Lab Manual

Whelan Lab at The Ohio State University

Updated August 2025

This manual outlines general information about the lab. It is also designed to serve as an orientation document for new lab members. In this manual, you will find background information about the lab, a code of conduct, and expectations of lab members. This document will be routinely updated. For an updated version of the manual, please ask the Lab Director.

Table of Contents

Mission Statement: The mission of The Ohio State University: The university is dedicated to:

- Creating and discovering knowledge to improve the well-being of our local, state, regional, national and global communities;
- Educating students through a comprehensive array of distinguished academic programs;
- Preparing a diverse student body to be leaders and engaged citizens;
- Fostering a culture of engagement and service.

The Department of Evolution, Ecology, and Organismal Biology has the following Vision and Mission:

Department Vision
The Department of Evolution, Ecology, and Organismal Biology has a rich tradition of blending basic and applied research. We promote scientific discovery and scientific literacy through teaching and public outreach. We strive for leadership in our scholarly disciplines combined with excellence in the classroom. To those ends, our service to the University and the community is built on a strong, collegial workplace and the free flow of ideas.

Department Mission
The mission of the Department of Evolution, Ecology, and Organismal Biology is to provide high quality, comprehensive programs in undergraduate and graduate instruction, to generate and disseminate knowledge gained through original research, and to provide service to the University and professional and public sectors. As a department in the College of Arts and Sciences, the Department contributes to the mission of the College in the areas of teaching, research and service in evolutionary biology, organismal biology, and ecology. The department is committed to the University's mission.

As necessary components of this mission, the Department is committed to continuous improvement through regular scrutiny of the undergraduate and graduate curricula; the hiring of tenure-track faculty and other personnel who enhance or have the strong potential to enhance the Department's quality in the areas of teaching, research, and service; the recruitment and retention of a workforce and student body committed to the creation of a welcoming climate; and the development and maintenance of a physical and intellectual environment that fosters those activities.

Formal classroom courses and original research focus on a broad spectrum of topics. The Department is particularly focused on understanding basic processes that affect the evolution, physiology, behavior, and population biology of organisms, as well as species interactions and ecosystem function. The faculty, staff, and students focus on fundamental concepts and theory at levels of organization ranging from molecular to global.

Whelan Lab Goals:

- Improve conservation outcomes through the use of cutting-edge genetic data;
- Study how natural populations respond to changing environments;
- Perform research on aquatic species systematics, population genetics, and molecular ecology;
- Develop tools, including genetics management plans, that improve conservation outcomes at-risk, threatened, and endangered species;
- Work collaboratively with propagation facilities to enhance their management programs;

- Enhance the collections of the Museum of Biological Diversity;
- Train the next generation of conservationists, geneticists, systematists, and evolutionary biologists.

About the Lab: The Whelan Lab recently moved to The Ohio State University (OSU) in August 2025. Before that, Dr. Nathan Whelan was the Director of the Southeastern Conservation Genetics Lab, a United States Fish and Wildlife Service (USFWS) Lab. Much of the research that was being done at USFWS is being continued at The Ohio State University.

The Whelan Lab is physically located at The Museum of Biological Diversity, which is a part of OSU's Department of Evolution, Ecology, and Organismal Biology. Dr. Whelan is the Director of the Museum of Biological Diversity. As a museum-based research lab, much of the lab's research of collections based. Lab members have access to the world-class freshwater mollusk collections at the Museum of Biological Diversity.

Core hours for the lab are from 10AM-3PM Monday-Friday. Full-time lab members (research staff, postdocs, graduate students) are expected to be at work during core hours but have flexibility to work before or after core hours (e.g., 7:30AM-4:00PM or 10AM-6:30PM). Exceptions apply when traveling for work, taking leave, or other circumstances that are approved by Dr. Whelan. Flexible work schedules are a privilege, not a right. If abused, the ability to work flexible work hours may be revoked, resulting in assigned work time.

During the COVID-19 pandemic, the lab utilized a maximum telework approach. Currently, we are back in the office with some situational telework. **Health and Safety of the lab is the highest priority.** We follow CDC, federal workplace, and Ohio State University guidelines. When lab work needs to be done, we are doing so in a safe manner. Lab members working from home are expected to work from home as if they were coming into the office. Working from home does not mean "working from home while watching TV".

Lab members should not come to the office if they are feeling sick. This is to protect yourself and other members of the lab. If you feel sick, but well enough to work, you can telework. Virtually all of our meetings can be done virtually. **There is no reason to come into the office/lab if you are feeling sick.**

Code of Conduct

All student lab members must adhere to The Ohio State University's Code of Conduct (https://trustees.osu.edu/bylaws-and-rules/code), and all lab members must abide by OSU polices (https://hr.osu.edu). Data should never be fabricated. If a lab member ever feels under so much pressure (e.g., to publish or get a grant) that they are tempted to fabricate data, they should talk with Nathan or a mental health professional about constructive ways to handle pressure and stress. That said, research can be stressful, and stress and/or pressure is NEVER a justification for plagiarism, fabricating data, or otherwise behaving in an unethical manner.

Harassment of any nature will not be tolerated. Anyone who witnesses harassment of any nature **must immediately report** such harassment to Dr Whelan. Racist or discriminatory behavior of any kind **will not be tolerated.**

Staff and Points of Contact

Lab Primary Investigator: Nathan Whelan, Whelan.105@osu.edu

> Contact Nathan about: General concerns, travel requests, research updates, thesis/dissertation updates, broken equipment, injuries.

Auburn University Lab Members (remote from OSU)*:*

Ph.D. Student: Sam Donohoo, sad0046@auburn.edu

Ph.D. Student: Alicia Krause: alk0077@auburn.edu

PhD Student: Elizabeth Strasko, eks0112@auburn.edu

Masters Student: Anna Steed, azs0395@auburn.edu

Facilities & Equipment

Facilities & Lab Equipment

The Whelan Lab at OSU is in the process of being set up. This includes purchasing lab and other equipment. Student offices at the Museum of Biological Diversity will be available to any incoming students. Equipment that will be available by early 2026 includes standard items for molecular data generation such as pipettes, thermal cyclers, gel rigs, ultracold freezers, and “clean” hoods. Specialized equipment for various molecular data generation protocols will also be available including a Quibit for DNA quantification, Blue Pippen for DNA size-selection. The lab will also have a liquid handling robot to automate some lab work processes.

Researchers will have full access to the collections at the Museum of Biological Diversity.

Computers

Lab members have access to computational resources through the Ohio Supercomputer Center (https://www.osc.edu).

General Information about equipment

If you have not used a piece of equipment before, you are expected to be trained prior to equipment use. Please contact Dr. Whelan, or other lab members as appropriate, to schedule trainings. Contact Dr.

Whelan for access to computational resources. You are also expected to use equipment in an appropriate fashion, including cleaning up after yourself. Any injury or equipment damage, no matter how seemingly minor (e.g., breaking glassware or an uncalibrated pipette) or major (freezer breakdown or obvious hardware failure) **MUST** be reported immediately to the lab director and lab manager through email, a phone call, or direct contact. Please use discretion as to whether an equipment failure requires immediate attention (i.e., a phone call or direct contact) or if an email would suffice. An example of equipment failure that would require immediate notification of the lab director is a freezer breakdown. All injuries should be reported to the lab director as soon as practically possible.

Data Management and backups

At the very least, lab members should be backing up their data once a week. I recommend an external hard drive or large flash drive for backup of documents that change regularly or that you may want to travel with or work on from home.

The OSC also has data storage space that is for raw data generated for research projects. Lab members may also be able to obtain backup space from OSC for work-related files.

Lab Member Expectations and Responsibilities

Nothing in this manual supersedes OSU policies; OSU students and employees are expected to understand the policies of their respective employers. Rather, this section is designed to outline general expectations of lab members and allow everyone to understand the role each lab member plays in helping us accomplish our mission and goals.

- All members of the lab are expected to read this document and follow its instructions.
- All members are expected to work positively with others and foster a collegial work environment. Conflict is a natural part of a work environment and is not always negative. Conflicts should be resolved in a constructive manner, which may include talking with the lab director to help with conflict mediation. When in doubt, please speak with the lab director as soon as possible so issues can be resolved.
- If you make a mistake, please tell someone, and determine how to fix and learn from the mistake. Mistakes happen, and many of the mistakes you may make have already been made by others in the lab. Knowingly covering up a mistake (e.g., contamination during a DNA extraction or spilling chemicals in the autoclave), rather than dealing with it in an appropriate fashion (e.g., redoing the DNA extraction).
- All members are expected to follow core work hours (see above) and let the lab director know when traveling for work or taking leave (sick, annual, etc.).
- Label tubes, freezer boxes, etc. in an appropriate fashion so everyone in the lab knows where to find information about labelled items. At a minimum, tubes should have unique labels that can be traced to more detailed data sheets, and boxes should have date and project description.
- All members are expected to maintain lab notebooks with enough details to, at a minimum, understand what was done during an experiment, how tubes are labelled, and should allow any trained geneticist to recreate what was done. For example, if I find a tube labelled LA001 in the

freezer, I should be able to find a lab notebook that states what it is (e.g., DNA extracted from *Leptoxis ampla* from the Cahaba River at HWY 82).
- Stay up to date on current research by reading papers.

The following is a list of expectations for each lab member. These lists are not exhaustive and are super-seeded by formal HR documents (e.g., USFWS EPAPs).

Director (Nathan Whelan):
- Serve as Primary Investigator for the lab.
- Actively pursue funding and write proposals.
- Perform research and write manuscripts.
- Attend conferences and present research.
- Manage budgets.
- Support lab members in their research and career goals.
- Serve as research advisor to students.
- Edit manuscripts and proposals. Provide feedback within two weeks of receiving manuscripts or proposals from lab members.
- Lead lab meetings or delegate responsibility to other lab members
- Schedule 1-on-1 30-minute meetings with individual lab members each week when not traveling.
- Collaborate with all members of the lab.
- Serve as supervisor to all other lab members.
- Serve on graduate student committees.
- Perform work during core lab hours.

Research Staff
- Perform research and other required duties related to grant funding.
- Write at least on manuscript per year.
- Seek direction from lab director when needed, but research staff are expected to be extremely independent.
- Properly track and dispose of hazardous waste.
- Service equipment.
- Train others on equipment use and lab protocols.
- Attend and contribute to lab meetings when not traveling.
- Attend weekly 1-on-1 meetings with lab director when not traveling.
- Collaborate with all members of the lab.
- Work at least 40 hours per week on research projects, with exceptions for leave.
- Perform work during core lab hours.

Postdoctoral Researchers:
- Perform independent research related to projects that fund postdoctoral work.
- Write at least one manuscript per year.
- Present research at national and international conferences.

- Seek direction from lab director when needed, but postdocs are expected to be leading independent research projects with limited oversight from lab director.
- Attend and contribute to lab meetings when not traveling.
- Attend weekly 1-on-1 meetings with lab director when not traveling.
- Collaborate with lab director and others as appropriate for any given research project.
- Work at least 40 hours per week on research projects, with exceptions for leave.
- Perform work during core lab hours.

Graduate Students:

- Make reasonable progress towards completion of your degree each semester, including, but not limited to, completion of coursework and research. PhD students are expected to take primary responsibility in developing a graduate research program that results in a dissertation accepted by your graduate committee and the OSU graduate school; the lab director approves and helps direct dissertation and thesis research. Masters students are typically, but not always, assigned projects; even when assigned a broad project, masters students are expected to take ownership and lead their thesis research.
- Perform at least 40 hours per week of work on dissertation-related research, coursework, or Graduate Teaching Assistantship responsibilities.
- Participate in lab meetings and work collegially with lab-members and other graduate students.
- Routinely communicate with lab director about your near-term and long-term objectives, which involves keeping a list of ongoing and future planned projects and an updated curriculum vitae (CV).
- Satisfy all OSU, Graduate School, and EEOB requirements to remain a student in good-standing until completion of your dissertation. It will be your responsibility to keep track all graduate program deadlines, rules pertaining to the OSU Graduate School, graduate committee requirements and deadlines, and thesis/dissertation submission guidelines and deadlines.
- Write manuscripts and funding proposals.
- Attend weekly 1-on-1 meetings with lab director when not traveling.
- Perform work during core lab hours.

Undergraduate Students:

- Expectations will be largely dependent on the individual undergraduate researcher and their program (e.g., different expectations may apply to REU students vs. a student taking research credits during a semester).
- Work during times that are agreed upon at start of your research. This will very depending on program and research, but you will be given written work hour expectations outside of this document.
- Perform research in close collaboration with director, lab manager, postdocs, and/or graduate students.
- Participate in lab meetings and work collegially with lab-members and other graduate students.
- Attend and contribute to lab meetings when not traveling.
- Attend weekly 1-on-1 meetings with lab director when not traveling.