



Course Information

Course Title, Number, & Section Number: Brain, Behavior, and Psychopharmacology, COUN 750-001

Term and Year:

Number of Credits: 3

Course Location: Reinhart Center 201

Dates and Times: Thursdays from 6:30 – 9:30 p.m.

Instructor Information

Name of Instructor:

Instructor Contact Information:

Instructor Preferred Method/ Times for Student Contact:

E-mail contact preferred. You can also visit me during office hours in person (Reinhart Center 215) or online (<https://viterbo.zoom.us/my/djbauer>): Mondays from 12:20 to 2:20 p.m. and Tuesdays from 9:30 a.m. to 12:20 p.m. I recommend establishing meetings in advance so that I can block off time during my office hours for you.

Course Description

Examines the neural mechanisms, and the physical and behavioral consequences of use and abuse, emphasizing a neurobiology informed approach to counseling, supervision, and counselor education.

Required Course Materials

- Meyer, J.S. & Quenzer, L.F. (2018). *Psychopharmacology: Drugs, the brain, and behavior (3rd ed.)*. New York: Oxford University Press. ISBN: 978-1-6053-5555-9

Course Student Learning Outcomes

1. Describe the mechanisms of effect of some common prescribed and abused psychotropic drugs; relate these mechanisms to changes in the expression of behavior and mental processes.
2. Explain how environmental influences including adverse childhood experiences interact with genetic expression, alter activity in the HPA axis, and contribute to anxiety and depression.
3. Develop strategies and materials to explain these concepts to future clients, students, and professional colleagues.

COUN 750 Standards/Evaluation Alignment

This course is designed to satisfy a requirement of the Council for Accreditation of Counseling and Related Educational Program (CACREP, 2016) Standards:

- **6.B.1.d** – evidence-based counseling practices

Alignment Table of Learning Outcomes, CACREP Standards, and Evaluation Components

Course Student Learning Outcomes	CACREP Standard(s)	Evaluation
Explain how environmental influences including adverse childhood experiences interact with genetic expression, alter activity in the HPA axis, and contribute to anxiety and depression.	6.B.1.d – evidence-based counseling practices	Quizzes Learning Modules

Methods of Instruction

This course involves regular lecture and discussion about behavioral neuroscience and psychopharmacology. Class time will also involve active learning exercises to enhance knowledge and understanding of material.

Evaluation Method

Point Allocation (420 Total)

- 210 (50%) from **quizzes** (n = 7)
- 160 (38%) from **learning modules** (n = 2, each with 2 components)
- 50 (12%) from **presentations** (n = 2)

Percentages and Point Ranges

- **A:** 94% or higher 394.8 or more points
- **AB:** 88% to 93.9% 369.6 to 394.7 points
- **B:** 82% to 87.9% 344.4 to 369.5 points
- **BC:** 76% to 81.9% 319.2 to 344.3 points
- **C:** 70% to 75.9% 294 to 319.1 points
- **CD:** 64% to 69.9% 268.8 to 293.9 points
- **D:** 58% to 63.9% 243.6 to 268.7 points
- **F:** 57.9% or lower 243.5 or fewer points

Instructor Late Work Policy

Assignments may be submitted up to 3 days after the due date at a -10% penalty per day. Assignments will not be accepted more than 3 days after the due date. Missed quizzes and exams cannot be completed without a documented health concern or other very significant personal reason (e.g., death in family).

Attendance Policy

Regular attendance in this course will facilitate success on assessments, help you develop a professional work ethic, and allow you to contribute to the learning environment of the classroom.

Per Viterbo policy, students regularly missing class will be reported to the Vice President of Academic Affairs and students missing more than 15% of scheduled class for any reason may automatically fail the course. Please refer to the policy in the Student Handbook and Planner for additional information.

Academic Integrity Policy

Maintaining a standard of academic honesty is a responsibility shared by the students, faculty and administration at Viterbo University. The faculty has the responsibility to create an atmosphere in which students may display their knowledge. This atmosphere includes sufficient safeguards to control dishonesty including an orderly testing room, restrictions on text messages, etc. Students have the responsibility to understand academic misconduct and to refrain from it.

Credit Hour Course Expectations

Regardless of format, all courses are required to meet the required credit hour standards by a combination of seat time and outside work. Outside work could include additional outside reading, group work, service projects, field work, clinical rotations, among other learning activities. Viterbo defines one credit hour as 750 minutes over 15 weeks. In addition, each credit of a course requires that students spend two hours of work outside of class per week. Minimum class and outside work time are calculated according to this formula:

$$(750 + 1800) * \text{the \# of credits of a course} = \text{the minimum number of minutes of seat time and outside work required}$$

For example, a three-credit course requires a minimum of 7,650 total minutes.

Course Support Services

Learning assistance is available from the Academic Resource Center. Content tutoring is available for all students by signing up in the Center. Writing specialists are also available to assist students in any course. Students may schedule writing appointments by going to the ARC web page and clicking on the book now icon.

Disability Statement

The Academic Resource Center provides services to students who have indicated that they have a disability. Students who have a diagnosed disability and require legitimate accommodations must complete an Application for Accommodations Based on Disability-Related Need and should contact the Academic Resource Center at 796-3190.

Syllabus Statement on Sex Discrimination, Sexual Harassment, and Sexual Misconduct

Viterbo University seeks to ensure that campus community members learn and work in a hospitable and inclusive environment. To this end, Viterbo policy and Title IX prohibit sex discrimination, sexual harassment, and sexual misconduct including, but not limited to sexual assault, sexual exploitation, dating violence, domestic violence, and stalking.

As a faculty member, I am required to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX Coordinator with relevant details such as the names of those involved in the incident. Viterbo is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource. Although I have to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Viterbo's goal is to make sure you are aware of the range of options available to you and that you have access to the resources you need.

Viterbo encourages anyone who has experienced sexual misconduct or relationship violence to get support and assistance from one of the confidential or non-confidential resources listed at this link:

<http://www.viterbo.edu/sexual-misconduct/make-report-or-file-complaint>

Please visit [this website](#) for the complete Viterbo University Sex Discrimination, Sexual Harassment, and Sexual Misconduct Policy with resources, procedures, and flowchart.

Where to Get Help: Additional Policies and Resources for Students

- [Viterbo Speaks Up](#): Report crimes, worrisome behaviors, harassment, sexual violence or assault, hate/bias discrimination, or violations of the Viterbo University Code of Student Conduct
- [Chosen First Name Policy](#)
- [Concerns or Complaints Regarding Instruction](#)
- [Moodle & Technology Guides](#)
- [Sex Discrimination, Sexual Harassment, and Sexual Misconduct Policy](#)
- [Student Disability Policies and Procedures](#)
- [Student Resources](#)
- [Technology Requirements](#) and [Technical Support](#)

Please review additional items noted in the Policies and Resources block in the Moodle course site.

Counseling Services

It is common for college students to struggle with stress or other emotional challenges, and you may feel a need or desire to seek professional help. If you would like to talk to someone, you are encouraged to contact Viterbo University's Counseling Services: <https://www.viterbo.edu/counseling-services>; 608-796-3825. For assistance after normal business hours, you can call the Great Rivers 24-hour helpline: dial 211 from a campus phone or 800-362-8255. For emergencies, dial 911 or campus security (3911 from campus phone or 608-796-3911).

CACREP-relevant Evaluation Details

Evidence-based counseling practices (CACREP 6.B.1.d)

This course emphasizes a biopsychosocial perspective of mental health with substantial focus on neurobiological underpinnings and psychopharmaceutical treatment of psychological disorders including addiction, affective disorders, anxiety disorders, and schizophrenia. Counselors are encouraged to incorporate this knowledge into their regular practice with clients.

Interspersed throughout the course are graded opportunities to demonstrate accurate and succinct comprehension of important concepts in behavioral neuroscience and psychopharmacology and how these relate to counseling practice. The following list of items will be used to inform the evaluation of this CACREP standard:

Evaluation Item #1

- **Source:** Quiz 1 (Principles of Pharmacology), Question #14 (3 points)
- **Item Text:** The half-life of methylphenidate (Ritalin) is about 3 hours. The child you are working with took 40 mg of this drug at 7:00 this morning (0700) and it is now 1:00 in the afternoon (1300). A) About how much of the drug remains in the child's system? B) Is there enough of the substance remaining to influence behavior? Answer "yes" or "no" and defend your position.
- **Assessment:** The student needs to correctly calculate the approximate the amount of drug remaining bioavailable after two half-lives and to indicate that yes- enough substance remains available to influence behavior and then provide a sufficient rationale.

Evaluation Item #2

- **Source:** Quiz 4 (Opioids), Question #13 (6 points)
- **Item Text:** This chapter included the story of a man who arrived at an emergency room due to an overdose of heroin. After an administration of naloxone (Narcan), the man woke up within minutes and thus the doctors saved his life. A) Explain the mechanism by which naloxone treats a heroin overdose: how does it work? B) Imagine that you found a syringe of naloxone and injected it intravenously... you know, for science. Assuming that you have not been using opioids (heroin or otherwise), how will the drug probably affect you? C) Explain your response to the previous question.
- **Assessment:** The student is expected to provide an accurate description of naloxone's mechanism of effect, then accurately predict the types of symptoms that might occur with administration of the drug due to interference with endogenous opioids.

Evaluation Item #3

- **Source:** Gene by Environment Interactions Learning Module – Part I, Question #13 (4 points)
- **Item Text:** Based on this study, to what extent can we conclude that 5-HTT genetic variation causes depression in young adults? To what extent can we conclude that exposure to stressful life events causes depression? Explain your responses.
- **Assessment:** The student must correctly interpret the data indicating that a specific genetic variation increases the probability of depression when a high level of stressful life events occurs; that is, an interaction between these variables exists. Neither variable alone satisfactorily explains the occurrence of depression.

Evaluation Item #4

- **Source:** Gene by Environment Interactions Learning Module – Part II, Question #14 (6 points)
- **Item Text:** Imagine that your client with depression is curious about determining their 5-HTT genotype and their level of hippocampal NR3C1 promoter methylation. Assume that these are possible to determine. A) What questions and suggestions would you have for your client before they pursue the discovery of this information? B) What practical utility would this information have for you in your role as the therapist? In other words, how would knowing this information alter your therapeutic approach?

- **Assessment:** Full points are earned on this item by providing thoughtful responses that reflect the complexity of such a situation. For example, a reasonable response to part A might involve an evaluation of how the client might make use of this information and how this might differ depending on the demonstration of a fixed or growth mindset. For part B some reflection on how knowledge about biological predispositions / vulnerabilities / risk factors might alter their perception of a client, and what treatment avenues are pursued, is expected.

Evaluation Item #5

- **Source:** Quiz 5 (Anxiety & Anxiolytics), Questions #13 & 14 (6 points)
- **Item Text:** A) Intense exposure to stress both prenatally and postnatally (including as adults) causes increased glucocorticoid expression by the adrenal glands, leading to altered neural structure and function in the amygdala and hippocampus. Identify at least one of the alterations at each of these regions. B) Do the alterations at the amygdala and hippocampus increase or decrease sensitivity of the HPA axis? Explain.
- **Assessment:** Students are expected to report at least one of the changes in these structures that were discussed in class, and then to accurately explain in detail how these work in concert to increase the sensitivity of the HPA axis.

Evaluation Item #6

- **Source:** Quiz 6 (Affective Disorders, Antidepressants, & Mood Stabilizers), Question #12 (8 points)
- **Item Text:** You are working with an intelligent patient or client who asks you to explain the biological effects of his or her new antidepressant medication. In the space below, thoroughly explain MAOIs in enough specific detail such that the individual fully understands how, when, and why the drugs will likely lead to therapeutic improvement.
- **Assessment:** The response must provide an accurate description of the enzyme monoamine oxidase and how synaptic activity changes upon enzymatic inhibition. The response must then explain how synapse structure and function will change over time, and what changes in the postsynaptic cell appear to contribute to alterations in mood state (by linking the monoamine hypothesis to the neurotrophic hypothesis).

Evaluation Item #7

- **Source:** Quiz 7 (Schizophrenia & Antipsychotics), Question #12 (6 points)
- **Item Text:** Clozapine appears to demonstrate a relatively unique ability to temper both the positive and negative symptoms of schizophrenia, perhaps due to its interaction with both dopamine and serotonin. Describe how clozapine alters both dopamine and serotonin activity and how these alterations may reduce both positive and negative symptoms.
- **Assessment:** A correct response earning full points on this item must correctly differentiate the activity of mesocortical and mesolimbic dopaminergic pathways in schizophrenia and how these relate to negative/cognitive and positive symptoms, and then explain how the combined serotonin and dopamine antagonism demonstrated by clozapine alters activity in each pathway to alleviate symptoms.