

Course Syllabus

Course Information

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| <i>Course Number/Section</i> | NSC 4353- Section 102 |
| <i>Course Title</i> | Neuroscience Laboratory Methods |
| <i>Term</i> | Spring 2026 |
| <i>Days/Times/Room</i> | Wednesdays from 2:30PM–5:15PM Green Hall 4.708 |
| <i>Instructional Mode</i> | Traditional In-Person Laboratory (Synchronous only) |

Instructor Contact Information

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|---------------------------------|---|
| <i>Professor of Instruction</i> | Dr. Anna Taylor |
| <i>Office Phone</i> | 972-883-2446 |
| <i>Email Address</i> | anna.taylor2@utdallas.edu |
| <i>Office Location</i> | JO3.116 |
| <i>Student Hours</i> | Mondays and Wednesdays 11:30AM –1:00PM or by appointment |
| <i>Other Information</i> | Course Web Site: UTD eLearning using your UT Dallas NetID account |

Graduate Teaching Assistants

Tabitha Ristvedt - Tabitha.Ristvedt@UTDallas.edu

Course Pre-requisites, Co-requisites, and/or Other Restrictions

NSC 3361 (Introduction to Neuroscience) and NSC 4352 (Cellular Neuroscience) and PSY 2317 or STAT 1342 or STAT 2332. College level writing skills are strongly recommended. Lab fee of \$30 required.

Course Description

This laboratory course provides hands-on experience in the field of neuroanatomy, behavioral neuropharmacology, and neurophysiology. Additionally, this course is designed to empower students with the skills and knowledge needed to conduct research and write research papers in the format of scientific publication. The course fulfills the advanced writing requirement for Neuroscience majors.

Student Learning Objectives/Outcomes

After completing the course, students will be able to:

- Apply scientific methods to design, conduct and analyze studies using available research methods.
 - Locate, concisely summarize, and compare findings from sources in peer-reviewed literature.
 - Demonstrate proficiency in writing research reports, in a manner suitable for publication, that include an abstract, introduction, methods, results and discussion sections.
 - Demonstrate competence in effectively collaborating with others.
 - Write using effective technical requirements, including organization, mechanics, and thesis development.
 - Demonstrate an ability to conduct research, apply source material, discuss general information, and apply logical processes when writing.
 - Identify structures of the nervous system using common research methods.
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Career Readiness

By enrolling in NSC 4353, you are not just taking a course, you are acquiring skills that will prepare you for your career. The National Association of Colleges and Employers (NACE) identifies multiple competencies in career readiness, detailed [here](#) as an example of skills employers look for in

potential candidates. Each competency is described using sample behaviors or skills you will practice when engaging with the course material, participating in class, and interacting with the professor and your fellow students. For example, through this course:

- Students will be prepared to work in a laboratory space, having a working knowledge of safety procedures, and material management.
- Students will gain familiarity with the use and benefits of a variety of animal research models.
- Students will be prepared to design and interpret experiments and complex datasets in a variety of environments, scientific, clinical, or corporate.
- Students will be able to read and digest complex information from primary sources, and both utilize that information, and explain it to relevant parties.
- Students will become proficient in written and oral communication and the sharing of complex ideas in a professional format.
- Students will be better communicators, and be able to coordinate their contributions to group projects, while developing interpersonal skills.
- Students will be able to apply feedback in order to identify areas for continued growth.

Course Materials

- **Required Readings:** Students should download the “Lab Manual”, which is available on the course eLearning web site. **Pre-lab reading and questions should be completed before class.** Printed handouts will NOT be provided by the instructor.
- **Recommended Textbook:** Day and Gastel, How to Write and Publish a Scientific Paper, 6th edition or later.
- **Optional Textbooks:** Cargill and O’Connor, Writing Scientific Research Articles, 2nd edition. Hofmann, Writing in the Biological Sciences, A Comprehensive Resource for Scientific Communication

Assessments

Participation/Lab Exercises (5%): Class participation is worth 5% of your final course grade. You will earn points through punctual attendance and participation in that day’s activities, including maintenance of a group lab notebook. Each lab you actively participate in will earn 0.4% out of 5%. If you are late, leave early, or submit an incomplete lab exercise, you will earn only 0.2%. See the schedule for details.

Quizzes (20%): Students will complete two quizzes, each worth 10% of your final course grade. The first quiz covers neuroanatomy and is structured as a laboratory practical exam like what may be encountered in the gross anatomy lab in medical school. It will include fill-in-the-blank, multiple-choice, and true/false questions. The second quiz will be used to assess your skills gained in data analysis and interpretation, and your ability to critically think through research problems. You will only need to bring a pencil or pen to take your quizzes.

Papers (55%): Students will submit two scientific publication-style journal papers. This will include a draft and a final revised version for each of the two experiments. Since revision is such a critical part of writing, students will submit an initial draft for each paper as a way of getting feedback on their writing. This is designed to help students with the writing process. *Scientific writing is an acquired skill that is learned through much writing and revision. Therefore, as students progress along the writing process, grades based on writing become increasingly weighted:*

- + Paper 1 draft covering the Rat Behavioral experiments is worth 5% of your final course grade.
- + Paper 1 revised is worth 20%.
- + Paper 2 draft covering the Independent Daphnia Project is worth 10%.
- + S revised is worth 20%.

Student papers earn grades based on a grading rubric posted on eLearning and available to students.

The grading rubric details all aspects of the paper as well as possible point deductions. Each paper should include a title, abstract, introduction, materials and methods, results, discussion, and a minimum of eight published references. Papers are graded for content, formatting, grammar, flow, and comprehension. While no minimum or maximum page number is given, students should anticipate writing at least six double-spaced pages per assignment. ***Papers that are not typed and submitted via Turnitin on time will result in a zero for that assignment.***

Students should expect to spend a good amount of time with the writing process of the course as this type of writing is typically time consuming for most individuals. As such, students should allow themselves enough time to complete and correct their papers prior to the due dates!

Annotated sources (10%): With each draft/paper submission, students will turn in a set of annotated sources (2.5% each). Each source cited in your paper must be represented in a physical or digital folder with your highlights or notes, indicating you have read and analyzed the source. See rubric for details.

Group presentations (10%): Students will be split into groups of 3-4 students. Each group will give two graded presentations throughout the semester:

+ A Journal Club - 30 to 45 minute presentation over a published scientific article is worth 5%.

+ A Scientific Poster - 3 to 10 minute presentation of the Independent Daphnia Project is worth 5%.

Presentations will be graded on preparation of slides/posters and oral delivery as a group based on the presentation rubric. Each student in the group must take part in giving the oral presentations. Group presentations will be assigned a grade as a group and not individually. Therefore, it is important that each student contributes equally to doing their part. Students who fail to participate in the group presentation will earn their group's grade by passing an oral exam over the topic they would have presented.

Grading Scale:

The plus/minus grading system is used in this course. A+ (97–100), A (94<97), A- (90<94), B+ (87<90), B (84<87), B- (80<84), C+ (77<80), C (74<77), C- (70<74), D+ (67<70), D (64<67), D- (60<64), F (< 60).

Please note: Grades will not be rounded up and no extra credit will be given to individuals.

Course Policies:

All concerns related to grades or absences should be referred to the section instructor (not the TAs)!

Class Attendance: Students are expected to attend all lab classes in-person on time. Lab doors close at 2:30pm. Students are responsible for completing all assigned readings BEFORE coming to class. Excused absences are at the discretion of the instructor. If you know you will miss a class, you must notify the instructor in advance of the scheduled class. ***YOU ARE NOT ALLOWED TO ATTEND ANOTHER LAB SECTION WITHOUT PRIOR APPROVAL FROM BOTH INSTRUCTORS!*** Coming to lab late or leaving lab early repeatedly will also count against participation grade. Students coming to lab late on quiz days **MUST** finish the quiz at the same time the class is finished.

Classroom Safety: This is a laboratory where we will work with live animals; thus, you must dress accordingly. Legs, midribs, and toes must be covered. Food and drinks are **NOT** allowed in the lab.

Communication: This course utilizes both in-person and online tools for interaction and communication. Grades will be posted as soon as they are available. Student emails will be answered within 3 working days under normal circumstances. In event of classroom emergencies, such as lecture cancellations for a DFW Snowpocalypse, I will send an email to all enrolled in the class.

eLearning: The course syllabus, handouts, and other resources will be posted on eLearning, which can be accessed using your UT Dallas NetID account. No portion of these materials may be sold, retransmitted, reposted, duplicated or otherwise used without the express written approval of the author.

Late Work and Incomplete Work: All papers are due on the dates listed below, unless pre-approved by the instructor. Grading and revision of incomplete papers and/or sections of papers are at the discretion of the professor. ***Drafts not turned in by the due date will be deducted one letter grade for every day late (including weekends). If the final paper is not turned in by the due date, the draft grade will be used.***

Make-Up Quizzes: Make-ups will be given only if you provided verifiable documentation from an authoritative source: a) you were seriously ill, or b) you were detained the day and time of the quiz, or c) you made arrangements with me prior to the quiz to attend an urgent affair. In any case, you must notify me in advance of the scheduled time of the quiz. The practical portion of Quiz 1 cannot be rescheduled. Makeup will NOT include bonus questions and must be taken within 1 week of returning to campus.

Photography: You are **NOT** allowed to take photos of the sheep brains, human brains, animals, or any experiment! However, you are allowed (and indeed encouraged) to take photos of the notes/information on the dry erase boards.

Turnitin Submission of papers: Students must submit each draft/final version electronically via Turnitin on the eLearning course webpage before the deadline. Students must follow the submission process as described in Turnitin. Students are solely responsible for submitting their papers on time. Once papers are revised, graded, and grades are posted, they will be available in Turnitin via eLearning.

Papers not submitted to Turnitin will not be graded or given credit. Students should take a screenshot of the digital receipt that is displayed when submitting a paper on Turnitin and save it as proof of submission. Please do not email this to me unless you are facing issues with your submission. If (and only if) you are facing issues, then send me a screenshot along with your paper by email as soon as possible.

UT Dallas Syllabus Policies and Procedures

Academic Integrity: Academic Dishonesty, including (but not limited to) plagiarism, fabrication, cheating on exams, and sharing or posting exam questions (with or without the correct answers), will not be condoned in this class or at UTD. ***Plagiarism, especially from the web, from portions of papers of classmates or students from other sections, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism.*** Other than group data and group presentations, students are NOT allowed to work together and should NOT share their writing with another student. Each student is expected to write their own paper. *Using AI text generation, including ChatGPT, to write parts of your paper is plagiarism.* Professors may, if they suspect AI use, at any time require document tracking to observe document history. This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective. All suspected forms of cheating, collusion, fabrication, and plagiarism will be turned over to the Office of Community Standards and Conduct for official review according to UTD policy. **Students should read the handout on Plagiarism: What Every Student Should Know as well as the note about AI text generation posted on the course eLearning page.**

Academic Support Resources: The University of Texas at Dallas provides many academic support resources for all students. Please see <http://go.utdallas.edu/academic-support-resources>.

Extra Help: This course can be challenging, but very rewarding for students who invest time into writing. My goal is to help every student succeed! I am here to help you as much as possible, but you have to help me to help you. You are welcome and indeed encouraged to meet with me during office hours or by

appointment to go over difficult concepts, discuss writing strategies, and review papers and exams.

Note: *the day before the paper is due is too late for that paper...the week before the final is too late for the course...Plan ahead!*

Graduation Help Desk: Resources are available to help you overcome obstacles that may interfere with your progress toward graduation. The Graduation Help Desk connects you to the resources that will meet your specific needs. To reach a person who can help, email at graduationhelpdesk@utdallas.edu.

Student AccessAbility (ARC): It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the AccessAbility Resource Center is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with me and allow *at least one week* advance notice. I want to help every student success, but have to have time to prepare to help you. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact ARC: in person at Administration Building, Room 2.224, by phone 972-883-2098, or by email at studentaccess@utdallas.edu.

University Policies: For detailed information about the University of the Texas at Dallas' policies and procedures, please refer to <https://go.utdallas.edu/syllabus-policies>. This website includes "Resources to Help You Succeed" in addition to the university's policies on Academic Integrity, Accommodations for Students with Disabilities, Copyright, Religious Holy Days, Student Grievance, and Withdrawal from Class.

UTD Creed: *"As a Comet, I pledge honesty, integrity, and service in all that I do."*

ORC Laboratory Methods Requirements

To continue participation in the Neuroscience Laboratory Methods class (NSC 4353), you must complete the following requirements as listed below by the date stated on the course syllabus. If you currently or have recently worked in an animal research lab at UTD, it is likely you have already completed all of the requirements listed below. These requirements are necessary as to be in compliance with UTD policy.

Step 1: Access Requests and Online Training

❖ **Online Training**

- Please visit the BioRAFT website (<https://utd.bioraft.com/>). Login with your UTD NetID and password.
- Once you have logged into the BioRAFT system, you can access the training courses from the BioRAFT home screen in Training → Course Directory → Animal Care and Use Course
- Please complete the 3 required modules: 1. “Ethics in Animal Research”, 2. “Zoonotic Diseases”, and 3. “Working with the Laboratory Rat”
- You also need to complete “Chemical Hygiene Course”. If more trainings are assigned to you, you are not required to complete them at least for this course.

Step 2: Immunization Requirements and Participation in the Occupational Health Program

❖ **Tetanus Immunization**

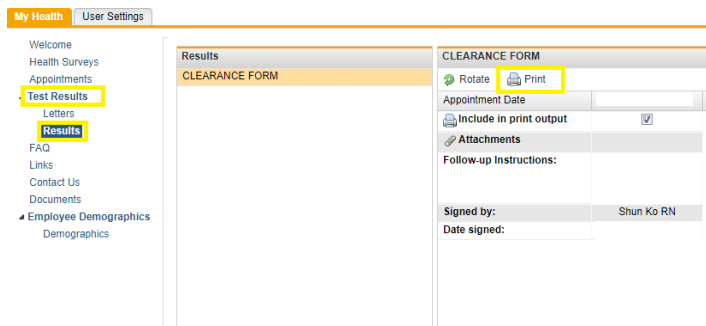
- Proof of a Tetanus immunization received within the last 10 years is required.
- If your current immunization is more than 10 years old, you can visit the UTD Student Health Center to be re-immunized.

❖ **Medical Health Questionnaire Survey**

- All individuals working with animals are required to complete the following survey: <https://redcap.utdallas.edu/surveys/?s=7EMFP9WKAX4AMN3J>. Be sure to select “yes” for “work and handle live animals”. You will note also “teaching laboratories” for “the activities above will be performed within this capacity.” See example in eLearning for more details.

❖ **Submitting the Required Documents**

- A member of the UTSW OccHealth team will be in contact with you shortly after completing the survey to set up your ReadySet account and inform you of your individual requirements (health questionnaire, tetanus shot record, etc.). You will upload a copy of your tetanus immunization under documents in your ReadySet account. After this is done and the applicable questionnaire(s) have been completed, it is important to email UTD-OH@UTsouthwestern.edu to let UTSW know that all questionnaires have been completed; this will result in your approval much more quickly.
- Once these have been approved by the UTSW team, you will be able to download a “Clearance” form under the “Test Results” -> Results” section of your ReadySet account:



The screenshot shows the 'My Health' user interface. On the left is a navigation menu with 'Test Results' and 'Results' highlighted. The main content area is titled 'Results' and contains a 'CLEARANCE FORM' link. To the right, a preview of the 'CLEARANCE FORM' is shown, featuring a 'Print' button and a 'Signed by:' field with the name 'Shun Ko RN'.

- A copy of this form will need to be sent to Tyler Tornblom (tyler.tornblom@utdallas.edu) before you are allowed to handle animals. *Do NOT send your health information to Tyler.*

Lab Schedule and Due Dates for NSC 4353-102 Spring 2026
Green Hall 4.708 Wednesdays from 2:30PM–5:15PM

| Class Date | Class Topic | Reading | Due Dates |
|-------------------|---|---|---|
| Jan 21 | Lab 1: Orientation/Course Introduction What is plagiarism vs fabrication? What is Scientific Writing/Communication? a Scientific Paper (AIMRD)? Literature Search | Syllabus Manual Chapter 1 <i>Day&Gastel 1 & 4</i> | First Day Activities Due in Class |
| Jan 28 | Lab 2: Introduction to Neuroanatomy, Sheep Brain Dissections, How to read a Scientific Paper/In-class Journal Review | Assigned Paper #1 Manual Chapter 6 | Sheep Brain Activity Due in Class |
| Feb 4 | Lab 3: Introduction to Microscopy/Histology, Comparative Anatomy (Rat, Sheep, vs Human), AI Use in Research and Research Ethics | Manual Chapter 6-7 <i>Day&Gastel 5</i> | AI Use Exercise Due Before Class |
| Feb 11 | Quiz 1 NEUROANATOMY Lab 4: Rat Handling/Open Field Introduction <i>Scientific Writing- Methods and Introduction Writing workshop 1: Getting the writing process started/Outlining, How to say what you mean</i> | Manual Chapter 2-3, 5 <i>Day&Gastel 10-11</i> | Online Training and OHP Clearance Due Before Class |
| Feb 18 | Lab 5: Behavioral Pharmacology in Rats Open-Field Lab, Understanding Experimental Design, Data, & p-values; Mock Poster Activity <i>Scientific Writing- Title, Abstract, Results, Discussion, and References</i> | Manual Chapter 2, 5 <i>Day&Gastel 7,9, 12-13, 15, 17</i> | Open-Field Data Due in Class |
| Feb 25 | Lab 6: <i>Writing Workshop 2: Sentence structure/ Content and Paragraph Organization/ Use and Misuse of English, and Avoiding Jargon</i> | Manual Chapter 6-7 <i>Day&Gastel 30-32</i> | Mock Posters Due Before Class |
| Mar 4 | Lab 7: Introduction to Neurophysiology, SimNerve simulation- Basics of Action Potential | Manual Chapter 8 | Paper 1 Draft/Sources Due by 11:59pm |
| Mar 11 | Lab 8: Backyard Brain Lab, Q&A over Paper 1, Introduction to Daphnia as a Model System | (drafts returned) Manual Chapter 9-10 | NCV Data Due in Class |
| Mar 18 | Spring Break- No Class | | |
| Mar 25 | Lab 9: Behavioral Pharmacology in Daphnia- Designing an Independent Experiment Example Journal Club Presentation | Manual Chapter 10 Assigned Paper #2 | Paper 1 Finals/Sources Due by 11:59pm |
| Apr 1 | Lab 10: Behavioral Pharmacology in Daphnia- Executing Group Independent Experiment | (finals returned) Your Group's Protocol | Your Group's Protocol Due Before Class |
| Apr 8 | Lab 11: Behavioral Pharmacology in Daphnia- Analyzing Data and Drawing Conclusions | | Independent Lab Data Due in Class |
| Apr 15 | Lab 12: <i>Writing Workshop 3- Q&A over Paper 2 Drafts, Peer Review In-Class time to work on Group Presentations</i> | Your Group's Paper | Paper 2 Draft/Sources Due by 11:59pm |
| Apr 22 | Lab 13: Journal Club Presentations | Assigned Papers | Journal Club Rubrics |
| Apr 29 | Lab 14: Journal Club Presentations Review of Data Analysis/Interpretation | Assigned Papers (drafts returned) | Journal Club Rubrics |
| May 6 | Quiz 2 DATA ANALYSIS/INTERPRETATION Lab 15: Independent Project Posters | | Paper 2 Final/Sources Due by 11:59pm |
| May 13 | No Final Exam will be given for this Lab Course. | | |

The descriptions and timelines above are subject to change as needed at the discretion of the instructor.