

PLYMOUTH STATE UNIVERSITY  
UNIVERSITY SYSTEM OF NEW HAMPSHIRE  
HEALTH AND HUMAN PERFORMANCE CLUSTER

## **CO 5130.01 - Psychopharmacology and the Biological Basis of Mental Health**

Class Meetings are held via Zoom on Monday evenings  
from 6:30pm to 9:30pm

Instructor: Mike Mariska, PhD, NCC, LCMHC  
Office Hours: Mon 5-6pm and by appt via Zoom

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### **Course Description**

The Psychopharmacology and the Biological Basis of Mental Health course will explore the biological influences on mental illness. This will include an examination of the physiological basis of behavior, perception, emotion and self-regulation; the current theory and research on the relationship between biological events in the central nervous system and behavior; and psychopharmacological interventions.

### **Course Objectives: Knowledge and Skill Outcomes**

- Recognize when a referral for a medication assessment is warranted
- Competency in presenting/introducing/discussing medication as an option with a patient
- Be conversant in the terminology and information necessary to have a discussion with a psychiatric medication provider
- Recognize the side effects of commonly prescribed medications
- Include in intake assessments appropriate recognition of potential for biological/physiological/neurological contributors to presenting issues
- Understand the emerging concepts of Neuroplasticity and the biological implications of various therapies

### **Required Text:**

Preston, J., Neal, J. & Talaga, M. (2021). *Handbook of clinical psychopharmacology for therapists, 9<sup>th</sup> ed.* New Harbinger Publications, Inc.

### **Recommended Texts:**

Miller, R. & Beeson, E. (2019). *The neuroeducation toolbox: Practical translations of neuroscience in counseling and psychotherapy.* Cognella Academic Publishing.

Siegel, D. (2010). *Mindsight: The new science of personal transformation.* Bantam Books.

## **PLYMOUTH STATE UNIVERSITY POLICIES**

### **Academic Integrity**

Academic integrity is the foundation of the pursuit of knowledge. All members of the academic community are expected to be dedicated to the pursuit of knowledge in an honest, responsible, respectful, and ethical manner. Every violation of academic integrity is an affront to the academic community. Violations of academic integrity make fair evaluation impossible and cast doubt upon the seriousness with which students accept the responsibility of acquiring an education. Members of the academic community are expected to report all instances of those violations that come to their attention. Both faculty and administration consider it their duty, as guardians of academic standards and intellectual honesty, to enforce the policy by prosecuting all cases of violations of academic integrity to the fullest extent. Students are urged to consider that it is the toleration of violations of academic integrity, and not the reporting of it, that is dishonorable. Visit <https://coursecatalog.plymouth.edu/university-policies-procedures/graduate-academic-policies/> for more information on University policies and procedures regarding academic integrity. In addition, please review APA guidelines on what constitutes plagiarism.

### **Academic Integrity Policy**

<https://coursecatalog.plymouth.edu/university-policies-procedures/> Policy is listed under the “Academic Integrity” tab.

### **ADA Statement**

Plymouth State University is committed to providing students with documented disabilities equal access to all university programs and facilities. If you think you have a disability requiring accommodations, you should contact Campus Accessibility Services (CAS), <https://campus.plymouth.edu/accessibility-services/>, (603-535-3300) to determine whether you are eligible for such accommodations. Academic accommodations will only be considered for students who have registered with CAS. If you have authorized CAS to electronically deliver a Letter of Accommodations for this course, please communicate with your instructor to review your accommodations.

### **Inclement Weather**

Sign up for PSU alerts for notification of weather-related cancellations and provide your instructor with a phone number that is the most reliable way of contacting you in the event he cancels class on a night when PSU remains open. Class members regularly commute from a wide area of the state where weather conditions may vary significantly from those in Plymouth. Travelling in inclement weather is always at your discretion. It is your responsibility to initiate making up missed material if you miss a class due to weather.

### **Sensitive Material**

Material in this course, in some instances, may be sensitive or emotionally provocative. As you review the syllabus, or at any time during the course, please let the instructor know if you anticipate, or are having, a problem with any assignment or classroom activity. It can then be discussed how this assignment or activity is necessary for meeting course competencies and whether an alternative assignment or activity can be considered. Campus resources that may be helpful in dealing with your concerns can also be discussed.

## Counselor Education and School Psychology Policies

Plymouth State University's Counselor Education and School Psychology (CESP) Programs are charged with the task of preparing individuals to become professional counselors or school psychologists in a variety of settings and to assume positions of leadership in the field. In order to fulfill these responsibilities, faculty will evaluate students based on their academic, professional, and personal qualities. The PSU CESP programs attempt to establish a learning community where students can develop professionally. This is done by providing an environment in which students' rights and responsibilities are respected, and by respecting the dignity and worth of each student.

**Student Monitoring:** A student's progress in the program may be interrupted for failure to comply with academic standards or if a student's interpersonal or emotional status interferes with education/training and client care related to requirements for self and others. For example, in order to ensure proper training and client care, counselors/school psychologists-in-training must abide by relevant ethical codes and demonstrate professional knowledge, technical and interpersonal skills, professional attitudes, and professional character. These factors are evaluated based on academic performance and the ability to convey warmth, genuineness, respect, and empathy in interactions with clients, classmates, staff, and faculty. Students should be able to demonstrate the ability to accept and integrate feedback, be aware of their impact on others, accept personal responsibility, be able to express feelings appropriately, and evidence professional judgment in decision making relative to issues and situations encountered in the program. See the student handbook for both the long and short versions of the student monitoring form.

**Student Responsibilities in Monitoring Peer Professional Competency:** As a CESP student, it is important to learn how to support your fellow classmates and future colleagues. Professional codes of ethics highlight the importance of protecting the profession and those it serves by recognizing unethical behavior, consulting with colleagues, and reporting to institutional hierarchies if necessary. If you are concerned about a classmate's ethical conduct, counseling competency, or psychological stability, you are encouraged to follow the policy in your program's student handbook to guide you in ethically dealing with these situations.

**Communications:** Prompt and professional communication between students and professors is important and valued in the CESP programs. To that end, it is your responsibility to regularly check your PSU email account. As stated in the student handbooks, all university communications will be to that address. We aspire to be a community that responds to each other in a prompt and respectful way. To that end, we ask that you respond to professor or department emails within two business days. Likewise, faculty will aspire to respond to your emails within two business days. Note, we understand that there are circumstances in which students and faculty may be unable to respond in a timely manner. During these periods, we will inform others when we will be available to respond.

**Computers and Cell Phones Use in the Classroom:** Computers and cell phones may be brought into the classroom (obviously, since we will be attending class via Zoom) but their use should be appropriate. Computers should be limited to academic class-related uses. Please keep your microphone on mute unless you are speaking. Also, **please turn your camera on** during class, as it can be difficult to engage with a class where half the students don't seem to be actually "there." During guest speaker presentations, videos, student presentations, and any in-class role play activities please make sure you're focused on the person speaking to be respectful of your classmates. Finally, cell phones play an important role in emergency situations, but they should be kept on vibrate or silent mode and text messaging should be kept to a minimum.

**Late Assignments:** Consistent with graduate level expectations, all assignments are expected on their due dates. However, exceptions to this rule may be made due to circumstances beyond the control of students such as family emergencies, illness, injury, power outages, computer malfunctions, accidents and other situations. Because of these possibilities, students are strongly advised to complete their assignments in advance of the due date. Also, students should back up their work so that computer crashes will not delay assignments. Unless impossible, all requests for extensions for assignments must be made before the assignment is due. If an extension is granted, the assignment should be submitted no later than one week from the due date. In cases where the reason for the delay may require a longer time period to complete, the decision to allow a longer extension will be made on a case-by-case basis. Students may be asked to provide documentation to verify their request for an extension.

*If an assignment is handed in past the due date, the final grade for that assignment will have 10% of the grade deducted for each day it is late.*

**Canvas Assistance:** For assistance navigating Canvas, visit the online knowledge base at <https://td.unh.edu/TDClient/63/plymouth/KB/ArticleDet?ID=809&SIDs=2518>, or contact the Help Desk at (603) 535-2929, or get in-person help at the Help Desk in Lamson Library.

**Fair Grading Policy:** <https://coursecatalog.plymouth.edu/university-policies-procedures/> Policy is listed under the "Fair Grading" tab.

**Papers:** The Research Paper must be in APA format following the 2019 guidelines. The Neuroscience Research Article Review does not need to be in APA formatting, but should utilize proper citations and references. All papers must be submitted electronically via Canvas in a Word, PDF, Pages, or Open/LibreOffice format.

**Assignment File Names:** Please title the file name for submitted writing assignments and recordings with your last name first, then the name of the assignment. Here's an example using my own last name: Mariska Research Paper.docx

## STUDENT EVALUATION:

Attendance and Participation	20 points
Research Paper	30 points
Neuro Research Article Review	15 points
Neuroeducation Presentation	15 points
Final Exam	20 points
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Total	100 points

## ASSIGNMENTS:

### Neuroscience Research Article Review

For this assignment, you are to find a recent (within the last 2-4 years) article in a journal or reputable scientific periodical that review new findings, innovations, or a better understanding of the brain and mental health.

This article should focus on research related to our understanding of the brain and how it functions related to mental health and well-being. Choose an article that you find interesting, and that ultimately relates to your own future work with clients.

Once you've selected an article, you must do the following:

**Part 1** – Post a new topic in the "Discussions" section located on the left hand side of the course Canvas site. In this topic, post either an uploaded copy of your article, or a link to the location where it can be read online. In addition, post the following, providing a paragraph or so for each part:

- A brief synopsis of the article's findings.
- Its significance for your own future work with clients. Why did this interest you?
- (Primary focus) - How you would describe the key points, or new approach to a client, using language that is simple, approachable, and free of "jargon" or complex scientific terms. In other words, how would you put this information into "layman's terms" so that the clients you'll be working with can understand and use it?

**Part 2** – You are to choose and review **two** of the postings made by your classmates and comment on them. Comments can include reflections on the subject of the article, its place in your own future work with clients, questions you have that are left unanswered, and suggestions and/or feedback on your classmate's "layman's terms" description. Essentially, I want you to show me that you read their article and their topic on it well enough to respond to it.

## **Neuroeducation Presentations**

This assignment will give you some practice in working to understand a neuroscientific concept and explaining it in simple terms to the people we're helping.

First, choose a specific issue (a problem or symptom of a psychological disorder) you anticipate discussing with future clients, students, or parents. You need to focus on something specific (like hypervigilance symptoms in PTSD) rather than something broader (like PTSD itself). You'll then want to dig up what research or information you can on this specific issue, and most importantly, our best understanding of what's going on in the brain to cause it. This information can be drawn from readings, articles, and even non-scientific sources like self-help articles, children's books, and Youtube videos. Just make sure to check for accuracy!

Sign-ups for the date of your presentation will be done on the second day of class using an online form. This presentation should be about 5 minutes in length, and should ideally be done in an informal style which would match a normal conversation with a client, student, or parent. Powerpoints, pictures, and/or other multimedia resources may be used, but please ensure you stick to the 5 minute time limit.

The presentation should cover:

- The specific issue you've chosen, and the population you've created this explanation for.
- In simple, "layman's terms," describe to us what is happening or what has happened neurologically with regard to this issue as best you can. You do not need to cover how the issue needs to be addressed, unless that is part of the description of what's happening. The "what and why" is the most important part of this explanation.
- (Optional but encouraged, especially for children!) A short and simple metaphor that can be used to conceptualize what's happening.

## **Final Exam**

The Final Exam will be given on the final course date and will cover all material reviewed in the class and readings. This exam will be given in an electronic format using the Canvas platform.

The exam will consist of Multiple Choice, True/False, Matching, and Short Essay questions.

A study guide will be given out before the final exam.

## Research Paper

This paper involves first examining the neurological and pharmacological aspects of a mental health issue in greater depth, then translating this knowledge into useful and approachable language for the population you plan to work with.

To begin, choose a mental health issue that interests you, or one that you know you will encounter in your future career. It does not necessarily need to be one we've covered in class, though you will likely find those a bit easier to write about.

Once you have a focus, address the following questions to construct your paper:

- Using modern research (ideally within the last 10-20 years or so) give your best overview of what seems to be occurring neurologically for this mental health issue. What brain systems are involved? What's our best understanding of the problem? Are there areas that we still do not understand? How has our understanding changed over the past few decades?
- Give an overview of medication options for this issue, then choose one specific medication to explore in greater depth. Discuss our best understanding of how this medication works, how it can help with the symptoms of this disorder, and any key side effects that can prove to be problematic. How well does this medication seem to work? Is the benefit worth the potential side-effects? How does a client typically take this medication? (i.e. – how often, how long, etc.?)
- Imagine you have a client who is experiencing this mental health issue. Review how you would describe what is occurring to them neurologically. How might you discuss medication options to utilize in addition to counseling or psychotherapy? Please keep in mind your client's developmental / educational level, and what is appropriate to discuss given our scope of practice as counselors. *A vignette, or "I said / they said" back and forth is not only allowed, but encouraged for this part. I'd love to see just how you'd explain things to a future client!*

This paper should utilize APA formatting with proper citations, and should be between 8-10 pages in length (not counting the title page or references). You must utilize **at least** 6 references (can include the textbook if you'd like to use it) in writing this paper. If they are relevant to the issue you've chosen, you may re-use resources from the Article Review and Neuroeducation Presentation. Web resources may also be utilized, but please ensure the resources you use come from professional, reputable, and accurate sources.

### COURSE GRADING SCALE:

A	96 – 100 %	B	83 – 86 %	C	73 – 76 %
A-	90 – 95 %	B-	80 – 82 %	C-	70 – 72 %
B+	87 – 89 %	C+	77 – 79 %	F	00 – 70 %

**COURSE CALANDER**

<b>DATE</b>	<b>TOPICS</b>	<b>READINGS / ASSIGNMENTS</b>
<p><b>Class 1</b> 5/10/21</p>	<p>Course Intro and Syllabus Review  History of Psychopharmacology  Using an Integrated Approach to Mental Health</p>	<p>Syllabus  Textbook Ch. 1 &amp; 2</p>
<p><b>Class 2</b> 5/17/21</p>	<p>Intro to Neurobiology  Brain Structure &amp; Function</p>	<p>Textbook Ch. 3 and Assigned Readings</p>
<p><b>Class 3</b> 5/24/21</p>	<p>Neuroplasticity &amp; Change  Memory, Conflict, &amp; Epigenetics</p>	<p>Assigned Readings</p>
<p><b>Class 4</b> 5/31/21</p>	<p>Intro to Pharmacology  Compliance, Discontinuation, &amp; “Red Flags”</p>	<p>Textbook Ch. 4, 5, 23, &amp; 24 and Assigned Readings</p>
<p><b>Class 5</b> 6/7/21</p>	<p>Depressive Disorders &amp; Medication</p>	<p>Textbook Ch. 7 &amp; 17 and Assigned Readings  <b>Neuroeducation Presentations</b></p>
<p><b>Class 6</b> 6/14/21</p>	<p>Bipolar Disorder &amp; Medication</p>	<p>Textbook Ch. 8 &amp; 18 and Assigned Readings  <b>Neuroeducation Presentations</b></p>
<p><b>Class 7</b> 6/21/21</p>	<p>Anxiety Disorders &amp; Medication  Obsessive-Compulsive Disorder</p>	<p>Textbook Ch. 9, 10, 19 and Assigned Readings  <b>Neuroeducation Presentations</b></p>



<p><b>Class 8</b> 6/28/21</p>	<p>Psychotic Disorders &amp; Medication</p>	<p>Textbook Ch. 11 &amp; 20 and Assigned Readings</p> <p><b>Neuroeducation Presentations</b></p>
<p><b>Class 9</b> 7/5/21</p>	<p><b>Asynchronous Class</b> <b>4<sup>th</sup> of July Weekend</b></p>	<p><b>Article Review</b> <b>Part 1 Due at midnight on 7/5</b> <b>Part 2 Due at midnight on 7/11</b></p>
<p><b>Class 10</b> 7/12/21</p>	<p>Trauma and the Brain Post-Traumatic Stress Disorder</p>	<p>Textbook Ch. 12 and Assigned Readings</p> <p><b>Neuroeducation Presentations</b></p>
<p><b>Class 11</b> 7/19/21</p>	<p>Recreational Drug Use Substance Abuse &amp; Withdrawal Over-the-Counter Supplements</p>	<p>Textbook Ch. 14, 21, &amp; 22 and Assigned Readings</p> <p><b>Neuroeducation Presentations</b></p>
<p><b>Class 12</b> 7/26/21</p>	<p>Child &amp; Adolescent Psychopharmacology Diversity Considerations</p>	<p>Textbook Ch. 25 and Assigned Readings</p> <p><b>Research Paper Due</b></p> <p><b>Neuroeducation Presentations</b></p>
<p><b>Class 13</b> 8/2/21</p>	<p>Borderline Personality Disorder Sleep Disorders Other Miscellaneous Disorders</p>	<p>Textbook Ch. 15, 16 and Assigned Readings</p> <p><b>Final Exam Opens 9pm</b></p> <p><b>Neuroeducation Presentations</b></p>
<p><b>Class 14</b> 8/9/21</p>	<p>Final Exam Class Wrap-Up</p>	<p><b>Final Exam Due by 6pm!</b></p> <p><b>Neuroeducation Presentations</b></p>

**2016 CACREP STANDARDS, METHODS OF DELIVERY, AND ASSESSMENT**

CACREP Standard/Goal	Methods of Delivery	Assessment
(Core– 2.F.3.e) – Biological, neurological, and physiological factors that affect human development, functioning, and behavior	Lectures on Neurobiology, Human Development, Specific Disorders, and Psychopharmacology	Final Exam Article Review & Neuroeducation Project
(CMHC– 5.C.1.d) – Neurobiological and medical foundation and etiology of addition and co-occurring disorders	Lectures on Neurobiology, Recreational Drug Use, and Substance Abuse	Final Exam
(CMHC– 5.C.2.b) – Etiology, nomenclature, treatment, referral, and prevention of mental and emotional disorders	Lectures on Neurobiology, Specific Disorders, and Psychopharmacology	Final Exam Article Review & Neuroeducation Project Research Paper
(CMHC– 5.C.2.e) – Potential for substance use disorders to mimic and/or co-occur with a variety of neurological, medical, and psychological disorders	Lectures on Neurobiology, Recreational Drug Use, and Substance Abuse	Final Exam
(CMHC– 5.C.2.f) – Impact of crisis and trauma on individuals with mental health diagnoses	Lecture on Trauma and PTSD	Final Exam
(CMHC– 5.C.2.g) – Impact of biological and neurological mechanisms on mental health	Lectures on Neurobiology, Specific Disorders, and Psychopharmacology	Final Exam Article Review & Neuroeducation Project Research Paper
(CMHC– 5.C.2.h) – Classifications, indications, and contraindications of commonly prescribed psychopharmacological medications for appropriate medical referral and consultation	Lectures on Pharmacology and Specific Disorders	Final Exam Research Paper
(CMHC– 5.C.3.b) – Techniques and interventions for prevention and treatment of a broad range of mental health issues	Lectures on Neurobiology, Specific Disorders, and Psychopharmacology	Final Exam Article Review & Neuroeducation Project Research Paper
(SC – 5.G.2.h) - common medications that affect learning, behavior, and mood in children and adolescents	Lecture on Child and Adolescent Psychopharmacology	Final Exam

## **NHADACA CATEGORIES OF COMPETENCE - ADDICTION TREATMENT CERTIFICATE**

### **Category 14 - Alcohol and Drugs**

The knowledge and understanding of alcohol and other drugs including their effects on the human body. This includes knowledge of:

- major classifications of mood altering substances,
- most common drugs within each classification,
- effects of most common drugs on the human body,
- quantitative levels of alcohol and their effects,
- drug interaction, synergism, and potentiation, and
- resources to identify unknown drugs.

### **Category 16 - Physiological/Medical Factors**

The knowledge of the physiological/medical factors associated with substance abuse. This includes knowledge of:

- long and short term physical effects of substance abuse,
- long and short term effects of withdrawal,
- tolerance, addiction tolerance, and cross tolerance,
- neurological effects and body processes involved in recovery,
- nutritional effects and body processes involved in recovery,
- effect of use and abuse of drugs on prenatal development,
- genetic research relating to substance abuse, and
- physiological/medical factors relating to substance abuse particular to special populations - race, age, sex, occupation, and geographic location.

### **Category 17 - Psychological/Psychiatric Factors**

The knowledge of the psychological/psychiatric factors associated with substance abuse. This includes knowledge of:

- short and long term psychological effects of substance abuse,
- psychological factors relating to substance abuse particular to special populations - race, age, sex, occupation and geographic location,
- recognizing the mentally ill substance abusers,
- psychological defense mechanism, and
- psychological effects of withdrawal.

### **Category 18 - Treatment**

The knowledge of treatment issues and processes associated with alcoholism and drug addiction. This includes the knowledge of:

- appropriate and inappropriate use of psychoactive drugs, and
- the ability to recognize and verbalize sexual issues as part of treatment.

## References

- Bandelow, B., Sher, L., Bunevicius, R., Hollander, E., Kasper, S., Zohar, J., & Moller, H.J. (2012). Guidelines for the pharmacological treatment of anxiety disorders, obsessive-compulsive disorder and posttraumatic stress disorder in primary care. *International Journal of Psychiatry in Clinical Practice*, 16(2), 77-84
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- Weill Cornell Medical Center. (2007, December 27). Brain abnormalities underlying key element of borderline personality disorder identified. *ScienceDaily*. Retrieved January 13, 2018 from [www.sciencedaily.com/releases/2007/12/071221094757.htm](http://www.sciencedaily.com/releases/2007/12/071221094757.htm)