

Academic Year 2026 – 2027

Master's Program Handbook



Department of Neurobiology

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Program Overview

The Master's Program in Neurobiology features independent, hands-on research training combined with focused classroom instruction, preparing students for careers in medicine, industry, academic research, and teaching. The program is designed so students can earn an MS degree after one year of intensive study and research.

The program provides an unparalleled opportunity to learn and collaborate with highly- renowned scholars in the field of Neurobiology. Graduates of the program go on to MD or PhD programs at top institutions around the country or choose to directly enter careers in academic or industrial research.

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The Graduate School's Policies and Procedures

All students within TGS are subject to and should be aware of [The Graduate School's academic policies](#), their program's policies (handbook), and [Northwestern University's policies](#) pertaining to students, including the [Student Handbook](#).

Graduate Success

The Graduate School (TGS) promotes a transformative educational experience for graduate students and postdoctoral scholars at Northwestern University. The Graduate School's Office of Graduate and Postdoctoral Success (GPS) focuses on recruitment and support and facilitates community engagement. Through their retention and recognition efforts, GPS is committed to the personal and intellectual growth of the graduate community. Learn more about these [strategies here](#).

Community and Campus Life

TGS offers many ways for students and postdoctoral trainees to engage on campus through quarterly events, Co-Sponsorship Grants, and student organizations. The Graduate Leadership and Advocacy Council (GLAC), Graduate Student Association (GSA), and Chicago Graduate Student Association (CGSA) are three overarching TGS-affiliated student organizations that tend to graduate student advocacy, social, and volunteer needs. There are also a number of affinity groups. [Click here for more information](#).

Professional Development

TGS supports graduate students to develop the skills, experiences, and knowledge—or core capacities—required to meet their academic and professional goals. TGS partners with units across the University to offer [professional development programs and resources](#) through which graduate students' development. [Click here to contact the Office of Professional Development](#).

Career Preparation

[Northwestern Career Advancement \(NCA\)](#) supports graduate students through all stages of the career development process, from career exploration to applying to opportunities. Career counselors help graduate students reflect on their professional skills and values and help connect that reflection to targeted career fields of interest. Dedicated TGS career advisers are available to help students develop a job search strategy, assemble application materials, navigate the interview process, and enter into the negotiation process. NCA supports students throughout their time at Northwestern and provides expert consultation for students considering a wide range of careers, including (but not limited to) careers in academia, consulting, research & development, and policy. To learn more about upcoming events and to schedule an appointment with a career adviser or counselor, please visit [Handshake](#), NCA's career portal.

English Language Programs (ELP)

ELP supports international students who wish to improve their English language skills. Services are offered year-round, and include [group language classes](#), one-on-one instruction, supported [online speech and language training](#), and [language tables](#). New PhD and MFA students may also receive intensive language support through the [ELP Foundations](#) and [Integrated Academic Skills](#) programs. Services are offered free of charge and are limited to students and employees of Northwestern University. For more information, email elp@northwestern.edu or [visit the ELP website](#).

Student Affairs

Made up of 30 departments, the [Division of Student Affairs](#) engages students in activities and culture on campus and in the surrounding community. Student Affairs offers support to students in need by providing learning programs, services, and mentoring to sustain a safe and healthy Northwestern community.

AccessibleNU

[AccessibleNU](#) supports and empowers students with disabilities by collaborating with the Northwestern community to ensure equal access to fully participate in the academic learning environment. Should you anticipate or experience disability-related barriers in the academic setting, please contact AccessibleNU to move forward with the university's established accommodation process by emailing accessiblenu@northwestern.edu or calling 847.467.5530.

Wellness Services

Northwestern's Health Services provides quality medical care to students on both the [Chicago](#) and [Evanston](#) campuses. All full-time students who register for three or four courses are eligible to use outpatient services. Northwestern's [Counseling and Psychological Services \(CAPS\)](#) serves as the primary mental health service at Northwestern with offices on both campuses. Northwestern students who are enrolled full-time have access to the Henry Crown Sports Pavilion, Northwestern's main gym. [Learn more on their website.](#)

U-Pass

The University Pass (U-Pass) is a discounted fare card that replaces cash/other transit cards for all Chicago Transit Authority (CTA) fares and may be used 365 days/year on CTA trains and buses. The Graduate School (TGS) and Chicago Transit Authority (CTA) provide the CTA U-Passes to eligible TGS graduate students through a quarterly TGS U-Pass Transit Card Fee. All full-time enrolled TGS students may opt-in each quarter to receive a U-Pass transit card. If you do not plan to use a U-Pass for the upcoming Quarter, no further action is needed.

You can learn more about the U-Pass on the [TGS transportation](#) website. If you have questions, refer to the [U-Pass FAQ](#) or contact tgs-u-pass@northwestern.edu.

Child and Family Resources

TGS has a family resource liaison and a range of programs and resources specifically for graduate students with children or who are thinking about having children during their program. These include assistance with parental leave, family- friendly neighborhoods and childcare. More information can be found [here](#).

Changing Personal Information

If there has been or will be any changes to your personal information (address, phone, etc.) since you submitted your online application, you will have the opportunity to update your information in CAESAR once you begin your study at Northwestern. Formal name changes are processed by the Registrar's Office. If you are receiving a stipend from Northwestern, you will also need to update the payroll system via the Self-service portal when there are changes to your address, phone number, etc.

Social Media and Events

TGS frequently posts news, events, and opportunities on their [website](#), [Facebook](#), and [Instagram](#) page.

TGS/MS in Neurobiology Academic Calendar 2026-27

September	
Friday, September 18, 2026	Fall Registration for new TGS graduate students <i>(Department will register students)</i>
Wednesday, September 23, 2026	Fall classes begin
Wednesday, September 23, 2026	MS Neurobiology Orientation 9:30-11:30am Location: Pancoe 2-401 <i>Orientation occurs during the first session of Neurobio 402</i>
October	
Friday, October 23, 2026	Student Advisor Agreement form due
November	
Monday, November 2, 2026	Winter quarter courses viewable in CAESAR
Friday, November 13, 2026	Submit Winter elective choices to Program Assistant
Monday, November 16, 2026	Registration for Winter quarter begins <i>(Students register for elective)</i>
December	
Friday, December 4, 2026	Fall seminar summaries due
January	
Monday, January 4, 2027	Winter classes begin
Friday, January 29, 2027	Thesis Proposal Form due
February	
Friday, February 5, 2027	Application for Degree form due in GSP to receive a degree in Spring
Monday, February 8, 2027	Spring quarter courses viewable in CAESAR
Friday, February 12, 2027	Submit Spring elective choices to Program Assistant
Monday, February 22, 2027	Registration for Spring Quarter begins <i>(Students register for elective)</i>
March	
Friday, March 12, 2027	Winter seminar summaries due
Tuesday, March 30, 2027	Spring classes begin <i>Northwestern Monday schedule</i>

April	
Friday, April 30, 2027	Thesis Defense Approval form due in GSP for Spring graduates
May	
Friday, May 14, 2027	Master's Degree Completion form due in GSP for Spring graduates
June	
Friday, June 4, 2027	Spring seminar summaries due
June 11 – June 14, 2027	Graduation weekend 2027 <i>Spring and Summer graduates invited to attend</i>
Monday, June 21, 2027	Spring degrees conferred
July	
Friday, July 9, 2027	Application for Degree form due in GSP to receive a degree in Summer
August	
Friday, August 13, 2027	Thesis Defense Approval form due in GSP for Summer graduates
Friday, August 20, 2027	Master's Degree Completion form due in GSP for Summer graduates

Onboarding

TGS provides orientation prior to the academic term. We also provide a program orientation during the first class session of *Neurobiology 402*. Below is some additional information you may find helpful in getting set up at the University.

Housing

On-Campus Graduate Student Housing

Engelhart Hall Apartments are open to all graduate students, their partners, and families. Renovated apartment units feature new kitchens with all new appliances. Staff is on-site.

For more information, visit Graduate Housing at:

<https://www.northwestern.edu/living/graduate-housing/>

Off-Campus Graduate Student Housing

The Division of Student Affairs [Off-Campus Housing Guide](#) contains information and resources available to students living off-campus, from apartment hunting to being a good neighbor within the Chicago/Evanston and Northwestern communities.

Most students live in Evanston or the Chicago neighborhoods directly south of Evanston (Rogers Park, Edgewater, Ravenswood, Uptown). Free apartment finding resources include: Apartment Finders, The Apartment People, Craigslist Chicago, Domu Chicago, HotPads, Padmapper, Redfin, and Zillow.

Tuition and Fees

The Neurobiology MS Program is a paid program, and students are required to pay full-time graduate tuition for each quarter. Tuition for the 2026-27 school year is \$23,662 per quarter. In addition, students are required to pay a Student Health Fee of \$298 per quarter (not applicable in Summer quarter). This fee is used to fund Student Health Services, CAPS, and other student health resources. For more information about fees and tuition costs, visit the [TGS tuition and fees page](#).

Quarterly Billing and Payment Schedule

Term	eBill available	Online Payment deadline
Fall	October 10	November 1
Winter	December 10	January 1
Spring	March 10	April 1
Summer	June 10	July 1

Financial Support

The master's program **does not** provide financial aid in the form of academic scholarships, assistantships, TA opportunities, or stipends.

Federal financial aid policies will not allow a student to borrow federal funds for more than 150% of the program length (i.e., the limit for federal financial aid is 18 months for a 12-month program). The NU Financial Aid office will contact students who are registered for more than 18 months in the MS program and have federal financial aid.

Evanston Graduate Financial Aid Website:

<https://www.northwestern.edu/evanston-graduate-financial-aid/>

Graduate Student Progress (GSP) System

The [Graduate Student Progress \(GSP\) application](#) allows programs to track graduate student progress and view many elements of graduate student activity in one place:

- Advisor and committee
- Plan of study, including coursework planned and completed
- Annual progress, including awards, publications, research progress, meetings attended, teaching, and research goals
- Milestones (TGS and program-specific)
- TGS Forms (application for degree, master's degree completion)

Log in with your NetID and use the tool to communicate your plan of study, coursework, milestones, and annual progress with your program.

How to use GSP :

<https://services.northwestern.edu/TDClient/30/Portal/KB/Article/2823/Graduate-Student-Progress-Overview-for-Students>

User guides are located at the bottom right of this page under “Attachments”.

CAESAR

The [student information portal](#) enables you to register for classes, update your personal information, and review and pay your student account.

CAESAR Student Guides : <https://www.northwestern.edu/ses/students/>

Navigating CAESAR: <https://www.northwestern.edu/ses/students/navigating-caesar/>

NetID and Email

Your NetID is your electronic identity at Northwestern. The most common format of a NetID is a combination of three letters (often related to your name) and four numbers. Your NetID is different from

your seven-digit student ID number. You will use your NetID to access essential University services and resources, including, but not limited to, CAESAR, Canvas, Northwestern Library online resources, research resources, campus wireless networks, and Microsoft Office 365.

Powered by Google's G Suite for Education, your @u.northwestern.edu student account includes tools for email, calendars, document management, cloud storage, and more. All official communication from Northwestern is sent to this account. You are responsible for receiving, reading, and responding to messages in a timely way, so please make it a habit to check for new mail every day.

Please note: Your @u account password is distinct from your NetID password. More information is available on the [Northwestern IT](#) website.

Employee ID

Included in your admission letter (at the bottom of the page) and on your [application portal](#) checklist is your seven-digit Employee ID. Your Employee ID is often referred to as your "Student ID Number." You may be asked to include your Employee ID on housing, health record, or other University forms. Your Employee ID will remain with you throughout your tenure at Northwestern University.

Wildcard

Northwestern Student ID cards are called "Wildcards." Your [Wildcard](#) will allow you to enter University facilities and use various services around campus.

Please note:

- You must [upload and submit your photo](#) for your WildCard
- Appointments are recommended to pick up your WildCard
 - [Evanston Appointments](#)
 - [Chicago Appointments](#)
- View the [Wildcard office](#) website, including the page [Information for New Students](#) for more information.

Most Neurobiology labs require WildCard authorization for access. Some labs may require you to be issued physical keys. For Neurobiology WildCard access, please complete this [access form](#). For keys, please contact [the main office](#).

Additionally, many local businesses in Evanston offer [discounts](#) with your WildCard.

Health Services

All full-time Northwestern students are required to have health insurance coverage either through the Northwestern University Insurance Plan or the student's own health insurance carrier. Those who elect to waive the NU Plan must ensure their health insurance meets the Northwestern University standards.

Please refer to the [Student Health Insurance](#) website to learn more about obtaining student health insurance as well as the policies under the NU Insurance Plan.

Transportation and Parking

Northwestern University operates several shuttles for students, faculty, and staff on the Evanston and Chicago campuses. A valid WildCard is required to ride the shuttles.

Shuttles

For more information, visit

- <https://www.northwestern.edu/transportation-parking/shuttles/routes/>

Parking

For Information on Evanston Campus Parking visit:

- <https://www.northwestern.edu/transportation-parking/evanston-parking/>

For information on Chicago campus parking, visit

- <https://www.northwestern.edu/transportation-parking/chicago-parking/>

Please note: the Chicago parking office often requests the department provide permission to students looking to purchase a pass. Contact [the main office](#) for assistance.

U-Pass

TGS and the Chicago Transit Authority provide the CTA University Pass (U-Pass) to full-time TGS graduate students. Interested students can opt-in each quarter.

- Can be used 365 days a year
- Can be used on CTA buses and trains for unlimited rides
- Can be used on Pace buses as a fare card (charges apply)
- Can be loaded with funds and changed to a full-fare card once you are no longer enrolled full-time
- Personalized with your Wildcard photo and name

Please note: Please check the [U-Pass](#) webpage in mid-August for details on the U-Pass, including a link to opt-in for Fall 2026.

Northwestern Information Technology

Northwestern Information Technology is the central information technology organization providing services and resources to support the academic, research, and administrative missions of the University. Visit the NUIT website for tech tools, services, and support options.

The IT Support Center provides technical support and guidance on University services and resources. Contact the IT Support Center:

- Call 847.491.4357 (1-HELP).
- Email consultant@northwestern.edu.
- Visit the Technology Support Center in the University Library.
- Search the [Northwestern Knowledge Base](#) for answers to common questions.

Research Safety

Safety is an important component of conducting proper scientific research. After you choose a research advisor, it is important that you register as a lab worker in their lab and take the required research safety training.

Your lab's safety designate should be able to assist you in getting an account for [LUMEN](#) in their lab.

Institutional Animal Care and Use Committee (IACUC)

If your research work will involve the use of vertebrate animal subjects or humans, it is important to get animal use approval as soon as possible. This can delay the start of your research if it is not done expediently. Your research mentor will help you get approval and training once you join a lab.

Office for Research Safety : <https://researchsafety.northwestern.edu/>

IACUC: <https://iacuc.northwestern.edu>

Campus Events and Norris Center

The university holds many campus events that you as a student are entitled to attend. Most university-hosted events can be found on the [PlanIt Purple](#) website.

[Norris University Center](#) is another great resource for events and activities. They offer events such as "Cinema in the Park" or "Norris at Night", rentals of bikes, hammocks and other outdoor equipment, mini courses, etc.

Admissions

Students must be admitted to TGS before they can be enrolled in the MS Program in Neurobiology. All applicants must apply online via the [TGS ApplyWeb](#) website.

For information on admissions, see the [TGS admissions](#) webpage. Their webpage also provides information on financial aid, tuition, and academic services.

Review TGS' admission policies at:

<https://www.tgs.northwestern.edu/admission/application-procedures/>

Review Neurobiology program requirements at:

<https://neurobiology.northwestern.edu/graduate/program-masters/>

Note that Departmental requirements supplement, but do not supersede, those from TGS.

Application Review

The Departmental application deadline is **March 1**. The Department's admissions committee relies on the research experience, letters of recommendation, transcripts, and personal academic statement in making choices for admission.

GRE and/or MCAT scores are not required but may be included.

The required academic statement that accompanies your application for graduate study at Northwestern is very important and is often a crucial factor in the decision to admit. A clear, well-focused statement reveals your potential for graduate work and may compensate for less than stellar grades and test scores.

English Language Proficiency Tests

In order to be considered for the graduate program, students whose first language is not English must take the TOEFL or IELTS examination.

- For the TOEFL exam, applicants to the Neurobiology MS Program must score **4.5** or higher (**90** if taken before January 21, 2026).
- For the IELTS exam, students must score a **7.0** or higher.

Tests must be taken no more than two years before the intended quarter of entry.

General Requirements for the MS Degree

Students begin their studies in the Fall Quarter. Students must complete a total of nine (9) quality letter-graded course units (ABC, not P/NP or S/U) [authorized for graduate credit](#). Students must also meet deadlines set forth by both TGS and the MS Program.

TGS Master's Degree Requirements

For all TGS Master Degree requirements and policies, see the [TGS Master's Degree Requirements](#) webpage.

Briefly, TGS requires that all students in graduate level programs meet the following:

- Students must maintain a minimum GPA of at least 3.0
- Students cannot have more than two (2) Incomplete grades
- Students must meet all required deadlines

All Northwestern University graduate students must also fulfill a set of requirements regarding:

- Residency
- Approved coursework
- Grades
- Filing for graduation

Residency

Residency is calculated in terms of quarters of full-time study. Students must meet a residency requirement of the equivalent of three (3) quarters of full-time registration in courses authorized for graduate credit by the Graduate Faculty.

Approved Coursework

To be eligible for a master's degree, a student must successfully complete at least nine (9) graded courses (non-P/N; in other words, non-Pass/No Grade) authorized for graduate credit.

- Only courses listed in [CAESAR](#) with a career of "The Graduate School" are authorized for graduate credit and only those courses can be used to meet the minimum coursework requirement.
- No more than one-third of the total units presented for the master's degree may be 499 Independent Study.

Timeline

Students must complete all requirements for the master's degree within five years of the date of their initial registration in The Graduate School, which falls on the last day of the 20th quarter.

Students who do not complete their degree within five years will not be considered in good academic standing and will be placed on academic probation.

Students in the MS Program in Neurobiology are expected to graduate by the summer of their first academic year. Extending degree completion to later quarters will require the approval of the Program Directors and the student's advisor.

Degree Completion

Each master's program administers a final comprehensive examination which may be oral, written, or both. A minimum of **two (2) individuals** must serve on the master's exam committee.

At least two (2) members of the committee, including the chair, must be members of the Northwestern University Graduate Faculty.

In order to receive the master's degree, the student must:

- Complete all required coursework and program requirements for the degree
- File for degree by completing an **Application for a Degree Form** via TGS Forms in the Graduate Student Progress (GSP) by the date specified in the [Academic Calendar](#)
- Complete the **Master's Degree Completion Form** via TGS Forms in the Graduate Student Progress (GSP) and receive program approval of the form by the date specified in the [Academic Calendar](#)
- Have at least a 3.0 cumulative GPA and no X, Y, or NR grades, and a maximum of two (2) Incomplete grades. All grades must be entered and **Change of Grade forms** submitted by the grade deadline specified in the [Academic Calendar](#).

Grades

A minimum GPA of 3.0 is required for all work presented for a graduate degree. Grades given for completed, credit-bearing graduate courses not taken on a pass/no credit (P/N) basis are:

Grade	Grade Points	Grade	Grade Points
A	4.0	C	2.0
A-	3.7	C-	1.7
B+	3.3	D	1.0
B	3.0	F	0
B-	2.7	X	Incomplete; absent from final exam (0)
C+	2.3	Y	Incomplete; did not complete coursework (0)

The following notations are ignored in computing the grade point average:

P:	Pass with credit
N:	No grade, no credit In progress
K:	In progress
S:	Satisfactory – noncredit course
U:	Unsatisfactory – noncredit course
W:	Withdrawn by permission
NR:	No grade reported by instructor

MS Program Requirements

Separate from TGS, the Department has program requirements. The following table lists all department requirements for successful program completion, listed in a suggested timeline:

Fall				
Submit advisor student agreement form	Neurobio 402	Neurobio 595	Quarterly check-in with Directors	Seminar Attendance (minimum of two)
				
Winter				
Submit thesis proposal form	Elective course	Neurobio 595	Quarterly check-in with Directors	Seminar Attendance (minimum of two)
				
Spring				
Orally defend thesis and submit dissertation	Elective course	Neurobio 595	Quarterly check-in with Directors	Seminar Attendance (minimum of two)
				
Summer (if necessary)				
Enroll in TGS 512 Continuous Enrollment (<i>if necessary</i>)				
				
Graduation				
Apply for Graduation via TGS Forms on GSP		Submit Thesis and Defense Approval Form		

Quarterly Progress Check-Ins

Students meet individually each quarter with the Program Directors to evaluate their progress. This meeting should occur near the end of each quarter. The meeting can be arranged through the department Program Assistant via email.

Students will be notified via an official email whether or not they are making satisfactory or unsatisfactory progress after the meeting. The Directors may block registration for a subsequent quarter for any student who has not met requirements.

Students will receive a minimum of one (1) progress notification during the one-year program. If a student is making unsatisfactory progress, they will be monitored closely and may receive progress letters more frequently.

Satisfactory Progress

When evaluations, such as quarterly progress meetings, reveal a student's progress is not meeting program standards, the student will be given one (1) quarter to improve laboratory skills and productivity before being re-evaluated. Students will first be notified in writing that they have been placed on academic probation. This written communication will include a detailed description of the reason(s) for placing the student on probation, and the goals that the student must accomplish in order to be taken off probation. This letter will be sent to TGS and to the student. Students will typically have one (1) quarter to regain good standing in the program or they may be terminated.

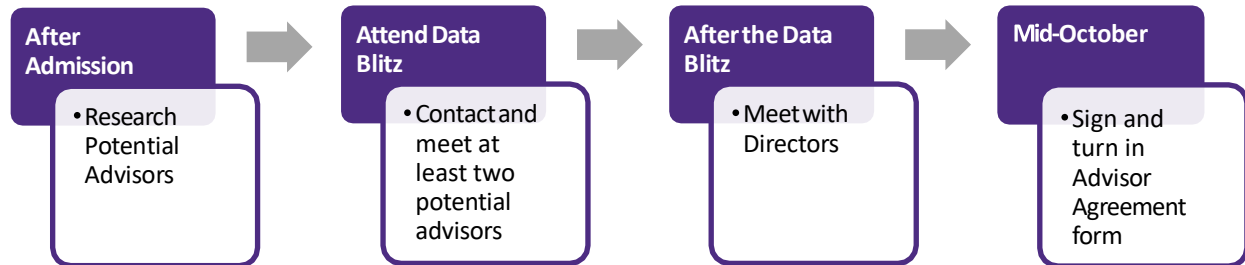
When a student who is not on probation fails one of the major examinations (thesis proposal, master's defense), the student will be placed on probation and given a second opportunity to pass that examination. This second examination must be taken within one (1) month of the first examination. Failure on the second examination may result in termination from the program. When a student who is already on probation fails one of the major examinations, they may or may not be given a second opportunity to pass that examination, at the discretion of the Directors.

In all cases, academic termination of a student requires a decision by the Directors and cannot be made by an individual faculty member or examination committee.

Terminations are final.

Research Advisors

Choosing an Advisor



Choosing an advisor and lab are the first steps in the program. We ask that students begin thinking about which lab they are interested in during their application process. Available advisors and labs can be found in the **List of Research Advisors** section in the **Appendix**. Students will be notified after their acceptance into the program as to when to initiate contact with faculty members.

Selection of an advisor and the research lab where you will complete your thesis project is one of the most important activities that you will undertake when you begin your graduate career at Northwestern.

It is the student's responsibility to identify an advisor with help from one of the Neurobiology Master's Program Directors. Students are required to contact **at least two** potential advisors to discuss potential projects early in the fall quarter. To assist, the program will host a **Data Blitz** where students will meet multiple labs that are interested in taking students. This often provides students exposure to areas of interest they may not have otherwise pursued. Following the Data Blitz, students will meet individually with the Directors to discuss their lab preferences.

After, **and only after**, the advisory meeting with the Directors may the student make an agreement with his or her chosen advisor. At this point, the student, advisor, and one of the Directors will sign the Advisor Agreement form. *Under no circumstances should any agreements, formal or informal, be made prior to the advisory meeting.* Students are welcome and encouraged to contact either the Director or Associate Director for any advice on potential advisors prior to Orientation.

Upon choosing an advisor, students must notify the Program Assistant via email. You must also formally notify the program with the **Student-Advisor Agreement** form, provided in the Appendix section. However, we recommend that students formalize their choices as soon as possible after meeting with the Program Directors to allow the student to initiate his or her thesis research as soon as possible.

Thesis Committee

Thesis committees should be formed before the thesis proposal deadline. Once your committee is formed, submit the **Thesis Proposal** form to the Neurobiology office.

To meet TGS requirements:

- 1) a minimum of two (2) individuals must serve on the thesis committee, and
- 2) at least two (2) members of the committee, including the Chair, must be members of the Northwestern University Graduate Faculty

For the Neurobiology MS program, most committees have at least three (3) members.

Students should seek the advice of their advisor in choosing committee members. They are also encouraged to confer with the Directors for suggestions. Typically, the committees will include the advisor, the Director or Associate Director of the program, and a third individual selected by the student in consultation with his/her advisor and the program directors. Ideally, this third committee member is someone who is well-suited to both guide the student in the development and execution of their thesis project, and to evaluate the completed thesis project and its defense. Final approval of committee members must be obtained from the Director or Associate Director.

Changing Advisors

Changing advisors is a rare occurrence. Changing advisors can result in a significant setback in both time and effort, and may require that a student extend their time in the MS program beyond the traditional one-year window. These cases are handled on an individual basis. If a student needs to change labs, they should start by contacting the Director or Associate Director.

Program Courses and Registration

Neurobio 402

2 Credits (Fall)

This Fall Quarter course is designed to expose students to cutting-edge research in neurobiology and emphasize reading and critical discussion of primary literature.

Neurobio 595 (Independent Lab Research)

1 Credit (Fall), 2 Credits (Winter and Spring)

This course is comprised of your time in the lab doing research and working on your thesis project. Specific objectives for the student are:

- 1) To understand the research topics the laboratory investigates
- 2) To understand the research methods the laboratory uses
- 3) To develop critical thinking skills, the ability to meaningfully design scientific experiments, a work ethic consistent with those of a professional scientist, and appropriate time management skills

Electives

1 or 2 Credits (Winter and Spring)

Each full-time student is required to take one elective during the Winter and Spring Quarters. Electives must be:

- 1) At least one unit
- 2) ABC graded (not P/N)
- 3) Authorized for graduate credit
 - Only courses listed in [CAESAR](#) with a career of "The Graduate School" are authorized for graduate credit and only those courses can be used to meet elective requirements

Note that some students will be restricted in their elective choice by their advisor.

TGS 512 (Continuous Enrollment)

0 credit (Summer and beyond, if needed)

Available to students who completed the program coursework and are continuing in their degree program (writing a thesis or dissertation and/or performing research required for the degree), but not receiving University or external funding. TGS 512 is a full-time registration intended for students who are continuing to work in a full-time capacity toward degree completion. TGS 512 is \$100 per additional quarter.

Course Registration

The Neurobiology Program Assistant registers all master's students in program courses (Neurobio 402, Neurobio 595, and TGS 512). The Program Assistant will send a confirmation email indicating students are registered for the required program classes for the quarter. Students can login to CAESAR to verify.

It is the responsibility of the student to register for elective courses in the Winter and Spring quarters.

Registering for Electives

Prior to Winter and Spring quarters, the Program Assistant will share a list of recommended electives and will request that students select their top three elective choices. Students should discuss elective choices with their lab advisor. Once they submit their top choices to the department, the Directors will also sign off on their choices.

All electives, besides Neuroscience courses, are hosted outside of the department. Because of this, some electives will require permission numbers for registration.

Registering with CAESAR

Before you register, you should create an ideal schedule and a list of alternative classes. It's helpful to have the 5-digit class numbers ready when your registration appointment time begins. Class offerings and numbers are in both the PDF version of the schedule and in CAESAR.

See the following guides for assistance in using the class registration system:

[Registration Tip Sheet](#)

[Searching for Classes](#)

[Adding Classes](#)

[Dropping a Class](#)

[Editing Classes](#)

[Swapping Classes](#)

[Adding Yourself to a Waitlist](#)

[Resolving an Emergency Information Registration Hold](#)

Caesar Access or Login Issues

If you have a problem logging into or accessing CAESAR, you should contact the NUIT Support Center. Support Center hours of operation can be found at <https://www.it.northwestern.edu/support/>.

Support can be requested by these methods:

- Phone: 847-491-4357 (1-HELP)
- E-mail: consultant@northwestern.edu

Department of Neurobiology Seminar Series Attendance

It is important and valuable to regularly attend seminars and colloquia, even when the topic is not directly related to your own work. It is an easy way to stay in touch with fields that may not be familiar and, importantly, provides an opportunity to interact informally with colleagues.

To promote these habits and expose students to research beyond Northwestern University, students are required to attend a minimum of two (2) department-hosted seminars each quarter, excluding the summer quarter. To document attendance, students are required to complete a brief statement indicating which seminars they attended (speaker name, institution, title, date) and a summary or critique of each seminar (no more than one to two [1-2] paragraphs).

The Seminar Attendance Summary is due on the last day of class for each quarter.

Time in the Lab

The research course will be one (1) credit for the Fall Quarter and two (2) credits for the Winter and Spring Quarters. The student will spend on average at least **35** hours per week in the mentor's laboratory (past evaluations suggest that it is typically more). The student is expected to design and perform experiments, attend any laboratory research meetings, attend any laboratory journal clubs, discuss ongoing projects with laboratory members, etc.

Leave of Absence

A student who needs to take a [leave from the university](#) ([general leave](#), [medical leave](#), or [parental leave](#)), must request an official leave of absence. Students should use the **Petition for Absence Form** via TGS Forms in GSP to apply for a leave of absence. The form is reviewed by both the MS program and TGS.

Degree Completion and Graduation

Thesis Proposal

Students must successfully present and defend their thesis proposal. The thesis proposal is an oral presentation of relevant background, the scientific questions the student plans to address, and the experimental methods they plan to use. During the thesis proposal, the students:

- 1) Provide their committee with a scientific “roadmap,” explaining why the question they wish to address is important and what experiments they intend to perform to address the issue.
- 2) Demonstrate to their committee how they will conduct their experiments, how the data will be analyzed, and how their results will fit into the existing knowledge of the field.
- 3) Provide their committee the opportunity to give suggestions and guidance to hopefully avoid any delays in their research.
- 4) Complete the **Master’s Thesis Proposal** form. This form will be signed by members of the Thesis Committee at the end of a successful thesis proposal presentation and should be submitted to the Dept. of Neurobiology Office.

Thesis Defense

To satisfactorily complete the program, all MS students must submit a written thesis and present an oral thesis defense to their committee. A style guide is provided for students to use for formatting the written thesis. Students will also be given a **Thesis Defense Checklist** to help them prepare for the defense.

The student must complete the **Master’s Completion form** in GSP. After their defense, they must also complete the **Defense Approval Form** and have each member of their committee sign the form. Both the written thesis and the Defense Approval form should be turned in before the Program Assistant validates the MS Completion Form online. The thesis should be sent in PDF format.

Note: Arranging a thesis defense requires coordinating your thesis committee members’ schedules and reserving a conference room. Remember to plan well in advance!

TGS Forms

Students in The Graduate School (TGS) must complete the necessary forms to document their progress towards degree completion. The following TGS forms are available to students in GSP:

- Application for Degree
- Master's Degree Completion
- Petition for Absence
- Program Withdrawal Request

Once you submit a form in GSP, the information will be sent to the program for approval. Once approved, TGS will be notified, and, barring any problems or holds, will also approve. You will receive emails notifying you of form submission and final approval.

Below is an overview of the two TGS Forms used to initiate and finalize graduation.

Application for Degree Form

The Application for Degree indicates a student's intent to graduate in a given quarter. This form should be submitted for any quarter in which a student thinks they may graduate.

Graduate students must submit an **Application for Degree** to TGS to participate in Commencement. The form can be completed online through GSP.

Note: if you are unable to complete your thesis defense by the Spring Quarter but intend to complete your thesis by Summer, you can participate in Commencement.

Master's Completion Form

The Master's Completion Form indicates that the program anticipates all degree requirements will be met by the end of the quarter, including:

- The student will successfully defend their thesis
- The Thesis Defense Approval form will be signed by all committee members and submitted to the Neurobiology office
- The written thesis will be submitted to the Neurobiology Office
- The student will have completed nine (9) graded units of Graduate-level coursework
- All other program requirements will be met

Approval of this form initiates the degree conferral process and will be the last action needed prior to graduation.

Exit Survey

To help us monitor and improve the quality of our program, we ask our graduating students to complete the Neurobiology exit survey before leaving the University.

Neurobiology Exit Survey: https://northwestern.az1.qualtrics.com/jfe/form/SV_d456pGuDr9CV71z

Conflict Resolution

TGS realizes that conflicts emerge occasionally, and they have devised the following guidelines for students for the chain of communication when dealing with different types of conflicts.

Conflicts Not Involving Discrimination, Harassment, or Sexual Harassment

When a conflict arises, whether with a student's advisor, a fellow student, or someone else in the University, TGS recommends that students first talk to one of the Program Directors. One function of the Program Directors is to address student concerns and grievances and to be available when students are experiencing academic difficulty.

If the Director and/or Associate Director has a conflict of interest, the Chair of the student's department is the next resource. In the case that a student cannot or does not want to speak with anyone in the program or department, the next resource is TGS. In TGS, the Associate Dean for Student Affairs handles student conflict issues and works directly with the academic school's Associate Deans and faculty, as needed.

The Program Directors, Department Chairs, TGS staff, and TGS Deans can treat students' concerns confidentially unless the concerns involve *sexual harassment, discrimination, or a safety issue*, in which case they are obligated to report the issue to the appropriate University office.

Conflicts Involving Discrimination, Harassment, or Sexual Harassment

For conflicts involving discrimination, harassment, or sexual harassment, students or any affected individual should [submit an online report to the University](#). You may also [submit an anonymous report](#) to the University as long as the person you are reporting is not a [Responsible Employee](#). Please review the [Reporting Guidelines and Expectations](#) before submitting a report. Students may also review the [Resource Guides](#) provided by the Office of Civil Rights and Title IX Compliance (OCR). More information is available at the [OCR website](#).

Non-Discrimination Statement

Northwestern University prohibits discrimination on the basis of actual or perceived race, color, religion, creed, national origin, ethnicity, caste, sex, pregnancy, sexual orientation, gender identity, gender expression, parental status, marital status, age, disability, citizenship status, veteran status, genetic information, reproductive health decision making, height, weight, or any other class of individuals protected from discrimination under federal, state, or local law, regulation, or ordinance or any other classification protected by law in the matters of admissions, employment, housing or services or in the educational programs or activities it operates, as required by Title IX of the Education Amendments of 1972; Title III of the Americans with Disabilities Act of 1990, as amended in 2008; Section 504 of the Rehabilitation Act of 1973; Title VI and VII of the Civil Rights Act of 1964; the Age Discrimination Act of 1975; the Age Discrimination in Employment Act of 1967; and any other federal, state, or local laws, regulations, or ordinances that prohibit discrimination, harassment, and/or retaliation.

The University has designated the Associate Vice President for Civil Rights and Title IX Compliance to coordinate the University's compliance with federal and state civil rights laws regarding protected characteristics, including Title IX and those other laws and regulations references above. **Northwestern's Office of Civil Rights and Title IX Compliance, 1800 Sherman Avenue, Suite 4-500, Evanston, Illinois 60208, 847-467-6165, OCR@northwestern.edu**

The University complies with all federal and state laws that protect individuals with disabilities from discrimination based on their disability or perceived disability status. As such, reasonable accommodations and auxiliary aids and services are available to individuals with disabilities when such modifications and services are necessary to access the institution's programs and services.

Northwestern's Office of Civil Rights and Title IX Compliance, 1800 Sherman Avenue, Suite 4-500, Evanston, Illinois 60208, 847-467-6165, Accommodations@northwestern.edu

Inquiries about Title IX or the University's prohibitions against discrimination, harassment, and retaliation can be directed to the Associate Vice President for Civil Rights and Title IX Compliance, the ADA/504 Coordinator (for disability-related questions) or to the U.S. Department of Education Office for Civil Rights at the contact information listed below. Complaints and inquiries regarding discrimination, harassment, and retaliation involving federal laws may be directed to:

U.S. Department of Education Office for Civil Rights, 230 S. Dearborn St., 37th Floor, Chicago, IL 60604, 312-730-1560, OCR.Chicago@ed.gov

U.S. Equal Employment Opportunity Commission, 230 S. Dearborn St., Suite 1866, Chicago, IL 60604, 312-872-9777

Any person who believes that the University as a federal contractor has violated nondiscrimination or equal opportunity obligations may contact the Office of Federal Contract Compliance Programs (OFCCP) at **OFCCP, U.S. Department of Labor, 200 Constitution Ave. NW, Washington, D.C. 20210, (800) 397-6251 www.dol.gov**

Appendix

Thesis Format Guidelines

Arrangement of the Thesis

Each thesis must be arranged in the order listed below. Specific information about each section is on the following pages. Italicized pages are optional.

- Title Page
- *Copyright Page (optional)*
- Abstract
- *Acknowledgment Page (optional)*
- *Preface (optional)*
- *List of Abbreviations (optional)*
- *Glossary (optional)*
- *Nomenclature (optional)*
- *Dedication (optional)*
- Table of Contents
- Lists of Tables, Illustrations, Figures, or Graphs
- Introduction
- Text Body (divided into chapters following a logical outline)
- Tables, Illustrations, Figures, Graphs: If not incorporated into the main body of the text, these items should immediately follow the text, not at the end of chapters.
- References
- *Appendices (optional)*
- *Vita (optional)*

Formatting and Layout Requirements

PAGE SIZE

- Page size should be 8.50 x 11.00 inches, standard US Letter size.

MARGINS

- One (1) inch on all sides, including page numbers.
- Page numbers should be at least 1 inch from the top and right-hand edges of the page.

SPACING

- The preliminary pages and text must be double-spaced.
- Under certain conditions, quotations may be single-spaced, if recommended by an approved style manual.
- Table of Contents and lists with lengthy entries may be single spaced with a double-space between entries.
- References may be single-spaced, with a double-space between entries.

PAGINATION

- Every page in a thesis is numbered, except the title page.
- Page numbering will begin on the second page with Arabic numeral 2 in the upper right-hand corner of the page.
- No empty pages
- On pages of the thesis that are formatted with landscape orientation, the page number must appear in the upper right-hand corner when the page is rotated to portrait orientation.

TITLE PAGE

NORTHWESTERN UNIVERSITY

{TITLE; e.g., Title of Thesis in Title Case Goes Here}

A THESIS

SUBMITTED TO THE DEPARTMENT IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS

for the degree

MASTER OF SCIENCE

Field of NEUROBIOLOGY

By

{Full Name}

EVANSTON, ILLINOIS

{Month and year of degree conferral – ask MS program if not sure}

THESIS TITLE GUIDELINES

Thesis titles should be an accurate and meaningful description of the thesis content. Please use these guidelines when formulating a thesis title:

Case: The first and last words and all nouns, pronouns, adjectives, verbs, and adverbs (if, because, as, that, etc.) are capitalized. Articles (a, an, the), coordinating conjunctions (and, but, or, for, nor), and prepositions, regardless of length, are lowercased unless they are the first or last word of the title or subtitle. Only acronyms should be set in full capitals.

Examples:

- Power and Consumer Behavior
- Outpatient Treatment for Children: Organizational Practices as Predictors of Recovery
- A Comparison of the Methodologies for Determining Achievement in High School

Hyphenation: Consult the dictionary as to whether or not a word is hyphenated. In general, do not hyphenate words beginning with the prefixes co, non, pre, post, or re unless there is a possibility of confusion (co-op, post-master's) or the root word begins with a capital letter (post-Renaissance). Hyphenate words beginning with the prefix self. Hyphenate compounds used as adjectives (decision-making) but not as nouns (decision maker). Part-time is always hyphenated. When more than one prefix is joined to a base word, hyphenate the prefixes standing alone (micro- and macroeconomics). Do not hyphenate fundraising, freelance, yearlong, health care, African American, Asian American.

Example:

- Great Nonfiction Works of the Nineteenth Century
(Instead of: Great Non-fiction Works of the 19th Century)

Spelling and Grammar: Thesis titles should be spell-checked and dictionary spelling of words should be used. Use “and” rather than “&”, and spell out names of centuries and other numbers usually spelled out in text.

Example:

- The Labour Party in Perspective and Twelve Years Later

Special Characters: No special characters should appear in the thesis title (SES/CAESAR cannot accommodate special characters). Terms or phrases that include special characters should instead be written out.

Examples:

- Evaluation of DNA Hybridization and Cleavage Capabilities of Peptide Nucleic Acid-Titanium Dioxide
(instead of: Evaluation of DNA Hybridization and Cleavage Capabilities of PNA-TiO₂)

- The Role of TGF-beta Variants in Cancer
(instead of: The Role of TGF- β Variants in Cancer)

Italicization: Italics should only be used in thesis titles when referring to the title of a published work, foreign language words, gene names, scientific names as appropriate, or other words that are usually italicized.

Examples:

- Techniques in *Drosophila* Circadian Biology
- Mechanisms of Differentiated Cell Function *In Vitro*

Apostrophes: Do not use to form plurals (it should be 1940s, not 1940's) unless it would be confusing without (thus A's and B's, not As and Bs; p's, not ps). Possessives of singular nouns ending in s are formed by adding 's (e.g., Russ's dog).

COPYRIGHT PAGE

If you choose to copyright your manuscript, a copyright notice must appear on a separate page following the title page. It should read as follows:

© Copyright by (your name) 20__
All Rights Reserved

ABSTRACT

- The abstract should be no more than 350 words.
- Inclusion of the abstract within the preliminary pages of the thesis is required.
- The abstract should provide an accurate summary of the contents of the thesis, including a statement of the problem, the procedures or methods used, the results, and the conclusions.
- Mathematical formulas, photographs, diagrams, and other illustrative materials are not recommended for inclusion in the abstract.

OPTIONAL PREFATORY PAGES

- Acknowledgment page
- Preface
- List of abbreviations
- Glossary
- Nomenclature
- Dedication

TABLE OF CONTENTS

- The format of the table of contents should conform to the guidelines in an approved style manual.
- It is important that the table of contents accurately reflect the outline and organization of the manuscript.

LISTS OF TABLES, ILLUSTRATIONS, FIGURES, OR GRAPHS

- These lists should reproduce the specific titles and page locations of all illustrative materials.

INTRODUCTION

- This optional section should provide an overview of the thesis and the research problem that is being addressed. It should also indicate how the research and argument presented will contribute to scholarship in the field.

BODY OF THE TEXT

- Chapters should follow a logical outline, with a clear distinction between chapters, main heads within chapters, and subordinate heads within the main heads.
- The outline and organization of the main body of the text should be accurately reflected in the table of contents.

- All non-textual elements (e.g., tables, graphs, and images) must be described in the text.

TABLES, ILLUSTRATIONS, FIGURES, GRAPHS

- If not incorporated into the main body of the text, these items should immediately follow the text, not at the end of chapters.
- Margin requirements must be met on all pages that contain charts, graphs, tables, or illustrations. If the title, legend, or description of an illustration is too long to be placed on the same page with the illustration, it must be placed on a separate numbered page preceding the illustration.
- These items must be numbered; they must include legends, and be easily legible. It is highly recommended that each figure and legend be printed on a separate page. Although tables and graphs do not need to be printed on separate pages, they must fit within margins and onto the page cleanly.
- All text and fonts on figures and legends must be the same and consistent throughout the entire thesis. Legends should be blocked and numbered independently. Below is an example of a table and a figure.

Treatment	Volume of Tissue Analyzed (μm^3)	Number of Inhibitory Varicosities Reconstructed	Density of Inhibitory Varicosities ($1/\mu\text{m}^3$)	Average Volume of Inhibitory Varicosities (μm^3)	Proportion of Inhibitory Varicosities that Contain Mitochondria	Average Number of Synapses per Inhibitory Varicosity
Oil (n = 4)						
Mean $\pm$ SEM	176 $\pm$ 12	27.5 $\pm$ 2.9	0.17 $\pm$ 0.01	0.28 $\pm$ 0.03	0.77 $\pm$ 0.05	1.26 $\pm$ 0.11
Range	141 - 195	21 - 35	0.12 – 0.19	0.01 – 1.41	0.69 – 0.86	0 - 6
Estradiol (n = 4)						
Mean $\pm$ SEM	180 $\pm$ 11	27.3 $\pm$ 4.4	0.15 $\pm$ 0.02	0.34 $\pm$ 0.02	0.80 $\pm$ 0.05	1.20 $\pm$ 0.09
Range	154 - 202	17 - 35	0.10 – 0.19	0.04 – 1.35	0.65 – 0.88	0 - 7

Table 1. Tissue analyzed in the pyramidal cell layer from oil and estradiol treated rats did not statistically differ. Between oil and estradiol groups, tissue did not differ on the basis of the volume of tissue analyzed, number of inhibitory varicosities reconstructed, density of inhibitory varicosities, average volume of inhibitory varicosities, proportion of inhibitory varicosities that contain mitochondria, or average number of synaptic contacts per inhibitory varicosity (all p values > 0.10).

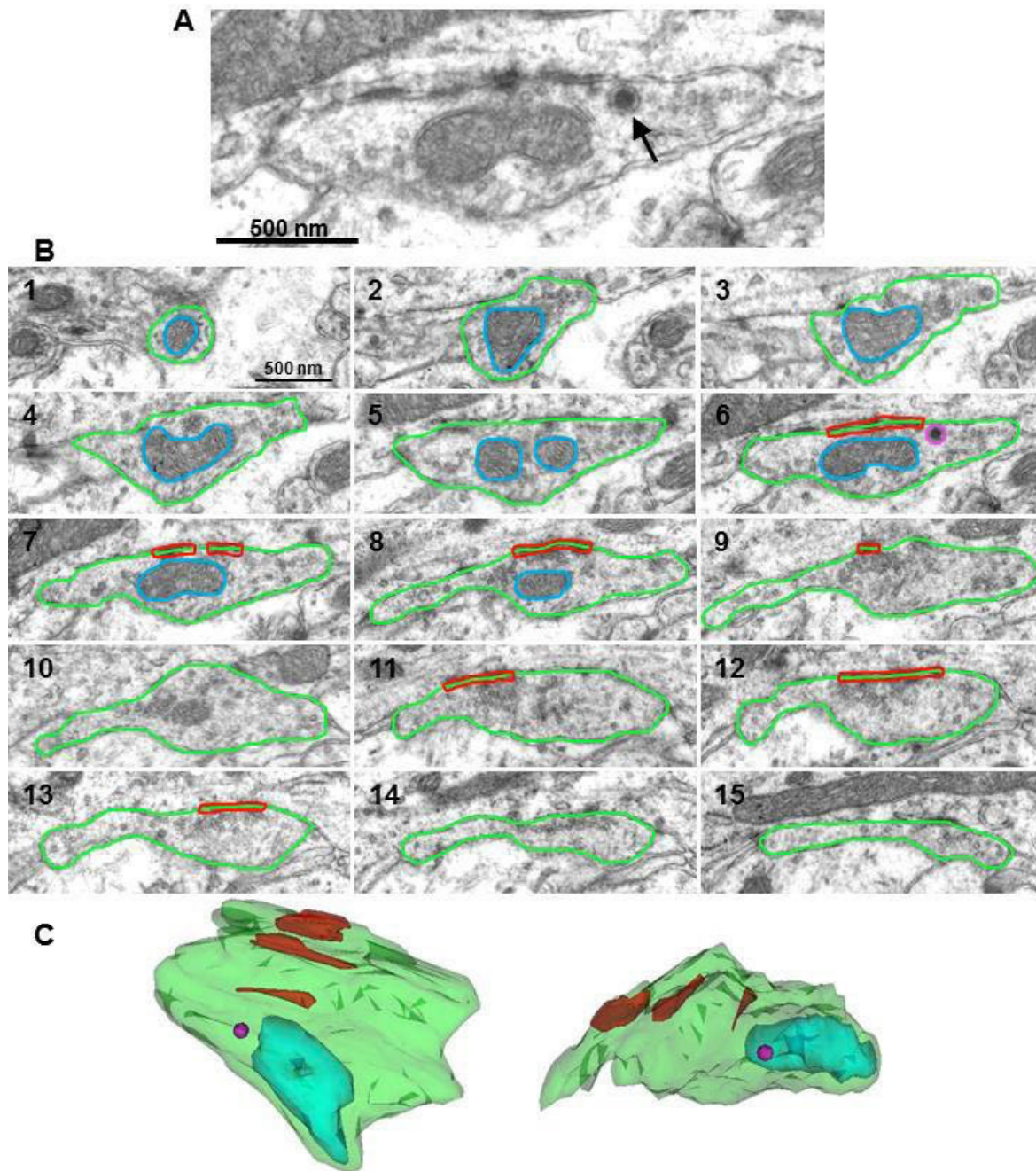


Figure 4. **A**, Electron micrograph of a DCV in an inhibitory varicosity in the pyramidal cell layer. The image in panel A is the same as that shown in Fig. 1. **B**, Use of Reconstruct software to trace a subset of serial electron micrographs (1-15) from a total of 32 sections for an inhibitory varicosity that originates as an axon, develops into a bouton, and terminates as an axon (green); the mitochondrion (blue), synapses (red), and DCV (magenta) contained within the varicosity are additionally traced. **C**, Two views of three dimensional reconstructions for the traced varicosity and associated mitochondrion, synapses, and DCV.

REFERENCES

- Each thesis must include references to document the text.
- These references may be included at the bottom of the page or at the end of the text, but cannot be placed at the end of each chapter.
- The format for references must conform to the guidelines in an approved style manual.
- There are two options for formatting references. You may select a standard formatting style that is used by a prominent journal within your field (consult with your advisor), or follow the examples below.

Journal Articles:

The authors' names, year, complete title, journal name (italicized), volume, and page numbers must be included.

Example:

Smith, A.L., Jones, B.G. and Johnson, V.M. (1999) The effect of shoveling snow on heart rate. *Journal of Cardiology*, 124:456-488.

Book Chapters:

The authors names, year, chapter title, book title (underlined), editors, publisher, city/state in which the work was published, and page numbers must be included.

Example:

Smith, A.L., Jones, B.G. and Johnson, V.M. (1998) The relationships between tachycardia and physical stress. In: Stress and the Heart. Eds., J. Matthews, C.A. Benson and J.J. Carlson. Clinical Press, N.Y. pp. 34-56.

APPENDICES (optional)

- The format for the appendices must conform to the guidelines in an approved style manual.

VITA (optional)

- You may optionally include a brief vita containing your name, place of birth, education, relevant professional experience, and publications. The vita page is numbered.

BINDING AND FINAL THESIS SUBMISSION

- Convert your document to PDF and email to the Neurobiology Program Assistant at neurobiology@northwestern.edu. The department will print one copy for you, and if requested, one for your advisor. You will need to leave a mailing address with the department Program Assistant to receive your thesis.

Common Thesis Formatting Pitfalls Checklist

There are several common formatting problems that require resubmission and re-review of the thesis. Please check this list to ensure your thesis is correctly formatted:

- ☐ Are your margins correctly sized (including page numbers) such that there is one (1) inch on all sides?
- ☐ Are your pages numbered starting on the second page with the number two (2) (not Roman numerals) in the upper right-hand corner of the page?
- ☐ Are your page numbers properly placed in the upper right-hand corner of the page, one (1) inch from the top and one (1) inch from the right edge of the page?
- ☐ Are all of your pages numbered except for the title page?
- ☐ On pages with landscape formatting, does the page number appear in the upper right-hand corner as if the page were rotated to portrait orientation?
- ☐ Is your page size 8.50 x 11.00 (regular US letter size)?
- ☐ Does your title page include the correct location – EVANSTON, ILLINOIS (not CHICAGO, ILLINOIS)?
- ☐ Does your title page include the correct date? The date should be the month and year you will receive the degree, for example: June 2021
- ☐ Are your pages ordered properly, with the title page first, followed by the copyright page (if you are including one), then the abstract page?

List of Research Advisors

We highly recommend that MS students prioritize seeking mentors within the Neurobiology department (see Core Advisors list below). Since the Program is housed in the Neurobiology department, these faculty members possess a better understanding of the expectations and goals of MS students. MS students do have the flexibility to conduct their thesis work in any neuroscience lab at Northwestern University – some faculty members who have taken MS students recently are listed below (External Advisors). Note that we ask that students and potential advisors do not enter into any formal or informal agreements without the explicit approval of the Program Directors.

Core Faculty Advisors

NEUROBIOLOGY DEPARTMENT ADVISORS		
Core Faculty		
Advisor	Research Interests	Email
Tom Bozza	Neural circuitry underlying olfactory driven behaviors; mouse molecular genetics; development of neural circuits	bozza@northwestern.edu
Daniel Dombeck	Optical dissection of the neuronal circuits underlying mammalian navigation	d-dombeck@northwestern.edu
Marco Gallio	Neural circuits underlying the responses to temperature and pain; Drosophila molecular genetics, neurogenetics	marco@northwestern.edu
Andrew Fink	Cortical representation and processing of olfactory stimuli; large-scale recordings from the mouse brain; mouse behavior.	andrew.fink@northwestern.edu
James Fitzgerald	Theoretical neuroscience; Neural basis of behavior; Learning and memory; Neural networks	james.fitzgerald@northwestern.edu
William Klein	Molecular basis for the cause, diagnosis, and treatment of Alzheimer's disease	wklein@northwestern.edu

Yevgenia Kozorovitskiy	Synaptic and circuit development in the basal ganglia	yevgenia.kozorovitskiy@northwestern.edu
Hoon Lee	The neurobiology of taste	hoon.lee@northwestern.edu
Andrew Miri	Motor system function; behavior quantification	andrewmiri@northwestern.edu
Indira Raman	Ion channel biophysics; neuronal excitability; synaptic transmission; cerebellar physiology	i-raman@northwestern.edu
Tiffany Schmidt	Visual neuroscience; neurophysiology; neuroanatomy; mouse genetics, behavior	tiffany.schmidt@northwestern.edu
Fred Turek	Sleep and circadian rhythms; metabolic, neurodegenerative and gastrointestinal disorders	fturek@northwestern.edu
Catherine Woolley	Neuroendocrinology; structural and functional plasticity of neural circuits; epilepsy; anxiety and depression	cwoolley@northwestern.edu
Yue Yang	Developmental and activity-dependent remodeling of chromatin architecture; epigenetics; cerebellar circuits in motor learning	yue.yang@northwestern.edu
Research Faculty		
Advisor	Research Interests	Email
Martha Hotz Vitaterna	Mouse Behavioral Genetics, particularly Circadian Rhythms, Sleep, Arousal, Affect	m-vitaterna@northwestern.edu

Alessia Para	Molecular evolution of hot and cold receptors of species adapted to different thermal environments	alessia.para@northwestern.edu
Tomoko Yamada	Chromatin mechanisms including epigenetics and genome architecture during development of the cerebellum	tomoko.yamada@northwestern.edu

External Advisors

EXTERNAL ADVISORS (not an exhaustive list)			
Advisor	Department	Research Interests	Email
Atique Ahmed	Neurological Surgery	Glioblastoma; mechanisms of therapeutic resistance in brain tumor; identification of drug targets	atique.ahmed@northwestern.edu
Lisa Beutler	Medicine (Endocrinology)	Gut and brain communication for body weight maintenance; optogenetics and calcium imaging in mice	lisa.beutler@northwestern.edu
Gabriela Caraveo-Piso	Neurology (Movement Disorders) and Pharmacology	Molecular and cellular mechanisms of memory; dementia; Lewy Body pathologies	gabriela.piso@northwestern.edu
Alicia Dione Guemez Gamboa	Neuroscience	Circuit development; Adhesion molecules	alicia.guemez@northwestern.edu
William Kath	Engineering Sciences & Applied Mathematics	Computational neuroscience; neuronal and circuit properties	kath@northwestern.edu

Malcolm MacIver	Biomedical Engineering and Mechanical Engineering	Neuroscience and robotics	maciver@northwestern.edu
Ken Paller	Psychology	Human memory, perception, and cognition; biological bases of mental phenomena.	kap@northwestern.edu
Jason Tait Sanchez	Communication Sciences & Disorders	Synaptic transmission and ion channel function	jason.sanchez@northwestern.edu
Greg Schwartz	Ophthalmology	Retinal circuits; sensory computation; electrophysiology	greg.schwartz@northwestern.edu
Richard Smith	Pharmacology	Developmental neurobiology; early life ion channel diseases; clinical pharmacology	richard.smith@northwestern.edu
Vicki Tysseling	Physical Therapy and Human Movement Sciences	Spinal cord injury and rehabilitation; mouse models	v-tysseling@northwestern.edu



INDEPENDENT RESEARCH ADVISOR/STUDENT AGREEMENT

We agree to work together as Research Advisor and Student on an Independent Research project for the academic year.

Faculty Name

Faculty Member Signature

Date

Student Name

Student Signature

Date

Program Director Name

Program Director Signature

Date

Thesis Proposal Form



**COMMITTEE MEETING AND
MASTER'S THESIS PROPOSAL**

The Master's Program in Neurobiology Certifies that

First Name

Middle Initial

Last Name

has presented a satisfactory master's thesis proposal to a Neurobiology MS faculty committee.

Thesis Title:

Comments:

Typed Name

Signature

Department

Faculty Advisor

Graduate Faculty Committee Member

Graduate Program Representative

Date:

Thesis Defense Approval Form



MASTER'S OF SCIENCE DEFENSE APPROVAL

The Master's Program in Neurobiology Certifies that

First Name

Middle Initial

Last Name

has presented a satisfactory master's thesis defense to a Neurobiology MS faculty committee.

Thesis Title:

Typed Name

Signature

Department

Faculty Advisor

Graduate Faculty Committee Member

Graduate Program Representative

Date:

Thesis Defense Checklist

Thesis Defense Checklist

- ☐ Meet with the Program Directors or Program Assistant for information on defending and graduating.
- ☐ Review the [Thesis Format Guidelines](#).
- ☐ Submit your **Application for Degree** online through [GSP](#) by the required deadline (found online on [The Graduate School \(TGS\) academic calendar](#)). WCAS uses this information to reserve your slot in convocation (which occurs in June).
- ☐ Schedule a date with your committee. Make sure you reserve a room, which can be done through the Program Assistant. If the room you are using does not have a built-in projector, be sure to reserve a projector, too.
- ☐ **PROVIDE A COPY OF YOUR THESIS TO YOUR COMMITTEE AT LEAST ONE WEEK BEFORE YOUR DEFENSE.**
- ☐ Before your thesis defense date, print a copy of the [MS Thesis Defense Approval Form](#). After your committee has approved your thesis and defense, have them sign the form. Fill out the rest of the information and return the form to the MS Program Assistant.
- ☐ Complete revisions/edits (if any) required by your committee and submit your **completed and a properly formatted thesis via PDF to the MS Program Assistant** (see [Thesis Format Guidelines](#)).
- ☐ Upload your final thesis PDF and [MS Thesis Defense Approval Form](#) online through [GSP](#). Once uploaded, submit your **Master's Degree Completion Form** through [GSP](#) by the required deadline (found online on [The Graduate School \(TGS\) academic calendar](#)). TGS uses this information to confer your degree.
- ☐ If you plan to attend convocation in June, reach out to the Program Assistant and WCAS for details on location, date, tickets, etc. This information generally becomes available in early April.