NEUROPHARMACOLOGY
Spring 2019

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Course number: BIOL/PSYC 4309-001
Time and Place of class meeting: Tue and Thur 3:30-4:50 PM, LS424
Office Hours: Mon 11:00AM-12:00PM or by appointment, ERB442

Course Description:

Neuropharmacology is the scientific study of the actions of drugs and their effects on functional activity of the nervous system by binding to a particular target site or receptor. The specific focus of this course will be to provide a description of the cellular and molecular actions of drugs on synaptic transmission between neurons. This course will also discuss the pharmacological mechanisms of neurological diseases and their treatments.

Course Learning Objectives and Goals:

By the end of the course, students are expected to learn 1) how drugs produce biological and physiological changes in the functioning of neurons, which includes anatomical basis of neuro-signal pathways and biochemical basis of drug-induced signaling between neurons; 2) how human behavior, thought and mood processes are transferred from neuron to neuron and how medications can alter the chemical foundations of these processes.

Course Prerequisites:

Cell Biology and/or Physiology

Required Textbook:

Attendance:

At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. While UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Please note: As the instructor of this course, I have established that class attendance is required by accounting for 10% of total score (please refer to “Grade Calculation”). Attending lecture is extremely beneficial to your performance in this advanced course. Students are responsible for signing the attendance sheet every time when coming to the class. The absence may be excused due to the events that happen unpredictably, such as illness (documentation is needed).

Examinations:

There will be three equally weighted closed-book examinations. The 3rd exam will NOT be comprehensive. You are required to take all three exams. The format for exams will be multiple-choice.

Please note: You are expected to be in class on time during examination dates. Exams will not be given to any late coming students after the first exam has been turned in. If you come after this point to take the exam, it will be considered a “missed” exam. If you miss an exam, no grade will be given.

Grade Calculation:

The three exams will contribute one third each to 90% of the final grade. Class attendance and discussion is encouraged and will account for 10% toward the final grade. The final score will be calculated and averaged from the sum of three exams and credit of class attendance (30%+30%+30%+10%=100%). A letter grade will be assigned where A ≥ 86%, B ≥ 76%, C ≥ 66%, D ≥ 56%, F ≤ 55%.

Please note: There will be no extra credit work to make up the grade. Please do not ask. UTA policy will not allow distribution of grade over the phone call or email.

Make-up work:

If you miss an exam, a grade of zero will be given. There is no provision for taking a makeup exam in this course unless documentation for a University-approved excuse (see http://www.uta.edu/catalog/general/academicreg) is received within five days of the exam date. All makeup exams will be offered in the week right before the final exam week (see “Tentative lecture and topic schedule” on page 7).

Please note: Makeup exam is ONLY for those students who miss the first two exams.
Drop Policy:

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships ([http://wweb.uta.edu/aaofao/](http://wweb.uta.edu/aaofao/)).

Disabilities accommodations:

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability).

Counseling and Psychological Services, (CAPS) [www.uta.edu/caps](http://www.uta.edu/caps/) or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy:

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit [uta.edu/eos](http://uta.edu/eos).

Title IX:

The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with
Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Michelle Willbanks, Title IX Coordinator at (817) 272-4585 or titleix@uta.edu.

Academic Integrity:

Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

_I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence._

_I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code._

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents’ Rule 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University. Additional information is available at https://www.uta.edu/conduct/. Faculty are encouraged to discuss plagiarism and share the following library tutorials http://libguides.uta.edu/copyright/plagiarism and http://library.uta.edu/plagiarism/

Campus Carry:

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/.

Electronic Communication:

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

_Please note:_ Students are responsible for checking their MavMail and Blackboard regularly,
so that you will be aware of course update and announcements.

**Student Feedback Survey:**

At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture,” “seminar,” or “laboratory” are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit [http://www.uta.edu/sfs](http://www.uta.edu/sfs).

**Final Review Week:**

For semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Student Support Services:**

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at [http://www.uta.edu/universitycollege/resources/index.php](http://www.uta.edu/universitycollege/resources/index.php).

The IDEAS Center (2nd Floor of Central Library) offers free tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.

The Library’s 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library’s hours of operation.
Emergency Exit Procedures:

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located at the entrance of Life Science Building. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Resources for students:

Research or General Library Help:
Academic Plaza Consultation Services library.uta.edu/academic-plaza
Ask Us ask.uta.edu/
Library Tutorials library.uta.edu/how-to
Subject and Course Research Guides libguides.uta.edu
Librarians by Subject library.uta.edu/subject-librarians
Research Coaches http://libguides.uta.edu/researchcoach

Resources:
A to Z List of Library Databases libguides.uta.edu/az.php
Course Reserves pulse.uta.edu/vwebv/enterCourseReserve.do
FabLab fablab.uta.edu/
Scholarly Communications (info about digital humanities, data management, data visualization, copyright, open educational resources, open access publishing, and more) http://library.uta.edu/scholcomm
Special Collections library.uta.edu/special-collections
Study Room Reservations openroom.uta.edu/

Teaching & Learning Services for Faculty:
Copyright Consultation library-sc@listserv.uta.edu
Course Research Guide Development, Andy Herzog amherzog@uta.edu or your subject librarian
Data Visualization Instruction, Peace Ossom-Williamson peace@uta.edu
Digital Humanities Instruction, Rafia Mirza rafia@uta.edu
Graduate Student Research Skills Instruction, Andy Herzog amherzog@uta.edu or your subject librarian
Project or Problem-Based Instruction, Gretchen Trkay gtrkay@uta.edu
Undergraduate Research Skills Instruction, Gretchen Trkay gtrkay@uta.edu or your subject librarian.

Other resources:
Environmental Health & Safety (http://www.uta.edu/ehsafety)
# Tentative lecture and topic schedule:


<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture Topics</th>
<th>Reading Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 15, 17</td>
<td>Principles of Neuropharmacology</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>Jan 22, 24</td>
<td>Structure and Function: the nervous system</td>
<td>Chapter 2</td>
</tr>
</tbody>
</table>
| 3    | Jan 29, 31    | Chemical Signaling by Neurotransmitters and Hormones | Chapter 2
|      |               | Catecholamines                                      | Chapter 3
|      |               | Serotonin                                           | Chapter 5
|      |               | Acetylcholine                                       | Chapter 5
| 4    | Feb 5, 7      | Serotonin                                           | Chapter 6
|      |               | Acetylcholine                                       | Chapter 7
| 5    | Feb 12        | **Exam 1** (2/12, Tuesday, 3:30-4:50 PM at LS 424, Chapters 1-3, 5-7) | Chapter 8
|      |               | Glutamate and GABA                                   | Chapter 8
|      | Feb 14        | Glutamate and GABA                                   | Chapter 9
| 6    | Feb 19, 21    | Glutamate and GABA                                   | Chapter 8
|      |               | Drug Abuse and Addiction                             | Chapter 9
| 7    | Feb 26, 28    | Drug Abuse and Addiction                             | Chapter 9
|      |               | Alcohol                                              | Chapter 10
| 8    | Mar 5, 7      | Alcohol                                              | Chapter 10
|      |               | Opiates                                              | Chapter 11
| 9    | **Mar 11-16** | Spring break                                         | No class            |
| 10   | Mar 19, 21    | Opiates                                              | Chapter 11          |
|      |               | Psychomotor Stimulants                               | Chapter 12          |
| 11   | Mar 26        | **Exam 2** (3/26, Tuesday, 3:30-4:50 PM at LS 424, Chapters 8-12) | Chapter 13          |
|      | Mar 28        | Nicotine and Caffeine                                | Chapter 13          |
|      |               | Marijuana and cannabinoids                          | Chapter 14          |
| 12   | April 2, 4    | Nicotine and Caffeine                                | Chapter 13          |
|      |               | Marijuana and cannabinoids                          | Chapter 14          |
| 13   | April 9, 11   | Anxiety Disorders and Anxiolytics                    | Chapter 18          |
|      |               | Affective Disorders and Antidepressants              | Chapter 19          |
| 14   | April 16, 18  | Affective Disorders and Antidepressants              | Chapter 19          |
|      |               | Neurodegenerative Diseases                           | Chapter 21          |
| 15   | April 23, 25  | Neurodegenerative Diseases                           | Chapter 21          |
|      |               | TBD                                                  | Chapter 21          |
| 16   | April 29-May 3| Review                                               | No class            |
|      |               | **Makeup exam** (April 30, Tuesday)                  | No class            |
| 17   | May 6-10      | **Exam 3** (2:00-4:30 PM at LS 424; Chapters 13,14,18,19 and 21) | No class            |
|      | Final exam week| Please follow “UTA final exam schedule for Spring 2019 term”: https://www.uta.edu/records/calendars/final-exams.php | No class            |