The OSBP Handbook

Summary of Procedures and Requirements

Ohio State Biochemistry Program

THE OHIO STATE UNIVERSITY

2025-2026

Approved by the OSBP Graduate Studies Committee August 29, 2025

Table of Contents

Preface

The OSBP Handbook contains a summary of the rules, policies, and guidelines of the Ohio State Biochemistry Program (OSBP). The rules that govern students in a particular entering class year are determined by the version of the handbook that is in effect on the first day of the Autumn semester in the academic year in which the students begin the OSBP curriculum.

OSBP is governed by three documents: its Charter, the *Graduate School Handbook*, and *The OSBP Handbook* (formerly called *The OSBP Student Handbook*). The Graduate Studies Committee is charged by the Graduate School and the Charter to make and enforce the specific policies and rules for the program on behalf of the Graduate Faculty, within the policies and rules set forth by the Graduate School and the Charter. While no rule promulgated by the program may contradict the rules of the Graduate School, some OSBP policies are more stringent than the basic policies of the Graduate School. Where no specific policy is stated in this handbook, Graduate School rules apply.

Program Contacts

Thomas J. Magliery, Ph.D.
Director & Graduate Studies Committee Chair
Associate Professor
Dept. of Chemistry & Biochemistry
614 247-8425 office
magliery.1@osu.edu

Charles Bell, Ph.D.
Associate Director
Professor
Dept. of Biological Chemistry & Pharmacology
614 688-3115 office
bell.489@osu.edu

Lucy Omar
Program Manager
109 Biological Sciences Building
484 W. 12th Ave.
Columbus, OH 43210
614 292-1463 office
osbp@osu.edu

2025-2026 Graduate Studies Committee
Thomas Magliery, Chair (Director)
Kedryn Baskin (Admissions)
Chuck Bell (Assoc. Dir./Curriculum)
Jane Jackman (at large)
Michael Kearse (Recruiting)

A.J. Minney
Program Assistant, Biophysics & OSBP
105 Biological Sciences Building
484 W. 12th Ave.
minney.15@osu.edu

I. Program of Study

The Ohio State Biochemistry Program (OSBP) is an interdisciplinary graduate program with participating faculty from colleges throughout The Ohio State University.

OSBP offers a course of study leading to a doctoral degree (Ph.D.). Biochemistry is a diverse field, and the program is flexible to accommodate that diversity. Students are expected to expend a significant effort on a research problem that culminates in a dissertation and at least one original first-author research publication. To this end, students take a core curriculum and approved biochemistry electives, advance to candidacy by writing a proposal and passing a general oral exam, conduct laboratory research, prepare and present a dissertation, and demonstrate that it adds significant new knowledge to a focused area of biochemistry.

By rule of the Graduate School, students who have advanced to doctoral candidacy may receive a master's degree with the approval of the Graduate Studies Committee (GSC) and subject to certain conditions (see Section VIII).

II. Admission

a. Application Procedures

OSBP only accepts students who intend to pursue a doctoral degree. In general, only applications for matriculation in the Autumn semester are accepted.

Admissions Timeline
December 1: All admission applications are due
Early to mid-February: Students will be invited to visit and interview on a rolling basis
Mid-February to mid-March: Most applicants will receive their admission decisions
March: Graduate School fellowships and traineeships (training grant positions) are announced
April 15: Enrollment decisions are due

Applications must be made online at the Graduate Admissions web site. Applicants must upload a statement of intent, curriculum vitae or resume, and three references who will submit letters of recommendation. The statement of intent should describe the applicant's interest in graduate studies in biochemistry and any undergraduate research experiences. It should also describe reasons for interest in OSBP, as well as the specific areas of interest and some examples of faculty of interest. Official transcripts from all institutions must be uploaded to the Graduate Admissions web site.

The GRE general test and/or subject tests are not required for application or admission to OSBP. You may submit scores from the GRE general test, or subject tests in Biochemistry, Chemistry or Biology to be considered in support of your application, if desired. If you choose to submit scores, these should be submitted directly by ETS using institutional code 1592 and department code 0000.

International students are required to take an English Proficiency Exam unless they are U.S. citizens or have obtained a 4-year bachelor's degree or higher from an institution in the U.S. (or an approved English-speaking country). The Test of Spoken English (TSE) is not required. Applicants who do not submit a TSE score will have an opportunity to take the SPEAK test at Ohio State. The Ohio State University accepts scores from TOEFL, IELTS and Duolingo. Official scores must be sent by the testing agency to the university directly. See the Graduate Admissions website for additional information about these exam requirements.

OSBP requires a TOEFL score of 620 (paper) or 105 (IBT) and speaking scores of 26-30. Alternatively, an IELTS score greater than 7.0 or DuoLingo score higher than 120 is required.

Students may not be directly admitted to a preceptor's lab. All students are required to conduct a minimum of three 7-week laboratory rotations with three different OSBP advisors before selecting a research advisor. Additional rotations may be arranged if needed.

b. Entrance Requirements

Students must have successfully completed undergraduate coursework in chemistry (at least through organic chemistry, with some physical chemistry desired), general biology, physics and mathematics (including some calculus). Nearly all OSBP students will have taken at least one semester of undergraduate biochemistry; biochemistry lab and coursework in molecular biology or molecular genetics are highly recommended. Most OSBP students are biochemistry or chemistry majors, but that is not required. Previous research experience in biochemistry or a related area is highly desired.

Applicants must have earned a baccalaureate or professional degree from an accredited college or university by the date of entry. The Graduate School requires a minimum 3.0 GPA on a 4.0 scale in all previous undergraduate and graduate work. Students admitted to OSBP in recent years had a median GPA of 3.6. The program typically admits approximately 30 students per year, with the goal to matriculate 15 students.

c. Transfer

Students may request transfer from a graduate program at another university by applying through the Graduate and Professional Admissions website. Students may request transfer from another Ohio State graduate program to OSBP by applying through the Graduate and Professional Admissions website and selecting the Intra-University transfer application. The GSC requires: (1) a letter from the student explaining the reasons for seeking the transfer; (2) a copy of the original application materials submitted to the Graduate School and unit from which the student is transferring; (3) two current letters of reference; (4) a current curriculum vitae; and (5) an advising report and any other relevant information on the student's performance in the original program. Transfer students must meet the same entrance requirements as other applicants.

Transfer students are typically accepted to OSBP as first-year students, meaning that they are admitted to start in Autumn semester with program financial support and are expected to carry out a minimum of three 7-week laboratory rotations before joining a lab. Students may not directly transfer into a preceptor's lab. Transfer students may request that prior coursework counts toward OSBP degree requirements, and that

graduate credit earned at another university be transferred to this university. In general, core courses will be accepted with essentially identical course material, but electives will not. Graduate credit transfer is subject to the rules in Section 4.1 of the *Graduate School Handbook*. In general, transfer students are expected to complete a master's degree in their initial graduate program before the transfer. Doctoral candidacy status does not generally transfer from any other program or institution. Exceptions to these rules will be considered by petition to the GSC, such as for students who move to Ohio State with a faculty member newly admitted to the OSBP Graduate Faculty, or for students who have advanced to candidacy in another biochemistry Ph.D. program. Note that by rule of the Graduate School a student with a master's degree in the same field from another university must transfer the degree to Ohio State, and all students with a master's degree must take at least 50 graduate credit hours beyond the master's degree.

d. Admissions Procedures

Complete applications to OSBP are reviewed by the standing Admissions committee. The GSC Chair has final admissions authority for the program. In general, domestic students will be recommended for admission only after an interview. An interview by phone or internet (e.g., Zoom) is required for international students. The admission of students to the Graduate School is the dual responsibility of the Graduate Studies Committee and the Graduate School. However, the Graduate School has the final authority for making admission decisions. Graduate Admissions is also responsible for sending the official admission decision.

III. Financial Support

Students who are admitted to OSBP receive a commitment for full financial support ~~(~~including: a monthly stipend, 100% tuition (instructional and general fees), and 100% subsidized health insurance~~)~~ for the entire time they are working towards their degree, provided they maintain a 3.0 GPA or higher and make reasonable progress toward doctoral degree requirements.

In the first year, students are supported either through Graduate Research Associate (GRA) appointments provided by the program, through university fellowships (such as Graduate School Fellowships or College of Medicine Fellowships), or through traineeships supported by NIH Training Grants. OSBP program support is guaranteed for one year, meaning three terms. For most students, this means Autumn, Spring, and the summer term at the end of the first year. Some students may be admitted with external fellowships or as self-supported students (such as if their employer is paying their tuition and fees), with terms to be set at the time of the offer of admission by the GSC.

After the first-year support provided through OSBP ends, student financial support is the sole responsibility of the preceptor. Students may be supported as Graduate Research Associates (GRA), Graduate Teaching Associates (GTA), Trainees through the support of NIH Training Grants, or Fellows of the Graduate School, other University entities, or outside entities. The advisor commits to providing an equitable stipend, tuition and academic fees (along with required benefits), but the stipend level is at the discretion of the advisor in accord with the policies of the appointing unit (i.e., the advisor's home department). The Graduate School mandates a minimum stipend for GAs. OSBP encourages its faculty to support post-candidacy students at the life sciences IGP rate (i.e., the stipend level for first year OSBP students). It is

not uncommon for students to be paid at a lower rate, such as the rate of the appointing unit (for example, the Department of Chemistry & Biochemistry GTA rate).

The preceptor must affirm on the OSBP Preceptor Agreement Form that it is her or his sole responsibility to ensure continuous financial support after the first year of study (i.e., after program support ends). In the event that the preceptor no longer has sufficient grant resources or access to GTA appointments to support the student, it is the sole responsibility of the preceptor, not the responsibility of the student or program, to identify interim funding from the preceptor's department or other source so that the student is continuously supported, so long as reasonable progress is being made towards the degree. OSBP does not have resources to provide support for students after the first year of study.

Students may expect continued support from their research advisor if they meet the following criteria:

1. Students must be registered each term for at least the minimum number of credits required by the Graduate School for their status (see Section IV).
2. Students must remain in good academic standing, maintaining a GPA of at least 3.0.
3. Students must be making reasonable progress on their thesis research and on completing OSBP program requirements, as determined by the Graduate Studies Committee with the advice of the research advisor and Advisory Committee (see Section V).

Students who do not meet the above criteria may no longer be eligible for support, and their continued registration in the program may be barred in accord with Graduate School policies.

Students and advisors should be aware that in the event of student or faculty-initiated separations (see Section VI.e), the student generally has until the end of the current term to find a new preceptor, and that the current graduate appointment must be maintained until the original end date of the appointment. In the event of faculty-initiated separations, terminations before the end of the appointment are possible only with the written approval of the Graduate School for specific reasons, such as performance of GA duties unsatisfactory to the employing unit (see Section 9.2 of the *Graduate School Handbook*). OSBP considers it reasonable for the new preceptor to assume responsibility for the appointment of the student at the time the student joins the new lab, when that is practical.

The appointment periods run from mid August to December 31 for Autumn, January 1to early May for Spring, and early May to mid August for Summer. Exact dates for each year are published on the Graduate School web site.

OSBP Travel Grant Program

Subject to availability of funds, OSBP will provide up to one travel grant of up to $500 during the student's tenure in the program. Grants are offered on a competitive basis for conference travel, subject to eligibility rules and application timelines set by the program. Eligible expenses include registration fees, transportation, or lodging, all subject to OSU travel policy. To be eligible for award of a travel grant:

- Students must be post-candidacy and in good standing with the program.
- Students must be presenting a poster and/or talk at a national/international conference/meeting.

• When funds are limited, a preference will be given to supporting students from more groups over multiple students in the same group.
• Student progress and service to the program will be considered.

To apply for an OSBP travel award, students must submit an application to osbp@osu.edu that includes:

- An updated OSBP Activity Report
- Current Advising Report
- Notification from the conference indicating whether it has been submitted for oral or poster presentation.

Travel grants are awarded subject to availability of funding and at the discretion of the Director.

IV. Registration and Scheduling

OSBP students are required to be continuously enrolled in all terms (Autumn, Spring and Summer semester) up to and including the term in which the student graduates. In exceptional circumstances, the GSC may (by petition) allow students not to enroll for a term due to illness or a serious family issue, or related to a summer internship or co-op. The Graduate School requires that all post-candidacy students be continuously registered in every autumn and spring semester until graduation (but see Section IX.c below for information on family and medical leave). Under no circumstances will a student be allowed to "volunteer" in a lab; any student working towards the degree must be enrolled in that term and appointed as outlined in Section III.

Before advancing to candidacy, students appointed as Graduate Associates (GRA, GTA or GAA) must enroll in a minimum of 8 credit hours per semester, and in a minimum of 4 credit hours in the Summer term. All pre-candidacy students appointed as Graduate Fellows or Graduate Trainees must enroll in a minimum of 12 credit hours per semester and in a minimum of 6 in the Summer term.

Pre-Candidacy Student Title	**Minimum Credit Hours**		
	Summer	**Fall**	**Spring**
Graduate Associate	4	8	8
Graduate Fellow	6	12	12

All post-candidacy students must enroll in a minimum of 3 credit hours per term. The Graduate School only mandates enrollment in Autumn and Spring but requires summer enrollment if the student is actively working toward the degree on campus during the summer term. OSBP requires enrollment in all terms, except by petition.

A minimum of 80 graduate credit hours beyond the baccalaureate degree is required to earn a doctoral degree (or 50 additional graduate credit hours beyond the master's degree). Pre-candidacy students should enroll in closer to the maximum number of credit hours each Autumn and Spring semester (18 credit hours) to ensure they will have sufficient credits by the time of graduation. There is no cost difference to the appointing unit between 8 and 18 credit hours during the Autumn and Spring semesters.

In general, students should only take classes that are part of the approved curriculum. First-year students must obtain permission from the GSC Chair to take classes outside the normal curriculum; classes that are recreational or unrelated to biochemistry (such as physical education or a foreign language) will not be allowed. Such classes are discouraged after the first year but may be taken at the discretion of the advisor. First-year students must also obtain permission from the GSC Chair to enroll in more than the minimum number of credit hours (4) in the summer term.

Students who register after published registration deadlines will incur substantial late registration penalties and risk tuition not being paid without a petition. Students registering after the published deadlines are assessed late fees and their registration may be canceled if tuition is not paid by the second Friday of the term. The student is responsible for payment of any late fees incurred. ***It is every student's responsibility to check the Graduate School and Registrar's web sites for the most current rules, regulations, and deadlines.***

V. Academic Standards

The Graduate School Handbook describes the academic standards for all graduate students (see Section 5). Students are expected to follow the Graduate School standards as well as the OSBP guidelines.

Students are making satisfactory or reasonable progress toward their degrees if they follow the curriculum and other program requirements on the prescribed timeline, unless alterations are approved by the Graduate Studies Committee, and maintain a GPA of at least 3.0 in graduate classes.

Attendance at seminars (OSBP 7890 MLS Seminar during the first and second year), required student seminars (e.g., OSBP 7600 and 7700/), and required program events such as the annual IGP Symposium are important parts of satisfactory and reasonable progress. Receiving an unsatisfactory (U) grade in any of these OSBP courses (7600, 7700 or 7890) is considered lack of reasonable progress and will be reported to the Graduate School and a warning will be issued (*Graduate School Handbook* Section 5.4). Further unsatisfactory grades may result in denial of registration (*Graduate School Handbook* Section 5.5).

Satisfactory and reasonable progress toward doctoral research must be maintained, as evidenced by satisfactory grades (S) in graduate research courses and advisor comments on the Post-Candidacy Progress Report (see Section VI.e). Two unsatisfactory grades (U) in graduate research courses (OSBP 7193 or any 8999 or equivalent course) will lead to dismissal from the program. Any student who receives an unsatisfactory grade in a graduate research course will be required to appear before their Student Advisory Committee, GSC Chair, and/or the full GSC to discuss the reasons for the unsatisfactory progress. Unsatisfactory progress reported on the Post-Candidacy Progress Report will also result in a meeting with the GSC Chair and/or full GSC and possible warnings from the GSC and/or Graduate School, which could lead to dismissal.

Students who do not: meet program deadlines for joining a lab, file annual activity reports, select a committee by the deadline, advance to candidacy at the end of their second year, meet with advisory committees and file annual post-candidacy progress (PCP) reports, or graduate within the five-year candidacy period will be considered to be failing to make reasonable progress toward the degree, which

will trigger warnings from the GSC and/or the Graduate School, with possible denial of further registration. By rule of the Graduate School, students who do not raise their GPA above 3.0 after two consecutive terms of probation, students who fail the candidacy exam twice, or students who fail the final oral exam twice are automatically dismissed from the University.

VI. Advising and Rotations

a. First-Year Advising

The GSC Chair acts as a temporary advisor for incoming students until they have completed the required lab rotations and selected a permanent research advisor, which is normally completed before the end of the second semester. Each first-year student should meet with the GSC Chair at least once throughout the academic year to discuss his or her progress. Students are required to take the core courses in the first year. Also, students who have completed a master's degree at an accredited U.S. university may be eligible to receive credit for some of the core courses based on a review of the courses by the GSC with the advice of the standing Curriculum Committee. While all students are expected to take the core courses, the elective courses are chosen by the student upon conferring with the advisor to correspond to the student's area of interest and specialization.

b. Laboratory Rotations

All students must participate in three 7-week laboratory rotations with three different OSBP faculty members before selecting a preceptor (research advisor). Most students will do this by completing rotations in Session 1 and Session 2 of Autumn semester and Session 1 of Spring Semester and joining a lab in mid-Spring.

For each rotation, students are required to enroll in OSBP 7193 under the faculty member's name. OSBP 7193 is graded Satisfactory/Unsatisfactory based on fulfillment of the expectations set out in the rotation contract. The student should meet with the rotation advisor before or in the first week of the rotation to complete the rotation contract, and a copy or scan of the rotation contract must be provided to the OSBP office (osbp@osu.edu) by the second Friday of the rotation period. At the end of the rotation, the form is completed by the student and signed with comments by the potential advisor at an exit meeting. The fully completed rotation form must be turned into the OSBP office by email at osbp@osu.edu. The rotation contract form is available on the OSBP web site (see the OSBP Handbook, Forms, and Deadlines page).

Students who do not match to an advisor after three rotations may complete a fourth rotation but must meet with the GSC Chair before doing so. Further rotations are possible with the permission of the GSC Chair, but the student must have a permanent research advisor by the end of the program support period (for most students, the end of the first Summer term). Students who fail to match to an advisor after four rotations will receive a warning from the Graduate School about lack of reasonable progress. Students who fail to match to a lab by the end of the first year are not making reasonable progress and will be barred from enrollment in the following term. OSBP financial support is not available after the first year.

OSBP students may only rotate in the lab of an OSBP faculty member. Faculty are not eligible to take

rotation students on a provisional basis while their status in OSBP is under consideration; they must wait until final approval from the Graduate School is received confirming their status (see Section XIV).

c. Joining a Lab

Students are encouraged to join a lab as soon as possible after completion of the third rotation. Students who start in the Autumn should complete their advisor selection within 2 weeks after the end of Spring Session 1, or, if no match is possible, meet with the GSC Chair and initiate a fourth rotation by that same date.

A student formally selects a preceptor when the Preceptor Agreement Form is signed by the preceptor and the preceptor's department chair (or designee) and approved by the GSC. The Preceptor Agreement Form is a Memorandum of Understanding (MOU) between OSBP, the preceptor, and the preceptor's home department in which the preceptor agrees to be responsible as the academic advisor, to supervise the conduct of research and preparation of the dissertation, to assure that the student adheres to program requirements, to administer the candidacy and final exams in accordance with program rules, and to accept full responsibility for ensuring financial support to the student through graduation provided the student is in good academic standing and making reasonable progress toward the degree. The Preceptor Agreement Form must be filled out and signed electronically; see the Handbook, Forms, and Deadlines page of the OSBP web site for details.

If there are no concerns about the student-advisor match and the advisor's department chair approves the form, the GSC Chair will typically approve the form on behalf of the GSC. If the advisor's department chair will not approve the form, the GSC will also not approve it, and the student must find a different advisor. The GSC may also independently refuse to approve the form if there are serious concerns that the student will not be successful with the selected advisor. Serious concerns might include, but are not limited to, inability to ensure the financial support of the student, an excessively large number of students joining the lab at one time, a history of students who fail to meet program deadlines or other requirements, or a history of students who have repeatedly left the lab without completing a degree.

OSBP students must select an OSBP faculty member as a preceptor. OSBP does not recognize co-advisor relationships for its students. Even if the student carries out experiments in a collaborator's lab or is financially supported using the resources of a collaborator, the preceptor accepts full responsibility for academic advising, supervising research and preparation of the dissertation, ensuring adherence to program policies, administering the candidacy and final exams, signing the exam forms, dissertation and final approval as the advisor, and supporting the student financially.

d. Advisor Selection – Best Practices

Some of the most important factors in selecting an advisor are: the project the student will work on, the ability of the student and advisor to work together, the advisor's funding situation, and the affinity of the student for the particular lab environment. Students can be successful in small or large labs, or with very hands-on advisors or advisors who prefer very independent students. But individual students will probably thrive in only a subset of the possibilities. It is worth exploring labs that run differently during rotations.

Rotations are also time for the student to refine his or her interests, and some exploration of topics is necessary to make a good decision. However, students who rotate in labs that work in three vastly different areas may have a difficult time matching, probably in part because there is no meaningful basis for comparison among the choices. A targeted search for rotation labs is usually most effective.

What should happen during the rotation? The best answer to this question is to talk in detail with the potential advisor and make sure that expectations match up. If the lab typically starts work early in the morning, plan to start work early in the morning. If that's not something you are willing to do, you're probably looking at the wrong lab. Expectations for things such as the number or timing of working hours in the lab are set by individual faculty for their own labs, and you should make sure that you discuss these expectations with any potential OSBP mentor and consider these factors in your decision-making. The structure of lab rotations themselves may also vary from lab to lab. Some advisors will just have rotators read papers, attend meetings and observe or work with another student or postdoc; others will have an actual small independent project for the student to complete. Agreeing on what is reasonable is the motivation for filling out the top of the rotation contract early. In any event, some combination of reading literature, experimental work, attending research meetings, and giving presentations is typical, and spending at least 20 hours per week in the lab during rotations would be quite common. Expectations for some work/study time early, late or over the weekend are not unusual.

Typically, 80+% of students match to a lab at the end of three rotations, and nearly all match to a lab after four rotations. Students should be aware that most students join a lab in mid-Spring, and many faculty members may not have additional funding or space to commit to additional students after that time. Advisor selection is a momentous decision in the career of the graduate student, and it should not be rushed. On the other hand, while most students who do not find an advisor in three rotations are still successful, students must also accept the practical reality that it gets harder to find an advisor as time goes on after three rotations.

The student-advisor matching process works best if all the necessary facts are out in the open and there is clear communication. Students who are not interested in joining a lab after a rotation should say so to free up the advisor to consider additional students; conversely, if you're pretty sure you want to join the first lab you rotate in, say so. Similarly, faculty should be up front about the number of students they intend to take, how many other students are interested in the lab, the amount of funding available, and how the student will be funded over the course of her or his career. Faculty should not host lab rotations if they are not certain that they will have funding available at the time of the rotation. Students should inquire about these issues if the advisor does not volunteer the information.

Faculty should be realistic about their ability to support their students both academically and financially. Taking more than 2 or 3 first-year students in a year is likely to be risky for all but a few labs that have the funding and infrastructure to support that. OSBP is a large program with many more faculty interested in taking students than the program can bring in; when in doubt, it is more helpful not to take a risk with the student's advising and future support.

e. Student-Advisor Separations

The vast majority of students complete a degree with the advisor they select first. Inevitably, some student-advisor relationships run into problems that cannot be easily resolved.

Student-Initiated Separation

If a student wishes to terminate the relationship with his or her advisor, the student must request a meeting with the GSC Chair, or if this represents a conflict of interest, another member of the Graduate Studies Committee. This meeting will be held in confidence (subject to applicable mandatory reporter laws and policies). If the student so desires, the GSC Chair (or another member of the Graduate Studies Committee) will attempt to arbitrate differences between the student and the advisor and may involve the Student Advisory Committee. If the student does not wish to confront the advisor, she or he will be allowed to leave the advisor with no stated reason. However, all research materials, complete copies of notebooks, and any supplies provided by the advisor must remain with the advisor.

The student must transfer to a new advisor (a member of the OSBP faculty) during the same academic term as the separation. The program bears no responsibility for financial support of the student during the separation. The appointment of the student must be maintained through the end of the term. However, it is reasonable for the student's support to transfer to the new advisor before the end of the term when that is practical. If a student does not identify a new advisor affiliated with the program within the academic term of the separation, the student must leave the program. OSBP does not have guaranteed funds to support students who have separated from their preceptor.

Advisor-Initiated Separation

If an advisor wishes to terminate the relationship with a student (resign as preceptor), they must follow the rules of the Graduate School and the program. OSBP requires that the advisor must document dissatisfaction with a student's performance or progress in a written letter to the student, with a copy sent to the GSC Chair. If unsatisfactory progress in research is an issue, this must be documented by a U grade in the advisor's graduate research course under which the student is registered. A meeting of the student's Advisory Committee should be held to allow the student the opportunity to present his or her progress, and the student must meet with the GSC Chair or the full GSC as deemed necessary. If the advisor has documented her or his dissatisfaction with the student as above, and no resolution can be found, the advisor may resign as the student's preceptor in writing to the student and the GSC Chair.

In general, the student's appointment must be maintained to the end of the term. Graduate School rules state that GA appointments may not be terminated prior to the end of the appointment period without written approval from the Graduate School, and only for a limited number of reasons (see Section III and *Graduate School Handbook* Section 9.2). The appointment period is determined by the contract signed between student and advisor kept with the hiring department and may be set for a specific academic term or annually, as defined by their appointment letter. Terminations at the end of the appointment period do not require permission from the Graduate School.

When the advisor resigns as the student's preceptor, the GSC will determine whether the student will be allowed to identify a new advisor, or whether further enrollment will be barred after the end of the term. Students who receive two U grades in graduate research courses will be dismissed from the program (see Section V). If the student is allowed to seek a new advisor, they must identify an OSBP faculty member as preceptor by the end of the term in which the advisor resigned or leave the program. OSBP does not have guaranteed funds to support students who have separated from their preceptor.

f. Student Advisory Committee

In the Summer term at the end of the first year, after the advisor assignments are made, students consult with their new advisors to select a Student Advisory committee. The purpose of the advisory committee is to assist in advising the student of appropriate elective courses to take to complete the doctoral program; to provide advice on scholarly matters throughout the student's tenure at the university, and to review the annual progress of the student. Students should meet with their Advisory Committee at least once a calendar year for this purpose. The Student Advisory Committee also serves as the Candidacy Examination Committee, the Dissertation Committee, and the Final Oral Exam Committee. *Note that although the Graduate School requires only the advisor and two Graduate Faculty members for the Dissertation Committee and Final Oral Exam Committee, the program requires the entire Student Advisory Committee, except by petition to the GSC.*

The advisory committee consists of the student's advisor and three additional faculty members. At least two of the additional members must be members of the OSBP faculty, and all three must be P status members of the Graduate Faculty of the University. Students may optionally appoint a fifth member to the advisory committee who is not required to be a member of the Graduate Faculty, but permission of the GSC and the Graduate School is required to appoint a Non-Graduate Faculty member (see the Committee and Examination Petition on the gradforms.osu.edu web site).

Students submit their choices in writing to the GSC Chair (through osbp@osu.edu) for review by June 30 at the end of their first year. The student or advisor must ask potential members to serve on the committee before submitting their choices to the program. The GSC may require changes to the committee or will provide confirmation of the committee choices to the student and advisor. The Committee Selection form is filled out and signed electronically as directed on the OSBP web site (see the Handbook, Forms, and Deadlines page), and is typically approved by the GSC Chair on behalf of the GSC unless there are concerns about the committee assignments. The student will make the Graduate School aware of his or her committee members when the student schedules the candidacy exam. The Application for Candidacy must be filled out and approved electronically through the gradforms.osu.edu web site.

g. Post-Candidacy Progress Report

Students who have completed their candidacy exam are required to meet with their Advisory Committee at least once per calendar year to complete and submit the Post-Candidacy Progress Report based on the findings of each meeting to osbp@osu.edu. These meetings should generally occur in the Summer or Autumn term and the report is due by December 31 of each post-candidacy year. No report is required immediately after advancing to candidacy; the candidacy exam serves as the advisory committee meeting

in the second year. Advisory Committee meetings should explicitly address a schedule for publication of first author papers and graduation, as well as career goals and actions that can be taken to further those goals. If the report indicates that unsatisfactory or unreasonable progress is being made towards timely degree completion upon review of the report by the GSC Chair or if a student receives unsatisfactory grades in her or his graduate research course, then action will be taken as outlined in Section V on Academic Standards. A Microsoft Word .doc format version of the report form is available on the OSBP web site.

VII. Doctoral Degree

a. Curriculum

The doctoral curriculum consists of core courses, biochemistry electives, first-year student orientation, student seminars, colloquium, and laboratory rotations in the first and second years.

In Fall semester of the first year, all OSBP students must enroll in two **core courses,** one in molecular biology (BIOCHEM/BIOPHRM 6701) and one in protein and nucleic acid structure and function (BIOCHEM/BIOPHRM 6761) (6 credit hours). Students may not drop either of these courses without the permission of the GSC Chair. Students allowed to drop any of these core courses must complete the required courses in the second year to qualify for candidacy.

A minimum of **9 credit hours of approved graduate biochemistry electives** is required. Typically, these are at the 6000-level or above and must be graded A-E (S/U courses will not be approved). Only 3 credit hours may come from laboratory-based courses. At least 1.5 credit hours must be taken in an approved "Quantitative Biology" course. Approved courses satisfying this requirement are listed in Appendix B. All elective courses should be completed by the end of the second year. Students may choose from the list of OSBP-approved electives provided in Appendix B, which is also updated frequently on the OSBP website. Four elective “tracks” have been created, in major OSBP research focus areas including Chemical Biology and Enzymes, RNA Biology, Structural Biology and Biophysics, Molecular Bases of Disease, to facilitate choice electives based on research area. Students are encouraged, but not required, to consider these tracks when choosing their electives.

Students wishing to count courses not on the approved list towards their required biochemistry elective credit requirement must submit a justification to the GSC chair that includes the course description (syllabus), and an explanation from both the student and advisor as to why the course is desired. Students are advised to also consult the members of the Advisory Committee for elective course selection. Students are allowed and encouraged to take additional electives outside the field of biochemistry that will contribute to their understanding of their research (such as mathematics), but these will not be approved for the required biochemistry elective credits.

First-year students must enroll in **First-Year Student Orientation** (OSBP 7600, 1 credit hour), which is offered in the Autumn semester and graded on an S/U basis. This is a special mentoring seminar course given by the faculty of OSBP and partner graduate programs.

First- and second-year students must enroll in **Student Seminar** (OSBP 7700 or other as directed, 1 credit

hour) in the Autumn and Spring semesters. These classes focus on literature presentations, the scientific method (rigor and reproducibility), development and presentation of research aims, and scientific writing. The Student Seminar course schedule will be announced by the GSC Chair and/or Program Coordinator before each semester starts.

First- and second-year students must enroll in OSBP 7890, 1 credit hour (**Colloquium-Advanced Biochemistry Topics**) during each Fall and Spring semester. This course is associated with the Molecular Life Sciences (MLS) external seminar series that is jointly sponsored by OSBP, MCDB and Biophysics. After the second year, students are encouraged to consult with their advisor to determine whether enrollment in any additional external seminar series (such as CHEM 8892) is helpful for their research goals, or whether attendance at individual seminars that are part of multiple seminar series is more appropriate. Regardless of whether formal enrollment or more individualized seminars are chosen, actively participating in external seminars is a critical part of scientific development for all OSBP students. As a guideline for students and faculty, OSBP expects all students to attend about one external seminar per week during each semester.

In Fall semester, first-year students will enroll in 1 full semester of OSBP 7193 with the director as the instructor to serve as the temporary PI for the student and 2 session courses of OSBP 7193 for each required laboratory rotation. In Spring, they will enroll in 3 session courses of OSBP 7193; one course with the director to serve as the temporary PI in the first session, one course for the 3rd rotation in the first session, and one course with the chosen permanent PI in the second session in place of an 8999 research course (See Section VI.b). First-year students can adjust the number of credit hours (usually 3-6) of OSBP 7193 courses to bring the total course load to 18 credit hours in the Autumn and Spring semesters. The credits under the Director are awarded for progress toward first-year program requirements.

A minimum of **80 graduate credit hours** (or 50 credit hours beyond the master's degree) is required to graduate with a Ph.D. See Section IV for registration guidelines by student status.

All decisions on special curricular requests are ultimately the responsibility of the GSC, with the advice of the standing Curriculum Committee.

b. Public Seminar and Symposium Requirement

Students must give a public oral research presentation during their third or fourth year in the program. This requirement can be satisfied by presentation in multiple venues if the talk is open to a broad audience (such as in a departmental seminar series, at the Life Sciences IGP symposium, or at a large scientific meeting). Presentations at group meetings are not acceptable to fulfill this requirement. A limited number of slots for OSBP presentations may be available through the Department of Chemistry and Biochemistry's biochemistry division seminar (CHEM 8892). Students who are interested in presenting in this course to fulfill the requirement should contact the OSBP Director.

All students must register for and attend the annual Life Sciences IGP Symposium each year. The symposium is typically during the third week of May. Students in the fourth year and beyond must submit an abstract and present a poster or oral presentation.

c. Qualifying Policy

After completing the core courses, each student's record is evaluated by the GSC Chair. Students are normally expected to complete at least 9 of the required 15 credit hours by the end of Spring Semester of the first year, and all 15 credit hours must be in progress or complete to advance to candidacy (i.e., before the oral candidacy exam occurs), unless they have previously obtained permission from the GSC Chair to defer one or more courses that are not offered until after candidacy is completed. To remain in good standing and to be eligible to take the Candidacy Examination, students must have a cumulative GPA of at least 3.0 in all graduate courses (i.e., the student cannot be on academic probation when they advance to candidacy). Students who have not completed the core courses or students who do not have a 3.0 GPA will not be allowed to take the Candidacy Examination.

d. Candidacy Examination

All OSBP students must advance to candidacy by the end of the second year (i.e., pass the exam by no later than the last day of Summer term their second year). The Student Advisory Committee serves as the Candidacy Exam Committee, and the Advisor serves as the chair of the committee. The advisor is a voting member of the committee and should participate in all aspects, including scoring of the written proposal. The exam contains both written and oral portions, and the written portion must be evaluated and approved before the oral exam is formally scheduled on GRADFORMS; however, candidacy is determined based on both portions together.

Candidacy Progress Timeline in Year 2

- Autumn Semester: Submit proposal aims to Candidacy Committee
- Spring Semester: Submit Written Portion (proposal) to Candidacy Committee
- Spring Semester: Application for Candidacy
- Spring or Summer Semester: Take Oral Candidacy Exam and advance to candidacy no later than End of Semester (EOS) deadline for summer semester.

Written Portion

The written portion of the exam is a research proposal focusing on the student's proposed dissertation topic. The proposal should be in the general format of a predoctoral fellowship application, such as an NIH F31 fellowship and it should be 8-10 pages of 11 point Arial text (including figures but exclusive of specific aims page and references), including the aims page.[1] The proposal should include three specific aims, and at least one of these aims must be a novel and creative aim (the "independent aim") developed by the student, that is not assigned by the advisor, or present in the advisor's grant proposals. To be clear, the entire proposal must be the independent work of the student in his or her own words; the independent aim must be a completely independent idea of the student. The specific aims page should be submitted to the exam committee for their approval, and the advisor should provide assurance to the rest of the committee that one of the aims is completely independent. The committee will evaluate the aims within one week.

[1]The GSC intends that students will be able to edit this document to submit to predoctoral fellowship applications, when allowed, but evaluation of the student for candidacy is the most important purpose of the document.

After the aims are approved, the student should submit the complete proposal to the committee within four weeks. The advisor may review the proposal and make some suggestions before the student submits it to the full committee, but the submitted proposal should reflect the student's ability and should not be a heavily revised document that the advisor has had extensive and repeated input on. Each committee member, including the advisor, will provide an assessment and comments on the proposal within two weeks using the OSBP Candidacy Written Exam Evaluation Form found on the OSBP website. Completed forms will be sent ***directly to the advisor, who will communicate the consensus evaluation of the committee (including all of the committee members' scores and comments) to the student and the rest of the committee***. Each committee member, including the advisor, will choose one of these options when evaluating the written proposal: (1) Major Rewrite; (2) Revise: minor changes are required to the document; or (3) Approved as submitted. This process is repeated for each required revision until the document is approved. After receiving all of the scores from the other committee members, the advisor should share with the full committee and the student the scores and critiques of all committee members and propose a consensus evaluation score.

It is left to the discretion of the committee how many revisions will be allowed, but the advisor should consult with the GSC by contacting the GSC Chair if more than one Major Rewrite is required. According to the *Graduate School Handbook* Section 7.4:

> If, based on evaluating the written portion, the advisor or another member of the candidacy examination committee see no possibility for a satisfactory overall performance on the candidacy examination, the student may be advised to waive the right to take the oral portion. The candidacy examination committee may not, however, deny a student the opportunity to take the oral portion.
>
> If the student decides to waive the right to take the oral portion, a written statement requesting the waiver must be presented to the candidacy examination committee. In such a case, the candidacy examination committee records an "unsatisfactory" on the Report on Candidacy Examination form and submits a copy of the student's waiver request to the Graduate School.

See section e. Candidacy Exam – Best Practices, for additional information about the written portion of the exam.

Oral Portion

When the committee approves the final version of the written proposal, the student may then formally schedule the Oral Examination through the Application for Candidacy at gradforms.osu.edu. It is permissible to reserve a tentative date for the exam with the committee before the final written approval is obtained, with the understanding that the date may need to be rescheduled if the required approval is not obtained from the committee prior to the two-week deadline mandated by the Graduate School (see below). The Application for Candidacy form must be filled out and submitted by the student and approved electronically by the advisor and GSC Chair through gradforms.osu.edu. The form must be filed at least two weeks before the exam—*the Graduate School makes no exceptions to this rule.* The oral portion normally must be taken within one month of approval of the written portion, and it must occur during

normal University business hours, Monday through Friday, and exclusive of university holidays.

According to the Graduate School Handbook Sections 7.3 and 7.5, "The purpose of the candidacy examination is to test a student's comprehension of the field, allied areas of study, capacity to undertake independent research, and ability to think and express ideas clearly… The oral portion of the candidacy exam lasts no more than two hours. Questioning of the student should occupy the entire period of the examination." The oral exam is a general exam that should focus on the topic of the proposal and the larger field of biochemistry. The committee will ask the student to explain the proposal, but this explanation will be interrupted by questions throughout the exam. The entire committee must be present for the entire exam.

The Report on Candidacy must be filed through gradforms.osu.edu. It is important that all committee members are present for the discussion of the exam results (with the student out of the room). The decision of the committee, which is based on both the written and oral portions together, should be communicated to the student in person after this discussion, and each committee member must enter their decision online within 24 hours. The decision of the committee must be unanimous for the overall decision to be Satisfactory. The *Graduate School Handbook* establishes policy for what happens if the overall result is Unsatisfactory (see Section 7.7). The Graduate School will appoint an outside Graduate Faculty Representative for the exam if a second attempt at the oral exam is required.

Candidacy Rubric

Completion of the OSBP Candidacy Rubric is a requirement for all OSBP students completing candidacy and the results will be used for program assessment. The Rubric forms are available on the OSBP Handbook, Forms, and Deadlines webpage and students should bring printed copies for each candidacy committee member to the oral exam. Each member of the candidacy examination committee must complete the assessment page, which will be collected by the student immediately after the exam. Students are responsible for submitting the signed pages to the OSBP office (either hard copy or scanned to osbp@osu.edu) by 5pm the day after completion of the candidacy exam.

At the program level, the information collected on the candidacy rubrics is not used to evaluate the results of any specific exam but will be aggregated for all students in the program to enable assessment of how well the program is achieving student learning outcomes. OSBP expects most students to achieve at least medium performance in most categories listed on the candidacy rubric, but it remains solely up to the committee's discretion to decide the result of an individual student's exam. Committee members are nevertheless strongly encouraged to incorporate their evaluations into post-exam discussions with the students to help them identify areas of strengths and weaknesses for their own improvement.

e. Candidacy Exam – Best Practices

The advisor is the chair of the exam committee and, in addition to being a regular voting member, is responsible for coordination and communication of ALL decisions regarding the candidacy document to the rest of the committee and the student. All communication, from either the student or committee members, should be copied to the advisor. The advisor should evaluate the written portion of the candidacy examination along with the regular committee members and will be required to approve it.

Students should review Appendix C, which contains proposal writing information from the NIH web site. It is common, but not required, for one aim to describe work in progress, one aim to describe a related project or a significant extension that will round out the dissertation, and an independent aim to be related to the project, but to represent a significant expansion outside of the work of the preceptor's laboratory. For example, a student in a structural biology lab might consider proposing a cell-based or animal model for the independent aim. While the independent aim must be scientifically sound, it is not expected that the student will necessarily carry out the aim.

The point of the review of the specific aims page is not to get the exact wording perfect; rather, it is to approve the topics of the written exam. It is appropriate to identify issues that need to be addressed in the full proposal. It makes the most sense for the student to get comments from all committee members and produce a single unified revision of the aims, as needed. *It is strongly suggested that second-year students submit the aims page to the committee in the Autumn semester and obtain approval by the end of the calendar year.* Faculty often travel during semester breaks and summer term. Initiating the process on time is the best way for students to proactively avoid any scheduling delays that could interfere with timely completion.

Each committee member, including the advisor, should submit his or her review of the full proposal using the required Candidacy Written Evaluation Form to the chair (advisor) with the recommendation (major rewrite, revise, approve), **and the chair should communicate a single decision along with all of the faculty scores and comments to the student-this should be in an email to the student with all committee members copied**. It is acceptable for each committee member to send her or his individual comments to the student and cc the entire committee, or just to the student (and advisor).

This process is not meant to be a clinic on writing proposals; it is an examination to determine which students can write and defend a Ph.D. dissertation. The student should not send minor edits to each faculty member as suggested. The process should be coordinated by the chair, and the committee should speak in one voice about each revision. It is encouraged, but not required, for the student to discuss critiques with committee members for clarification. Advancement to candidacy is determined by the totality of the written and oral portions of the exam; an approvable proposal is not necessarily flawless and may contain issues to be addressed as questions in the oral portion of the exam.

It is strongly suggested that second-year students have the written portion of the exam approved no later than the end of Spring semester.

It is permissible, when practical, for the chair to put a tentative date on the calendar for the oral exam at any time during the process. The Application for Candidacy form on www.gradforms.osu.edu cannot be filed until the committee approves the written portion of the exam and it must be submitted 2 weeks prior to the scheduled oral exam. It is therefore important for the student and advisor to consider a realistic timeline for the writing, evaluation, and editing process and to avoid any appearance of influencing the exam results to meet a pre-determined timeline.

The oral exam cannot include an uninterrupted presentation of the proposal; the entire period must consist

of questions from the committee. Consequently, while handouts or PowerPoint-type slides are permitted, they should be limited to approximately five (5) slides and used throughout the exam, not as a presentation at the beginning of the exam period.

Committee members should either enter the results of the exam on a laptop or mobile device in the exam room immediately after the discussion or return to their offices and post the results as soon as possible.

It is highly recommended that the oral exam is completed by the end of May. Due to faculty travel, it becomes very difficult to schedule oral exams later in the summer.

f. Post-Candidacy

After advancing to candidacy, students will continue working on their original research projects, which will be the basis of the dissertation.

OSBP requires continuous enrollment and appointment of its students in all terms. Post-candidacy students should enroll in 3 credit hours per term. Post-candidacy students should generally enroll mostly in 8999 or equivalent research courses and may enroll in 1 credit hour of a seminar course each Autumn and Spring semester. For liability and transcript tracking purposes, students should enroll in at least one credit hour of doctoral research (e.g., 8999) per term. Third- or fourth-year students must present a public oral research presentation (see Section VII.b). Post-candidacy students must continue to attend the IGP Symposium each year, and students in the fourth year and beyond must present a poster or oral presentation. It is typical for post-candidacy students to attend workshops and conferences, present posters and oral presentations at regional and national meetings, publish papers, and begin drafting the dissertation. OSBP students must publish at least one original first author research paper to graduate (see Section VII.h).

Post-candidacy students must meet with their Advisory Committees at least once a calendar year (starting the year after advancement to candidacy), typically in the Summer or Autumn term, and turn in a Post-Candidacy Progress Report to the OSBP office by December 31 of each year (see Section VI.g). The report should be turned in within a week of holding the committee meeting. These meetings should include an explicit discussion of the timeline for graduation, including specific recommendations concerning the completion of the dissertation and first author paper requirement. They should also include an explicit discussion of the student's career goals and action items that will be pursued to further those goals.

Students must graduate within five years of advancement to candidacy, or the student's candidacy will be canceled. Procedures for re-admission are specified in the *Graduate School Handbook* Section 7.7. In general, the OSBP GSC will not allow re-admission to candidacy. In the rare case that a supplemental candidacy exam is approved, the advisor must consult with the GSC on the exam's nature, and the GSC has final authority in determining its format. Students re-admitted to candidacy must graduate within two years, but the GSC may (and likely will) limit the second candidacy period to a shorter term.

The average time to graduation from OSBP over the preceding five years was 5.7 years in 2023. Average time to graduation has decreased from historical averages, likely a result of the earlier (second year) candidacy mandate starting in 2012, which consequently requires all students to graduate by the end of the

seventh year to avoid cancellation of candidacy. The GSC believes that a significant majority of students should be able to graduate in 5-6 years.

g. Dissertation and Final Oral Exam

When the student and advisor, in consultation with the Student Advisory Committee, feel the dissertation will likely be ready to defend within a given term, and all other requirements have been met, the student must file the **Application to Graduate**, which is filled out and approved through gradforms.osu.edu. The Dissertation Committee is the Student Advisory Committee. (Note that OSBP requires the full Advisory Committee for the final oral exam, even though the Graduate School only requires the advisor and two other Graduate Faculty members.) **This form must be filed by the Graduate School deadline of the third Friday of the term**, (see Graduation Calendar). On the GRADFORMS form, the student must indicate if they plan to defend and file the dissertation by the "regular" deadline, which results in conferral in the same term, or by the end-of-semester (EOS) deadline, which results in conferral in the next term. It is recommended by OSBP to initially file for the regular deadline, and then inform the Graduate School of the delay if the regular deadline is not met. Once an Application to Graduate is filed, you can always switch to the EOS deadline if needed, but not from EOS back to the regular deadline. If the student initially indicates he or she will graduate by the regular deadline, but ends up needing more time, email the Graduate School Graduation Services at Grad-SchoolGraduationServices@osu.edu to notify them that you would like to change to the EOS deadline. If a student ends up not being able to graduate by the EOS deadline of that term, they can always file the application again in the next term (there is no penalty), provided they are still within five years of passing the candidacy exam.

OSBP also requires that the OSBP Ready-to-Graduate Checklist be completed, signed by the student and advisor, and turned into the OSBP office at least 48 hours before the Graduate School's Application to Graduate deadline. This application is needed to provide OSBP with the necessary information to approve your application. The Ready-to-Graduate Checklist can be found on the OSBP web site on the "Handbook, Forms, and Deadlines" page. Note that copies of the student's advising report and original first-author publications must be included with the Checklist. This checklist must be completed every semester that a student petitions to graduate.

When a complete draft of the dissertation is ready, it must be provided to the Dissertation Committee, who will judge whether it is of sufficient merit to warrant holding the final oral exam. Students are responsible for ensuring that committee members have sufficient time to evaluate the draft dissertation. The draft document should be provided to the committee to allow no less than one week for this evaluation, but possibly more, depending on committee members' availability. Once the draft is approved by the committee, the student must file the **Application for Final Exam** through gradforms.osu.edu. This form must be approved by all the committee members no later than two weeks before the scheduled date of the Final Oral Exam—*the Graduate School will not make any exceptions to this rule*. The student must also bring a copy of the approved complete draft to the Graduate School for format pre-approval no later than two weeks before the Final Oral Exam date. Note that formatting guidelines and template files are available on the Graduate School Dissertations and Theses link; follow these guidelines carefully to avoid filing delays.

An OSBP student's dissertation may include collaborative work completed with contributions from colleagues within or outside Ohio State. If the results of collaborative studies are included in the dissertation document, the defending student's individual contribution to the work must be clearly indicated, and appropriate acknowledgements of additional contributors must be made. Although the format of this "separate author contributions" section is decided at the discretion of the individual dissertation committee, OSBP strongly suggests including explicit author contribution statements placed prominently at the beginning of each dissertation chapter to clarify the role that the defending student and others have played in conducting the thesis work.

The Final Oral Exam Committee consists of the Dissertation Committee (i.e., the Student Advisory Committee), optionally with a Graduate Faculty Representative (GFR) assigned by the Graduate School. The approved draft of the dissertation must be provided to the GFR as soon as possible after they are assigned.

The final oral exam lasts approximately two hours. The exam should consist of a presentation of the dissertation followed by a private (student and Final Oral Exam Committee only) period of questions and answers for at least one hour. The presentation portion may be public or private, but when practical, OSBP strongly encourages the presentation portion to be public. The OSBP program manager should be notified when the date, time and location of the presentation has been set, to provide sufficient notice for dissertation defense announcement to the entire OSBP community. OSBP students and faculty are encouraged to attend dissertation presentations whenever possible. The exam includes, but is not limited to, the dissertation; it should test the research's quality and its originality, independence, significance and perspective in the field. The work must be deemed by the committee to be a significant scholarly contribution to knowledge in biochemistry.

The final oral exam must take place during official University business hours. It should be held on campus and in person if possible. If in person is not possible, a video conference (e.g., Zoom or Teams) format is allowed (Graduate School Handbook section 7.5.1). All members must be present and participate for the entire exam. The decision discussion occurs privately, without the student. The decision of the committee is considered Satisfactory only when the committee unanimously votes affirmatively. When assigned, the GFR participates in the decision discussion and vote. The first question of the discussion should be whether the GFR deemed the exam to be fair and of the quality expected by the Graduate School. Committee members must record their votes on the Report on Final Examination on gradforms.osu.edu, either on a laptop or mobile device after the decision is reached, or immediately thereafter upon the member's return to his or her office. The result must be recorded within 24 hours, but the student should be informed of the result in person immediately after the discussion. If the student fails the final oral exam, the committee must determine whether a second exam may be scheduled. If not, or if the student fails the exam a second time, the student will be dismissed from the Graduate School. A second exam, if necessary, must have the same exam committee.

After the exam, the student must make any changes to the dissertation document required by the Dissertation Committee, and the committee may then give final approval, indicated by the Report on Final Document through gradforms.osu.edu. Committee members other than the advisor, who do not wish to see an amended document, should approve the Report on Final Document at the same time as the Report on

Final Examination to prevent the student from missing the filing deadline. Once the advisor approves the final draft of the dissertation on the Report on Final Document, the dissertation must be uploaded to the OhioLINK Electronic Theses and Dissertations web site. For the dissertation to be considered filed, the Report on Final Document must be approved by all committee members including the advisor, and the Graduate School must approve the final formatting of the document. Information on specific deadlines for submission of the Final Document that apply to each term is available on the Graduate School website.

Students who pass the oral exam or file the dissertation after the "regular" deadline of each semester, but before the EOS deadline (the last business day prior to the first day of classes of the following term) will have their degree conferred in the following term, but do not need to register in the following term. Note that students may only participate in Commencement in the term of conferral.

h. Graduation Requirements

In order to graduate, students must (1) have a cumulative GPA of at least 3.0 in all graduate classes; (2) have completed all required courses, including core and biochemistry elective classes; (3) have final grades recorded for all courses by the published deadline; and (4) have met all requirements of the OSBP doctoral degree described in this handbook, including publication of at least one original peer-reviewed first-author research paper by the time of graduation. Co-first author publications are acceptable. Review articles are not acceptable. The paper must be published, in press, or unconditionally accepted; submitted manuscripts, manuscripts "in preparation," and theses or abstracts may not be counted toward the publication requirement.

The GSC Chair may provisionally sign the Application to Graduate if a first-author paper is not yet accepted by the deadline for that form, but the paper must be accepted by the regular "approved thesis and dissertation documents" deadline (as published by the Graduate School) for the student to graduate that term. If the paper is accepted too late to participate in regular graduation, but before the EOS deadline, the degree can only be conferred on an end-of-semester basis—meaning, the degree is conferred in the next term, and the student is not eligible to participate in Commencement until the term of conferral. If the GSC Chair is not confident that the paper will be accepted by the EOS deadline (for example, if a draft of the paper is not available by the deadline to file the Application to Graduate), the director may decline to approve the application. ***In general, the director will only approve applications to graduate for which the first-author paper requirement has already been met, or if a manuscript has already been submitted to a journal and is in the review process.*** Note that even if the defense is passed, but the first author paper is not accepted by the EOS deadline, OSBP cannot certify the degree. In that case, the student must be registered (with tuition and fees paid) for the following term, and all subsequent terms until the paper is unconditionally accepted, for the degree to be conferred.

i. Leaving the University

Students on GA appointments typically must work and be present through the end of the term. Doctoral candidates and master's students who have successfully completed all program degree requirements and responsibilities associated with their GA appointment may petition the Graduate School for early termination of their GA appointment, subject to approval of the student's advisor and Graduate Studies

Committee Chair. If the Graduate School approves the doctoral candidate or master's student's petition, all non-stipend benefits associated with the GA appointment will remain on the doctoral student or master's student's account until the agreed-upon termination date of the appointment. (See section 9 of the *Graduate School Handbook.*)

j. Annual Activity Report

All students are required to submit an Activity Report at the end of each academic year that describes honors and awards, fellowship and grants, publications, presentations, workshops and conferences attended, and other notable events in the format of a *curriculum vitae*. The report is due to the OSBP office (or a scan to osbp@osu.edu) by May 15. Format details are available on the Forms and Deadlines page of the OSBP web site.

VIII. Master's Degree

OSBP is a graduate program leading to a doctoral degree. By rule of the Graduate School, students who pass the candidacy examination may earn a master's degree if (1) it is recommended by the student's advisor and the GSC; (2) the student does not already have an equivalent master's degree in the same field; (3) the student files the Application to Graduate through gradforms.osu.edu by the published deadline; (4) graduation deadlines set by the Graduate School are met; and (5) candidacy has not expired. It is possible to receive the master's degree in the same term as passing the candidacy exam by filing the Application to Graduate on gradforms.osu.edu by the published deadline (the third Friday of the term), which would also require approval of the GSC Chair. See Section 6.1 of the *Graduate School Handbook*.

In general, if the advisor is in favor and the other conditions above are met, the GSC Chair will approve applications for the master's degree by candidacy.

Students who have not advanced to candidacy are not eligible for a master's degree in the program.

IX. Vacation and Work Policies

a. Vacation Policies

Graduate students do not get extended breaks between terms as undergraduates do; graduate student appointments cover the entire calendar year. Graduate students may take holidays, vacations and sick leave within the rules set by the University, Gradate School, program, appointing unit, and advisor. In general, students should not plan to take vacations during classes in the Autumn and Spring semesters, or during May, to facilitate required attendance in course work, seminars, and the annual IGP symposium.

First-year students must be in Columbus on campus for Fall Semester from the first day of orientation until the last day of final exams, and for Spring Semester from the first day of Spring classes to the end of May. For students who begin in the Autumn, OSBP is the appointing unit for the summer term following the spring term. Vacations during this summer term are at the advisor's discretion. In general, students should not take more than three weeks (15 working days) of vacation in the first year.

After the first year, vacation policies are at the discretion of the advisor and the appointing unit, so long as they do not conflict with Graduate School, program or curricular requirements. The Graduate School gives a guideline of ten (10) business days (two weeks) per year for personal leave, and up to three periods of 1-3 days per term for illness (two periods in summer). As a point of reference, full time Ohio State professional staff members generally get 11 paid holidays and accrue 15 sick days and 12 vacation days per year.

Please inform the OSBP office (osbp@osu.edu) of any leave lasting longer than two weeks. International students should inform the OSBP office of any trips outside of the U.S. Please provide contact information in case you need to be reached during such extended trips.

b. Work Policies

OSBP students may not hold outside employment without the permission of the GSC (i.e., by petition). Outside employment is generally not allowed, and will only be granted with the support of the advisor and subject to the policies of the appointing unit.

c. Family and Medical Leave

Family and medical leave policies are governed by the Graduate School and the Human Resources policies of the appointing unit. It is important to understand that GA-appointed students are not eligible for the protections for workers under the Family and Medical Leave Act (FMLA), because GA appointments are 50% appointments and do not exceed 1,250 hours per year. Moreover, Ohio State faculty and staff leave policies do not apply to students.

GAs with at least a 50% FTE appointment who are in good academic standing are eligible for up to 6 weeks of paid leave for birth mothers and up to 3 weeks of paid leave for fathers and adoptive parents, up to the last day of the appointment. Similarly, qualified GAs are eligible for up to six weeks of paid leave (up to the end of the appointment) for serious health conditions or to care for a family member with a serious health condition. "Paid leave" here means maintenance of 100% of stipend, fee authorization and other benefits associated with the appointment. Short-term absences (usually 1-3 days but possibly up to 2 weeks as warranted) are generally available to GAs, fellows and trainees for personal illness or in the event of the death of an immediate family member with the permission of the advisor and other relevant immediate supervisors (such as a TA coordinator). See Appendix F of the *Graduate School Handbook* for more information.

Although GAs are not governed by the same benefits rules as faculty and staff, OSBP encourages advisors and appointing units to work to achieve reasonable and equitable solutions for student family and medical issues. FMLA entitles eligible 60+% FTE employees who have worked longer than a year to take 12 weeks of unpaid, job-protected leave per year for birth of a child, adoption, care of a spouse, child or parent who is seriously ill, or serious illness of the employee; Ohio State extends this leave to all 50+% FTE faculty and staff. Full-time Ohio State faculty and staff are eligible for six weeks of paid parental leave.

d. Effects of Fellowships and Other Funding

Fellows and trainees funded by external agencies are also subject to vacation, work and leave policies established by the funding agency.

X. Safety

It is the research advisor's responsibility, including laboratory rotation advisors, to ensure that OSBP students have fulfilled any necessary safety training requirements before starting work in the laboratory. However, students should proactively verify at the beginning of each rotation and upon joining a lab that the necessary requirements have been met.

At a minimum, students should take the EHS Online training modules deemed necessary by the advisor in accord with relevant University, college and departmental policy. OSU requires that all lab personnel take the OSU Building Emergency Action Plan and Laboratory Standard Training modules. OSBP additionally recommends the Personal Protective Equipment and Chemical Safety modules. Biological Safety Training for BSL1 or BSL2, Bloodborne Pathogens Initial Training, and Infectious Waste Disposal should also be considered. The advisor must ensure that students receive all required training, including additional chemical safety, biosafety, laser and radiation safety, electrical safety, or in connection with animal or human subjects work or other specialized research.

The Department of Chemistry and Biochemistry offers a 1 credit hour laboratory safety course (CHEM 6781) as an evening course during Autumn semester Session 2. Students interested in enrolling in this course should consult the OSBP Director.

XI. Ethics and Misconduct

a. Academic and Research Misconduct

Students must be familiar with standards for ethical scientific and academic conduct set by the University and accepted broadly both nationally and internationally. The required course **OSBP 7600** forms the core training for responsible conduct of research and conducting research with rigor and reproducibility. Additional training in these areas may be required by the advisor, training program, or other support mechanism (such as a fellowship sponsor).

All faculty, staff and students who conduct research at Ohio State must complete Responsible Conduct of Research (RCR) training by the CITI RCR online course. Students are provided with a link to the required training module during OSBP orientation (http://orc.osu.edu/regulations-policies/rcr/) and instructed to complete the online course for biomedical research prior to beginning their first laboratory rotation.

The Code of Student Conduct is available at the Office of Student Life website and must be reviewed by all students (especially rule 3335-23-04 Prohibited Conduct). Academic misconduct allegations are adjudicated by the **Committee on Academic Misconduct** (COAM) (oaa.osu.edu/academic-integrity-and-misconduct). It is the responsibility of the student to be familiar with the Code of Student Conduct. Lack

of awareness of the Code is not considered an excuse or defense if an alleged misconduct is referred to COAM. Materials for all OSBP program requirements are expected to be the student's own work and, in the student's own words, with proper attribution of borrowed ideas. Plagiarism is the representation of another's words or ideas as one's own, and it is prohibited by the Code. Plagiarism includes unacknowledged word-for-word use or close paraphrasing of another person's work, or unacknowledged use of another person's ideas.

The use of **generative artificial intelligence (AI)** is prohibited unless otherwise allowed for a specific purpose by the course instructor for coursework, or advisor and student advisory committee for candidacy proposal and dissertation. For coursework, students must follow the AI policy indicated in the course syllabus, unless otherwise allowed by the instructor. For the written candidacy examination and final dissertation, the use of AI must be approved by the advisor, student advisory committee, and OSBP Graduate Studies Committee. Additionally, how AI was used must be acknowledged in the submitted document. Please see the Ohio State Office of Academic Affairs statement on use of generative AI for further guidance (https://oaa.osu.edu/artificial-intelligence-and-academic-integrity).

Research misconduct means fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. The University Policy and Procedures Concerning Research Misconduct is available at the Office for Research website and should be reviewed by all students. Research misconduct allegations are adjudicated by the Office of Research Compliance at the direction of the Vice President for Research.

Sanctions for academic misconduct in graduate classes or program requirements (such as candidacy or the dissertation), or for research misconduct, are likely to entail dismissal from the program and University, and even revocation of degree, but in some cases may involve failing grades, probation, or other measures.

The Graduate Student Code of Research and Scholarly Conduct (Appendix C of the *Graduate School Handbook*) states:

> Graduate students and Graduate Faculty aspire to professional behavior that is consistent with the highest ethical and moral standards. The Graduate School at The Ohio State University expects that graduate students will demonstrate responsibility and integrity in pursuing their creative and scholarly interests. The academic enterprise is dependent upon such behavior. Graduate students are responsible for learning about appropriate standards for ethical research and scholarly conduct and for following all university policies related to ethical research and scholarly conduct.
>
> When graduate students join the Ohio State community, they become members of disciplinary, scholarly, and professional communities that extend beyond the university. Graduate students are expected to learn, respect, and abide by the professional codes of ethics and responsibilities that are commonly accepted in their field of study or area of research. These codes include but are not limited to the following: a responsibility to contribute an original body of work to one's chosen discipline and the recognition that one's work is based on the work of others which must be respected and properly acknowledged. Graduate students also have the responsibility to treat university faculty, staff, and other students respectfully and professionally.

> Graduate Faculty, advisors, and graduate programs should actively encourage their students to participate as members of their chosen disciplinary, scholarly, and professional communities. Graduate students should be encouraged to seek and share knowledge wherever and whenever possible. Academic advisors and other faculty members should educate graduate students through example and discussion, addressing such issues as academic honesty, research, publication, recruitment, and hiring practices, and applicable fellowship and graduate associateship responsibilities. Disciplinary codes of ethics and norms should be discussed among graduate students and faculty. Such communication is a means of setting high standards of behavior in graduate study and beyond.

b. Responsible Research Practices

In addition to training provided in the required OSBP 7600 first year course, advisors are responsible for assuring that students receive proper training for the ethical conduct of research involving animals and human subjects, and in the conduct of research involving recombinant DNA, or hazardous or regulated biological materials. Information about the Institutional Animal Care and Use Committee (IACUC), Institutional Review Board (IRB), and Institutional Biosafety Committee (IBC) and their associated policies, procedures and training can be found on the web site of the Enterprise for Research, Innovation and Knowledge (https://research.osu.edu/).

c. Sexual Harassment and Title IX

The University policy on sexual misconduct states:

> Members of the university community, vendors, and visitors have the right to be free from all forms of sexual misconduct. Sexual misconduct is conduct of a sexual nature that is nonconsensual, or has the effect of threatening, intimidating, or coercing a person. Sexual misconduct includes sexual harassment, sexual violence, and relationship violence. Sexual misconduct impedes the realization of the university's mission of distinction in education, scholarship, and service. All members of the university community are expected to conduct themselves in a manner that does not infringe upon the rights of others and maintain an environment free from sexual misconduct.

All university employees have an obligation to report sexual assaults. Many OSU employees in human resources and supervisory positions (including faculty members) have an obligation to report sexual harassment. The university strongly discourages romantic and/or sexual relationships between faculty and graduate students in the same department. Relationships between supervisors and employees or between students and others in a supervisory, teaching, evaluation, or advising position are prohibited. The full policy on sexual misconduct can be found on the Human Resources (hr.osu.edu) or Civil Rights Compliance Office (https://civilrights.osu.edu/title-ix) websites. All OSBP students must complete all required sexual harassment and Title IX training mandated by the University to maintain good standing in the program. Fellows are not classified as employees and are not required to complete the required sexual harassment and Title IX training.

XII. Petitions and Grievances

a. Petitions

Petitions to deviate from any OSBP policies stated in this handbook should be sent to the GSC Chair and are decided by the GSC.

b. Grievances

Grievances related to program activities and requirements should be sent to the GSC Chair, or, if that represents a conflict of interest, another member of the GSC (typically the Associate Director). The GSC Chair (or other GSC member) will attempt to resolve the grievance, with the help of other GSCs members as necessary. The GSC Chair or other GSC member contacted will keep the initial discussion of the grievance confidential; however, the GSC Chair or other GSC member will break this confidence if she or he believes that the student or someone else is in imminent danger, or if University policy or applicable law compels disclosure. Complaints of discrimination or harassment (sexual or otherwise) or allegations of academic or research misconduct must be directed to the appropriate offices (Office of Student Conduct, Office of Human Resources, Committee on Academic Misconduct, or Office of Research Compliance) as specified by university policies. Grievances related to graduate examinations and graduate associate appointments are reviewed by the Graduate School.

XIII. Mental Health and Wellbeing

The Counseling and Consultation Service (CCS) of the Office of Student Life provides services to undergraduate, graduate and professional students (and their spouses/partners if covered by CSHI) for issues such as stress management, anxiety, depression, relationship problems, transitions in life, identity exploration, substance use, eating concerns, feeling overwhelmed, and academic adjustment. Students should call 614-292-5766 to schedule an appointment.

If you or someone you know is in imminent danger to themselves or others, go to the nearest ER or call 911. If you are feeling suicidal, please contact someone who can help you, such as the Suicide and Crisis Lifeine (988), the Columbus, Ohio, Suicide Hotline (614-221-5445) or the National 24/7 Suicide Hotline (800-784-2344). Students who are experiencing a psychological crisis should call CCS at 614-292-5766 for consultation.

Faculty who are concerned about non-emergency mental health issues with students call 614-292-5766 to speak with a clinician. ***For mental health emergencies, call 911.***

XIV. Program Governance

a. Program History

The Ohio State Biochemistry Program was first formed in 1983 to combine the graduate faculty resources

of the Department of Biochemistry (College of Biological Sciences), the Department of Physiological Chemistry (College of Medicine), and the Department of Chemistry (College of Mathematical & Physical Sciences), at the direction of the Provost. In 1988, the program was re-organized according to a set of principles set forth by the Dean of the Graduate School, and a Charter based on those principles was ratified in 1990. The reorganization opened the program to biochemists from across the university. In 1996, an Ohio Board of Regents review of all biomedical programs in the state affirmed OSBP as the sole mechanism for integration of biochemical graduate training at OSU, effectively merging the departmental graduate programs from the Department of Biochemistry and Department of Medical Biochemistry into OSBP. In 1998, an administrative reorganization of the Interdisciplinary Graduate Programs shifted the oversight of the program from the Graduate School to the Council of Life Sciences Deans, and the program operated this way for over a decade.

In 2009, the program faculty amended the charter to shift greater responsibility to the Department of Biochemistry, the Department of Molecular & Cellular Biochemistry, and the Department of Chemistry in appointing the director and managing the program. In 2010, the Colleges of Biological Sciences and Mathematical & Physical Sciences were integrated into the re-unified College of Arts & Sciences, and in 2012, the Department of Biochemistry and the Department of Chemistry merged into a single department. At the same time, in 2008, the Graduate School's doctoral program assessment resulted in the formation of a Task Force on the Life Sciences, and their 2009 report recommended the formation of the Life Sciences Network (LSN) as an umbrella administrative structure for the interdisciplinary graduate programs through the Graduate School. The LSN was implemented in the fall of 2011. The life sciences IGPs were returned to the Graduate School's direct supervision in the summer of 2015. Also, the Department of Molecular & Cellular Biochemistry merged with the Department of Pharmacology to form the Department of Biological Chemistry & Pharmacology in 2015.

b. Current Practice

OSBP is currently administered through the Graduate School. It still mainly functions according to the 1990 Charter, but with key changes from the 2009 amendment to the Charter (especially Part B) shifting key program management responsibilities to the Department of Chemistry & Biochemistry and the Department of Biological Chemistry & Pharmacology. Briefly, current practice is:

- The Director of the program and all committee members are drawn from the Graduate Faculty of the program.
- The Director is selected by the Chairs of the Department of Chemistry & Biochemistry (C&B) and the Department of Biological Chemistry & Pharmacology (BCP) and appointed by the Graduate School. The Director serves as the Graduate Studies Committee Chair. The Director is appointed for a 3-year renewable term commencing on September 1. A common practice has been to alternate between C&B and BCP faculty members.
- The Graduate Studies Committee is made up of the Director/Chair, the Associate Director, the chairs of the three standing subcommittees, and up to three *ad hoc* members appointed by the Director. At least one of the graduate studies committee members must be from a department other than C&B and BCP. The Graduate Studies Committee has final authority on all graduate studies matters and enforces program rules and adjudicates petitions to deviate from those rules. GSC

matters are decided by simple majority of a quorum of 75% of the total appointed members.

- The standing subcommittees of the GSC are Admissions, Curriculum, and Recruiting. The program also appoints members to the MLS seminar committee. The chair and three other members of each standing committee are appointed by the Director in consultation with department chairs and should seek to include representation from C&B and BCP, as well as OSBP faculty from other affiliated departments. Committee terms commence on September 1.
- The Admissions committee is responsible for the review of all admissions files, interviewing applicants during recruitment visits, and recommending fellowship nominees. The Director has final discretion on all admissions decisions.
- The Curriculum committee is responsible for advising the GSC on all curricular issues, including approval of core and elective classes, transfer credit, and individual petitions on curricular issues. It also oversees program assessment.
- The Recruiting committee is responsible for planning and organizing programs to improve the size and quality of the applicant pool, and in particular helps organize the interviews and recruiting visits and the creation of materials such as posters and slide presentations for recruiting.
- The Director serves as one of the instructors of the OSBP 7600 First Year Mentoring Class.
- OSBP is administered by a Program Manager who reports to the Director and is appointed at the Graduate School. The Program Manager also works with the other life sciences IGP Program Managers and Graduate School staff on cooperative activities.
- Faculty members eligible for the Graduate Faculty of the University may apply to join the Graduate Faculty of the program (P status) by presenting evidence of training and research in biochemistry. Beginning in 2009, faculty must hold at least a courtesy appointment in C&B or BCP to apply to join the OSBP faculty or must be a member of a department that has committed to support of OSBP as a signatory to the OSBP P-status Agreement. Faculty are admitted by majority vote of the GSC.
- All OSBP faculty are evaluated at least every three years by the GSC for continued qualifications, participation and mentoring record. Faculty can be removed by majority vote of the GSC.

c. Director History

- Thomas Magliery, Dept. of Chemistry & Biochemistry, 2025-present
- Charles Bell, Dept. of Biological Chemistry & Pharmacology, 2020-2025
- Jane Jackman, Dept. of Chemistry & Biochemistry, 2017-2020
- Thomas Magliery, Dept. of Chemistry & Biochemistry, 2013-2017
- Michael Ibba, Dept. of Microbiology, 2012-2013
- Jill Rafael-Fortney, Dept. of Molecular & Cellular Biochemistry, 2009-2012
- Ross Dalbey, Dept. of Chemistry, 2004-2009
- Donald Dean, Dept. of Biochemistry, 2001-2004
- Russ Hille, Dept. of Molecular & Cellular Biochemistry, 1998-2001
- Robert Brueggemeier, College of Pharmacy, 1994-1998
- Ron Trewyn, Dept. of Medical Biochemistry, 1989-1991, 1993-1994

XV. Faculty Membership

a. Joining the OSBP Faculty

Since the OSBP charter amendment was approved in 2009, only faculty of the Department of Chemistry & Biochemistry or Department of Biological Chemistry & Pharmacology may newly apply to join the program faculty. Courtesy or regular salaried appointments in these Departments may also apply. In addition, faculty from certain other Departments on campus may apply for OSBP membership if an MOU is in place. Interested faculty should contact the GSC Chair to determine whether their department is a signatory to the OSBP P-status Faculty MOU. As OSBP only accepts doctoral students, only tenure-track and research-track (not clinical) faculty may apply (as required by the Graduate School for P status, see the *Graduate School Handbook* Section 12.1). To apply for membership, eligible faculty must provide a cover letter explaining interest in the program and highlighting biochemical expertise and a full *curriculum vitae* to the GSC Chair. Faculty members are admitted by simple majority vote of the GSC.

b. Review and Responsibilities of Faculty

All faculty members are reviewed on a 3-year cycle, or more frequently if needed. Review items include program participation, mentoring record, and maintenance of membership admission standards. Lack of response to request of review materials, after reasonable reminders are issued, is sufficient reason for removal from the program faculty. Faculty not meeting these requirements may be removed by majority vote of the GSC.

All OSBP faculty are expected to attend the LS-IGP Symposium each year. Faculty with current advisees will automatically be signed up for abstract, poster, or oral presentation judging, and all faculty are encouraged to volunteer for judging duties.

c. Emeritus and Other Retired Faculty

Emeritus faculty may retain their status on the Graduate Faculty by written request and approval of the GSC, the department chair and dean of the college, in specified, renewable terms of no longer than five years. In general, retirees or faculty who leave the university may otherwise remain advisor to or on the dissertation committees of doctoral students who have advanced to candidacy but may not serve as the advisor to a new student. See the *Graduate School Handbook* Section 12.5 for more details.

d. Current Faculty Membership

The most up-to-date listing of OSBP Graduate Faculty is available on the web site (Faculty tab). The active faculty membership as of August 19, 2025 is:

Gunjan Agarwal, Dept. of Mechanical & Aerospace Engineering
Abraham Badu-Tawiah, Dept. of Chemistry & Biochemistry
Kedryn Baskin, Dept. of Physiology & Cell Biology
Charles Bell, Dept. of Biological Chemistry & Pharmacology

Stephen Bell, Dept. of Microbiology
Vladislav Belyy, Dept. of Chemistry & Biochemistry
David Bisaro, Dept. of Molecular Genetics
Luis Bonet-Ponce, Dept of Neurology
Dennis Bong, Dept. of Chemistry & Biochemistry
Rafael Brüschweiler, Dept. of Chemistry & Biochemistry
Christin Burd, Dept. of Molecular Genetics
Craig Burd, Dept. of Molecular Genetics
Arthur Burghes, Dept. of Biological Chemistry & Pharmacology
Jeffrey Chalmers, Dept. of Chemical & Biomolecular Engineering
Long-Sheng Chang, Dept. of Pediatrics (Nationwide Children's)
Krishna Chinthalapudi, Dept. of Physiology and Cell Biology
Nam Chu, Dept. of Cancer Biology & Genetics
Christine Cucinotta, Dept. of Molecular Genetics
Ross Dalbey, Dept. of Chemistry & Biochemistry (emeritus)
Junnan Fang, Dept. of Physiology & Cell Biology
Mingxu Fang, Dept. of Microbiology
Mark Foster, Dept. of Chemistry & Biochemistry
Kurt Fredrick, Dept. of Microbiology
Michael Freitas, Dept. of Cancer Biology & Genetics
Jidong Fu, Dept of Physiology & Cell Biology
Amy Gleichman, Dept. of Neurological Surgery
J. Aaron Goldman, Dept. of Biological Chemistry & Pharmacology
Venkat Gopalan, Dept. of Chemistry & Biochemistry
Chen Gu, Dept. of Biological Chemistry & Pharmacology
Sarah Heissler, Dept. of Physiology & Cell Biology
Shuai Huang, Dept of Molecular Genetics
Amanda Hummon, Dept. of Chemistry & Biochemistry
Jane Jackman, Dept. of Chemistry & Biochemistry
Christopher Jaroniec, Dept. of Chemistry & Biochemistry
Kou-San Ju, Dept. of Microbiology
Agnes Karasik, Dept. of Chemistry & Biochemistry
Michael Kearse, Dept. of Biological Chemistry & Pharmacology
Stephen Kolb, Dept. of Neurology
Joseph Krzycki, Dept. of Microbiology
Dmitri Kudryashov, Dept. of Chemistry & Biochemistry
Comert Kural, Dept. of Physics
Jeffrey Kuret, Dept. of Biological Chemistry & Pharmacology
George Kyriazis, Dept. of Biological Chemistry & Pharmacology
Christoph Lepper, Dept. of Physiology and Cell Biology
E. Douglas Lewandowski, Dept. of Internal Medicine
X. Margaret Liu, Dept. of Chemical and Biomolecular Engineering
Thomas Magliery, Dept. of Chemistry & Biochemistry
Premashis Manna, Dept. of Chemistry & Biochemistry

Kamal Mehta, Dept. of Biological Chemistry & Pharmacology
Maria Mihaylova, Dept. of Biological Chemistry & Pharmacology
Karin Musier-Forsyth, Dept. of Chemistry & Biochemistry
Kotaro Nakanishi, Dept. of Chemistry & Biochemistry
Kiran Kumar Nakka, Dept. of Physiology and Cell Biology
Yuta Nihongaki, Dept. of Physiology and Cell Biology
Justin North, Dept. of Microbiology
Shujun Ou, Dept of Molecular Genetics
Andre Palmer, Dept. of Chemical & Biomolecular Engineering
Hay-Oak Park, Dept. of Molecular Genetics
Mark Parthun, Dept. of Biological Chemistry & Pharmacology
Dehua Pei, Dept. of Chemistry & Biochemistry
Michael Poirier, Dept. of Physics
Jill Rafael-Fortney, Dept. of Physiology & Cell Biology
Krithika Rajaram, Dept of Microbiology
Matthew Ringel, Dept. of Internal Medicine
Natividad “Natacha” Ruiz, Dept. of Microbiology
Zac Schultz, Dept. of Chemistry & Biochemistry
Guramrit Singh, Dept. of Molecular Genetics
Harpreet Singh, Dept Physiology & Cell Biology
Benjamin Stanton, Dept. of Pediatrics
Daniel Stover, Dept. of Internal Medicine (Medical Oncology)
Wen Tang, Dept. of Biological Chemistry & Pharmacology
Emily Theisen, Dept. of Pediatrics
Li-Chun Tu, Dept. of Biological Chemistry & Pharmacology
Ambro van Hoof, Dept. of Molecular Genetics
Darryl Wesener, Dept. of Microbiology
Damien Wilburn, Dept. of Chemistry & Biochemistry
David Wood, Dept. of Chemical & Biomolecular Engineering
Jian-Qiu Wu, Dept. of Molecular Genetics
Lufang Zhou, Dept of Biomedical Engineering; Dept of Surgery

Appendix A: Typical Schedule and Timeline of Events

a. Typical Schedule

Full course names and numbers are given in Appendix B. Approved elective options are given in Appendix B. Electives should be finished by Spring of the second year, except by permission of the GSC Chair, and must be completed by graduation. Enrollment in at least one (minimum 1.5 cr hr) elective course in Quantitative Biology (see Appendix B) is required. For half-term (7-week) courses, the relevant session is indicated by (S1) or (S2), corresponding to Session 1 and Session 2, respectively. Credit hours are indicated in brackets. Graduate research is 8999 in most departments.

Yr	Autumn	Spring	Summer
1	BIOCHEM 6701 Molecular Biology [3]* BIOCHEM 6761 Macromolecules [3]** OSBP 7193 Rotation 1 [3] ***(S1)*** OSBP 7193 Rotation 2 [3] ***(S2)*** OSBP 7193 Director [3] OSBP 7600 Mentoring [1] OSBP 7700 Student Seminar [1] OSBP 7890 Colloquium [1]	Elective(s) [suggested minimum 3] OSBP 7193 Rotation 1 [3] ***(S1)*** OSBP 7193 Rotation/Advisor [3] ***(S2)*** OSBP 7193 Director [4] OSBP 7700 Student Seminar [1] OSBP 7890 Colloquium [1]	8999 Research [4]
2	Elective(s) [suggested minimum 3] OSBP 7700 Student Seminar [1] OSBP 7890 Colloquium [1] 8999 Research [8+]***	Elective(s) [if needed to reach 9 total] CHEM 6790 Scientific Writing [2] OSBP 7890 Colloquium [1] 8999 Research [8+]*	8999 Research [4]
3	8999 Research [3]****	8999 Research [3]	8999 Research [3]
4	8999 Research [3]	8999 Research [3]	8999 Research [3]
5	8999 Research [3]	8999 Research [3]	8999 Research [3]

* **Molecular Biology**
Biochem 6701 or Biophrm 6701 (these are the same class; sign up for either cross-listed class)
Advanced Biochemistry: Molecular Biology Autumn – 3 credit hours
****Proteins and Nucleic Acids**
Biochem 6761 or Biophrm 6761 (these are the same class; sign up for either cross-listed class)
Advanced Biochemistry: Macromolecular Structure and Function – Autumn [3 credit hours]
** *The number of 8999 or equivalent course research credits can be adjusted to fit the minimum enrollment needs of the student according to his/her appointment. The maximum 18 credit hour enrollment is recommended during years 1 and 2 so that the student will earn the 80 credit hours required for graduation before the end of the 5th year.
**** Students are permitted to enroll in 1 cr hr of any seminar course (OSBP 7890, or equivalent) during any semester in years 3 and beyond, and should decrease enrollment in 8999 Research credit hours to 2 in this case.

b. Timeline of Events

Year 1

- Fulfill necessary safety training
- Complete core courses and attend first year orientation (OSBP 7600)
- Attend Student Seminar (OSBP 7700) in Autumn and Spring
- Attend MLS Seminar (OSBP 7890 Colloquium)
- Complete two 7-week laboratory rotations in Autumn semester
- Complete a third 7-week laboratory rotation in Spring semester
- Choose a faculty research advisor and begin dissertation research in Spring semester
- Submit an Activity Report by May 15
- Attend IGP Annual Symposium during third week of May
- Select a Student Advisory Committee by June 30

Year 2

- Complete elective courses
- Attend Student Seminar (OSBP 7700) in Autumn and Spring
- Attend MLS Seminar (OSBP 7890 Colloquium)
- Continue dissertation research
- Submit proposal aims to Candidacy Committee in Autumn
- Submit proposal to Candidacy Committee in Spring and file Application for Candidacy
- Submit an Activity Report by May 15
- Attend IGP Annual Symposium during third week of May
- Take Oral Candidacy Exam and advance to candidacy no later than end of Summer

Year 3

- Give a research presentation (in either 3rd or 4th year)
- Continue dissertation research
- Submit an Activity Report by May 15
- Attend IGP Annual Symposium during third week of May
- Meet with Advisory Committee in Summer or Autumn and submit Post-Candidacy Progress Report by December 31

Year 4 and additional years if necessary

- Give a research presentation (if not completed during Year 3)
- Continue dissertation research
- Submit an Activity Report by May 15
- Attend IGP Annual Symposium during third week of May and give a poster or oral presentation
- Meet with Advisory Committee in Summer or Autumn and submit Post-Candidacy Progress Report by December 31

Dissertation Year (typically Year 5 or Year 6)

- Continue and conclude dissertation research

- Write dissertation
- Submit an Activity Report by May 15
- Attend IGP Annual Symposium during third week of May and give a poster or oral presentation
- If necessary, meet with Advisory Committee in Summer or Autumn and submit Post-Candidacy Progress Report by December 31
- Publish one first-author research paper if not completed in previous years
- Complete the Application to Graduate on gradforms.osu.edu and the OSBP Ready-to-Graduate Checklist each semester you apply to graduate
- Submit dissertation to committee and file Application for Final Examination
- Publicly present dissertation and take final oral exam
- Obtain final approval for dissertation and submit to OhioLINK

Appendix B: Approved Biochemistry Electives

Below is a list of classes approved to fulfill the biochemistry elective requirement. Students wishing to count electives that are not on the approved list towards their required biochemistry elective credits must submit the proposed elective course description (syllabus) with an explanation from the student and advisor as to why the course is necessary towards coursework completion of the doctoral degree to the GSC Chair. Elective courses must generally be at the 6000 level or above and graded A-E. It is advised that the student also consults the Advisory Committee regarding proposed elective courses.

Courses that fulfill the Quantitative Biology requirement are indicated with asterisks (***)

Animal Science (ANIMSCI)
Macronutrient Metabolism
Course Number: 7761
4 credits

Biochemistry (BIOCHEM)

Plant Biochemistry I
Course Number: 5735
3 credits

Advanced Biochemistry: Enzymes
Course Number 6762
1.5 credits

Advanced Biochemistry: Membranes and Lipids
Course Number 6763
1.5 credits

***Advanced Biochemistry: Physical Biochemistry
Course Number: 6765.02
1.5 or 3 credits

Advanced Biochemistry: Protein Engineering
Course Number: 7770/.01
1.5 or 3 credits

Special Topics in Biophysical Chemistry
Course Number: 7775
1.5 or 3 credits

Advanced Biochemistry: Nucleic Acids
Course Number: 7766/.01
1.5 credits

Advanced Biochemistry: Biomolecular NMR
Course Number: 8900/.01
1.5 or 3 credits

Advanced Topics in Biochemistry
Course Number: 8990
1 or 1.5 credits

Biological Chemistry & Pharmacology (BIOPHRM)

Molecular Basis of Oxidative Stress
Course Number: 5050
2 credits

Epigenetics
Course Number: 5555
3 credits

Advanced Biochemistry: Integration of Metabolism 1
Course Number: 7764
1 credit

Advanced Biochemistry: Integration of Metabolism 2
Course Number: 7765
1 credit

Gene Expression: Post-Transcriptional Control
Course Number: 7807
3 credits

Cell Death and Cancer Immune Environment
Course Number: 7823
2 credits

Signaling Pathways and Human Disease
Course Number: 7828
2 credits

Eukaryotic Genome: Structure and Expression
Course Number: 7831
2 credits

Biomedical Informatics (BMI)

***Introduction to Bioinformatics
Course Number: 5730
3 credits

***Methods in Biomedical Informatics
Course Number: 5750
3 credits

Proteomics Data Analysis
Course Number: 7530
3 credits
Metabolomics, Principles and Practice
Course Number: 7600
3 credits

Biomedical Sciences Graduate Program (BSGP)

***Biomedical Sciences Graduate Program (BSGP)
Introductions to Data Science for Biological Sciences
Course Number: 7030
2 credits

Cellular and Molecular Immunology
(Cross-listed with MICRBIO 7010)
Course Number: 7010
3 credits

Human Cancer Genetics and Epigenetics
Course Number: 7340
2 credits

Molecular Biology and Pathogenesis of Viruses
(Cross-listed with MOLGEN 7741)
Course Number: 7741
5 credits

Mass Spectrometry and Proteomics
Course Number: 8040
3 Credits

Biochemical Mechanisms of Carcinogenesis
Course Number: 8270
2 credits

Current Topics in Human Cancer and Human Genetics
Course Number: 8310
2 credits

Chemistry (CHEM)

***Analytical Data Treatment – Statistical and Numerical Analysis
Course Number: 6120
1.5 credits

Fundamentals of Coordination Chemistry
Course Number: 6310
1.5 credits

Basic Organic Reaction Mechanism
Course Number: 6410
1.5 credits

Stereochemistry and Conformational Analysis
Course Number: 6420
1.5 credits

Introduction to Organic Synthesis
Course Number: 6430
1.5 credits

Introduction to Physical Organic Chemistry
Course Number: 6440
1.5 credits

Thermodynamics
Course Number: 6520
1.5 credits

Kinetics
Course Number: 6530
1.5 credits

Analytical Chemistry
Course Number: 7140
3 credits
Mass Spectrometry

Course Number: 7150
3 credits

NMR Spectrometry
Course Number: 7160
3 credits

Inorganic Biochemistry
Course Number: 7360
1.5 credits

Kinetics, Catalysis, and Transition State Theory
Course Number: 7440
1.5 credits

Advanced Organic Reaction Mechanisms
Course Number: 7460
1.5 credits

***Computational Chemistry
Course Number: 7470
1.5 credits

Chemical Dynamics
Course Number: 7540
3 credits

Advanced Topics in Analytical Chemistry
Course Number: 8199
1.5 credits

Proteomics
Course Number: 8199
3 credits

Biomolecular NMR
Course Number: 8900.01
1.5 credits

Chemical & Biomolecular Engineering (CBE)

Molecular Informatics
Course Number: 5734
3 credits

***Design and Analysis of Experiments
Course Number: 5779
3 credits

Food Science & Technology (FDSCTE)

Food and Nutritional Toxicology
Course Number: 7620
2 credits

Food Carbohydrates and Proteins
Course Number: 7640
3 credits

Food Flavors and Lipids
Course Number: 7650
3 credits

Materials Science & Engineering (MATSCEN)

Practical Transmission Electron Microscopy Lab
Course Number: 6741
2 credits

Mechanical Engineering (MECHENG)

Microscopy in Biomechanics
Course Number: 6194
3 credits

Microbiology (MICRBIO)

***Bioinformatics and Genomics
Course Number: 5161
3credits

Microbial Physiology and Biochemistry
Course Number: 6020
3 credits

Advanced Microbial Genetics
Course Number: 6080
3 credits
Cellular and Molecular Immunology
Course Number: 7010
(Cross-listed with CBG 7010)
3 credits

Advanced Topics in Molecular Microbiology
Course Number: 7060
2 credits

Molecular Pathogenesis

(Cross-listed with BSGP 7240)
Course Number: 7724
3 credits

The RNA World
Course Number: 8050
2 credits

***Microbiome Informatics
Course Number:8161
3 credits

Microbial Infection and Immunity (MEDMCIM)

Cellular and Molecular Immunology
Course Number: 7010
3 credits

Molecular Genetics (MOLGEN)

Cancer Genetics
Course Number: 5300
3 credits

***Analysis and Interpretation of Biological Data
Course Number: 5650
3 credits

Systems of Genetic Analysis
Course Number: 5700
3 credits

Advances in Cell Biology
Course Number: 5705
2 credits

Developmental Genetics
Course Number: 5715
2 credits

Human Genetics
Course Number: 5733
2 credits

Plant Biochemistry
Course Number: 5735
3 credits

Current Topics in Signal Transduction
Course Number: 5796
1 credit

Reproductive Biology of Flowering Plants
Course Number: 6741
2 credits

Special Topics in Molecular Genetics
Course Number: 6795
1 credit

Molecular Biology and Pathogenesis of Viruses
(Cross-Listed with CBG 7741)
Course Number: 7741
5 credits

Gene Expression: Transcriptional Control
Course Number: 7806
2 credits

Neurological Surgery (NEURSGY)

Biology of the Tumor Microenvironment
Course Number: 8250
2 credits

Neuroscience (NEUROSC)

Neurobiology of Disease
Course Number: 7050
3 credits

Pharmaceutical Sciences (PHR)

High Throughput screening for Pharmaceutical and Biomedical Sciences
Course Number: 7120
1 credit

Applied Pharmacokinetics and Pharmacodynamics
Course Number: 7584
3 credits

Physiology and Cell Biology (PHYSIO)

Advanced Human Physiology I
Course Number: 6101
3 credits

Advanced Cardiac Metabolics
Course Number: 8102
3 credits

Plant Pathology (PLNTPTH)
Course Number: 8300
Credits are variable

Physics (PHYSICS)

***Topics in Biophysics
Course Number: 6809
4 credits

***Topics in Computational Physics
Course Number: 6810
4 credits

Special Topics in Biophysics
Course Number: 8809.01
3 credits

Statistics (STAT)

*** Data Analysis I Data Analysis I
Course Number: 5301
4 credits

***Intermediate Data Analysis II
Course Number: 5302
3 credits

Appendix C: Proposal Writing Information

This information about writing NIH grant proposals should be useful in preparing the Candidacy proposal. The exact format of your proposal, within the rules set in Section VII.d, is at the discretion of the Advisor and the Candidacy Exam Committee.

Selected From the *SF424 (R&R) Application Guide for NIH and Other PHS Entities*:
https://grants.nih.gov/grants-process/write-application/how-to-apply-application-guide

Specific Aims…
State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will have on the research field(s) involved.

List succinctly the specific objectives of the research proposed (e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology).

Research Strategy…
Organize the Research Strategy in the specified order using the instructions provided below. Start each section with the appropriate section heading—Significance, Innovation, Approach. Cite published experimental details in the Research Strategy section and provide the full reference in the Bibliography and References Cited section…

(a) Significance
- Explain the importance of the problem or critical barrier to progress that the proposed project addresses.
- Describe the strengths and weaknesses in the rigor of the prior research (both published and unpublished) that serves as the key support for the proposed project.
- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

(b) Innovation
- Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
- Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions.
- Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions.

(c) Approach

- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Describe plans to address weaknesses in the rigor of the prior research that serves as the key support for the proposed project. Describe the experimental design and methods proposed and how they will achieve robust and unbiased results. Include how the data will be collected, analyzed, and interpreted... Resources and tools for rigorous experimental design can be found at the Enhancing Reproducibility through Rigor and Transparency website…
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
- If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.
- Explain how relevant biological variables, such as sex, are factored into research designs and analyses for studies in vertebrate animals and humans. For example, strong justification from the scientific literature, preliminary data, or other relevant considerations, must be provided for applications proposing to study only one sex. Refer to the NIH Guide Notice on Sex as a Biological Variable in NIH-funded Research for additional information.
- Point out any procedures, situations, or materials that may be hazardous to personnel and the precautions to be exercised…

You may address the Significance, Innovation, and Approach either for each Specific Aim individually or for all of the Specific Aims collectively…

For new applications, include information on preliminary studies. Discuss the PD/PI's preliminary studies, data, and or experience pertinent to this application…preliminary data can be an essential part of a research grant application and can help to establish the likelihood of success of the proposed project…

Selected From *Simplified Peer Review Framework* Web Page
https://grants.nih.gov/policy-and-compliance/policy-topics/peer-review/simplifying-review/framework

Review Criteria…

Factor 1. Importance of the Research
Significance

- Evaluate the importance of the proposed research in the context of current scientific challenges and opportunities, either for advancing knowledge within the field, or more broadly. Assess whether the application addresses an important gap in knowledge in the field, would solve a critical problem, or create a valuable conceptual or technical advance.
- Evaluate the rationale for undertaking the study, the rigor of the scientific background for the work (e.g., prior literature and/or preliminary data) and whether the scientific background justifies the proposed study.

Innovation

- Evaluate the extent to which innovation influences the importance of undertaking the proposed research. Note that while technical or conceptual innovation can influence the importance of the proposed research, a project that is not applying novel concepts or approaches may be of critical importance for the field.
- Evaluate whether the proposed work applies novel concepts, methods or technologies or uses existing concepts, methods, technologies in novel ways, to enhance the overall impact of the project.

Factor 2. Rigor and Feasibility

Approach

- Evaluate the scientific quality of the proposed work. Evaluate the likelihood that compelling, reproducible findings will result (rigor) and assess whether the proposed studies can be done well and within the timeframes proposed (feasibility).

Rigor:

- Evaluate the potential to produce unbiased, reproducible, robust data.
- Evaluate the rigor of experimental design and whether appropriate controls are in place.
- Evaluate whether the sample size is sufficient and well-justified.
- Assess the quality of the plans for analysis, interpretation, and reporting of results.
- Evaluate whether the investigators presented adequate plans to address relevant biological variables, such as sex or age, in the design, analysis, and reporting.
- For applications involving human subjects or vertebrate animals, also evaluate:
    - the rigor of the intervention or study manipulation (if applicable to the study design).
    - whether outcome variables are justified.
    - whether the results will be generalizable or, in the case of a rare disease/special group, relevant to the particular subgroup.
    - whether the sample is appropriate and sufficiently diverse to address the proposed question(s).
- For applications involving human subjects, including clinical trials, assess the adequacy of inclusion plans as appropriate for the scientific goals of the research. Considerations of appropriateness may include disease/condition/behavior incidence, prevalence, or population burden, population representation, and/or current state of the science.

Feasibility:

- Evaluate whether the proposed approach is sound and achievable, including plans to address problems or new challenges that emerge in the work. For proposed studies in which feasibility may be less certain, evaluate whether the uncertainty is balanced by the potential for major advances.

- For applications involving human subjects, including clinical trials, evaluate the adequacy and feasibility of the plan to recruit and retain an appropriately diverse population of participants. Additionally, evaluate the likelihood of successfully achieving the proposed enrollment based on age, racial, ethnic, and sex categories.
- For clinical trial applications, evaluate whether the study timeline and milestones are feasible.

Factor 3. Expertise and Resources

Investigator(s)

Evaluate whether the investigator(s) have demonstrated background, training, and expertise, as appropriate for their career stage, to conduct the proposed work. For Multiple Principal Investigator (MPI) applications, assess the quality of the leadership plan to facilitate coordination and collaboration.

Environment

Evaluate whether the institutional resources are appropriate to ensure the successful execution of the proposed work.

Important Writing Tips…

https://grants.nih.gov/grants-process/write-application/general-grant-writing-tips

Tip 1: Make Your Project's Goals Realistic and Clear

Before you dive into the full writing process, we encourage you to start with a first draft of your Specific Aims. Use feedback on your Aims from prereaders to revise, refine, and clarify further.

Consider the scope of your project plan and goals carefully:

- Before you start writing the application, think about how the budget is related to your research plan. Everything in the budget must be reasonable and justified by the work you propose.
- Be realistic. Don't propose more work than can be reasonably done during the proposed project period. Make sure that the personnel have appropriate expertise and training.

Tip 2: Be Organized

Why? Reviewers are accustomed to finding information in specific sections of the application. This creates an efficient evaluation process and saves reviewers from hunting for required information. Consider starting with an outline that reflects everything that the How to Apply – Application Guide and your funding opportunity announcement instruct you to include…

As you organize and draft each application section and attachment, we recommend:

- Be specific and informative, avoiding redundancies. The thought process of the application should be easy to follow.
- Make your application as easy to read as possible.
    - Establish a clear, organized structure with headings.
    - Use short paragraphs, bulleted or numbered lists, adequate white space, and indents.
- Use bold text judiciously to highlight key concepts, allowing reviewers to scan the pages and retrieve information quickly…

Tip 3: Write in Clear, Concise Language

Why? Reviewers must read quite a few applications in full detail. Your application has a better chance of being successful if it is easy to read and well-written.

- Write a clear topic sentence for each paragraph with one main point or idea. This is key for readability.
- Aim to keep sentences as clear, simple, and short as possible. Sentences of 20 words or less are easier to read.
- Make your points as directly as possible. Avoid jargon or excessively technical language. Remember, not all reviewers will be experts in your field.
- Be consistent with terms, references, and writing style.
- Write in the active voice: "We will develop an experiment." Active voice clarifies who will take which actions. Avoid using passive voice: "An experiment will be developed."
- Spell out all acronyms on first reference.
- If writing is not your forte, seek assistance.

Check Communicating Research Intent and Value in NIH Applications for more advice and examples edited for plain language.

Tip 4: Your Reviewers Are Your Primary Audience

Capture the attention of your peer review group by making an evocative case for why NIH should fund your research.

- Your funding opportunity notice lists all the Review Criteria, including any opportunity-specific criteria. Make it clear how well your project fits all the criteria.
- Stress the significance of your proposed work. Doing so can enhance the application's appeal.
- Describe how your planned project reflects principles of scientific rigor, reproducibility, and transparency. Find application resources and guidance on Enhancing Reproducibility through Rigor and Transparency.
- Include enough background information to enable the reader to understand your proposed work. Spell out acronyms and minimize jargon.
- Consider adding figures, diagrams, charts, and other graphics to summarize your data and project plan. Read Tips for Tables, Charts, and Figures.

All reviewers are important to you because each gets one vote. For context, learn about the Review process.

- Write to ensure that your assigned reviewers can readily grasp and explain what you propose.
- They summarize your application and guide the review panel's discussion.
- They can clarify any unusual or complex elements for the other reviewers.

Your application should be clear enough to inform and convince reviewers with different levels of expertise. In a sense, you have two audiences of reviewers:

- The majority of your peer reviewers will not be experts in your niche scientific area or familiar with all of your techniques.
- A smaller number of reviewers will be familiar.

Tip 5: Edit Yourself

It can be challenging to edit your own text. Our advice:

- Set your draft aside for a few days, then return when you have fresher eyes.
- Reread and consider whether the content flows well.
- Have zero tolerance for typographical errors, misspellings, grammatical mistakes, or messy formatting. If the application is sloppy or disorganized, reviewers may think your research could be conducted in the same manner.
- Remember the details! Follow the requirements when you Format Attachments, such as font size, margins, and spacing. Label sections as directed. You don't want your application removed from funding consideration because of missed rules.
- Try reading your draft text out loud to catch any odd phrasing, typos, and missing or duplicated words.
- Conduct a self-review based on the peer review criteria in your funding opportunity notice. How would you rate your own application?

Tip 6: Enlist Help, Share for Comments

It can help to recruit someone else to review your content, check your punctuation, and give you feedback on whether the content flows.

- Consider asking your peers to be pre-readers, such as mentors, collaborators, experienced investigators in your organization, or colleagues elsewhere. If possible, have both experts in your field and those who are less familiar with your science provide feedback.
- Early in the process, ask pre-readers to review a first draft of your Specific Aims. Refine as needed, then move ahead to draft more sections. This step can save lots of valuable time.
- Ask if your pre-readers would also review other parts of your draft application. If so:
    - Encourage them to use a critical eye and evaluate the application using the peer review criteria.
    - Be sure to include any special review criteria listed in the funding opportunity.
- If more than one investigator contributes to writing the application, you can review each other's text for consistent tone, style, and proofreading.
- If possible, get an experienced editor to check clarity and proofread.

Based on comments from your volunteers, make the revisions and edits that seem likely to improve your application.