression of events.
   a. Action potential, exocytosis, re-uptake.
   b. Exocytosis, action potential, re-uptake.
   c. Re-uptake, action potential, exocytosis.
   d. None of these

7. Exogenous substances include all of the following except:
   a. vitamins
   b. minerals
   c. herbs
   d. hormones

8. The physical space between neurons is called:
   a. the intracellular space
   b. the extracellular space
   c. the cytoplasm
   d. the synapse

9. G proteins are also known as:
   a. monoamines
   b. secondary messengers
   c. indolamines
   d. peptides

10. When a cell is at its resting state, the resting potential is about:
   a. -70 mV
   b. 70mV
   c. 170 mV
   d. -140 mV

11. Tyrosine is the amino acid precursor substance that is needed to produce:
   a. Tylenol
   b. serotonin
   c. dopamine
   d. GABA

12. Dietary sources of tyrosine include all of the following except:
   a. meat
   b. fish
   c. tofu
   d. wheat

13. GABA is the body's main inhibitory neurotransmitter substance, and _____ is the excitatory substance.
   a. tryptophan
   b. calcium phosphate
   c. glutamate
   d. None of these

14. Which two of the following appear to play a major role in learning and attention?
   a. serotonin and dopamine
   b. norepinephrine and dopamine
   c. norepinephrine and serotonin
   d. GABA and acetylcholine

15. Excessive amounts of _____ may be implicated in psychosis.
   a. serotonin
   b. norepinephrine
   c. GABA
   d. dopamine

16. Excessive amounts of _____ may be implicated in mania.
   a. serotonin
   b. norepinephrine
   c. GABA
   d. dopamine

Alternative Class Assignments and Essay

Questions:

1. Starting with the precursor substance tyrosine, draw a diagram showing how the various enzymes convert this substance to dopamine and norepinephrine.
2. Draw a neuron on your paper or the board. Label the parts and briefly describe their function.
3. Explain what happens within the cell when it experiences an action potential.
4. Explain the roles of dopamine, norepinephrine, and serotonin in behavior.
5. How do neurotransmitters and other chemicals activate receptor sites on the post-synaptic cell?