



**THE OHIO STATE UNIVERSITY**

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COLLEGE OF MEDICINE

**Biomedical Sciences Graduate Program**

**Student Handbook**

Revision 08/06/2024

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## **1 INTRODUCTION**

The Biomedical Sciences Graduate Program (BSGP) is a Ph.D. program in the OSU College of Medicine. The mission of the BSGP is to provide advanced postgraduate training to biomedical scientists and prepare them to be leaders in the biomedical workforce.

The Council of Research and Graduate Studies is the principal legislative body of the Graduate School that initiates policies and rules governing graduate programs. The Council sets the minimum standards as published in the Graduate School Handbook and serves as a primary reference for policies, rules, and general information.

In addition to these policies and rules, the BSGP student handbook provides additional policies, rules, and general information specific to students in the Biomedical Sciences Graduate Program. The OSU graduate school handbook can be found in [OSU Handbook](#).

A copy of the BSGP handbook is provided online at [BSGP Handbook](#).

Questions can be directed to:

### **1.1 Biomedical Sciences Graduate Program Leadership and Staff**

#### **1.1.1 Faculty Program Directors:**

Dr. Jeffrey Parvin, 614-292-0523, [parvin.4@osu.edu](mailto:parvin.4@osu.edu)

Dr. Michael Freitas, 614-688-8432, [Michael.freitas@osumc.edu](mailto:Michael.freitas@osumc.edu)

#### **1.1.2 Administrative Program Director and Coordinator:**

Amber Robinson, Program Director, [amber.robinson@osumc.edu](mailto:amber.robinson@osumc.edu)

Juan Abel, Program Coordinator, [juan.abel@osumc.edu](mailto:juan.abel@osumc.edu)

#### **1.1.3 Office Location: 210E Hamilton Hall, 1645 Neil Ave.**

Email: [bsgp@osumc.edu](mailto:bsgp@osumc.edu)

Website: [go.osu.edu/BSGP](http://go.osu.edu/BSGP)

## **2 PROSPECTIVE STUDENTS**

### **2.1 Admission Requirements**

Admission to the graduate program requires an undergraduate degree in the natural sciences that includes college-level courses in life and physical science, including general chemistry, organic chemistry, biochemistry, general biology, physiology, genetics, physics, and college mathematics. An earned cumulative grade-point average (GPA) equivalent to at least 3.0 out of 4.0 in all previous undergraduate and/or graduate college-level coursework is required. If the student's undergraduate GPA is below the minimum, the student may be eligible for admission only in demonstrated cases of exemplary research experience and motivation.

### **2.2 Traditional Application**

Students apply to the program on [BSGP Admissions](#) using the graduate school admission portal. Applications are evaluated by the BSGP graduate studies committee, and decisions on which students to interview are based on academic records, personal statements, a resume/CV, three letters of recommendation, and a personal interview. Interviews may be conducted in person, by telephone, or by video conference. To be competitive with the best applicants, early application by December 1 is encouraged, although applications are accepted through February 1. Interested students are encouraged to read the [BSGP website](#) for more information about the Biomedical Sciences Graduate Program and application procedures. A special effort is made to recruit students from underrepresented minority groups. All students admitted via the traditional route are funded by the Biomedical Sciences Graduate Program or fellowships in the first year of study, and subsequently, by either their dissertation advisor or fellowships.

### **2.3 International Applicants**

All international applications are required to submit Test of English as a Foreign Language (TOEFL), Duolingo, or The International English Language Testing System (IELTS) scores. International applicants must document that they have arranged for financial support for themselves, such as from a home government or from a Biomedical Sciences Graduate Program professor with whom they have communicated personally.

### **2.4 The Medical Scientist Training Program ([MSTP](#))**

The Ohio State University MSTP program exists to bridge the gap between clinical medicine and research. Highly qualified students may enroll in this rigorous program to pursue both the M.D. and Ph.D. degrees simultaneously. The MSTP provides state-of-the-art research and clinical medicine training for extraordinary students desiring a combined academic medicine/biomedical research career track. Candidates from this program must meet all the requirements of both the Biomedical Sciences Graduate Program and the M.D. program. The Medical College Admissions Test (MCAT) scores are required for admission of these students to the Biomedical Sciences Graduate Program. Admission to the MSTP can be made through one application process. This is initiated through the American Medical College Applications Service (AMCAS): [AMCAS website](#).

### **2.5 Direct Admission**

Students may prearrange their enrollment in the BSGP with a BSGP professor. These students are committed to this laboratory on entry to the graduate program, and their funding is provided by the host laboratory starting in their first year. The stipend, tuition and course load for these students are the same as for students admitted via the traditional application. These students do not rotate through other labs. This Direct Admission path is available to all students, and they must apply using the OSU graduate school admission portal. All applications via this mechanism are reviewed by the Graduate Studies Committee, and admissions decisions are made without interviews by the

program. This Direct Admissions mechanism is the primary mechanism by which international students enroll in the [BSGP](#) using the OSU graduate school admission portal. All applications via this mechanism are reviewed by the Graduate Studies Committee, and admissions decisions are made without interviews by the program. This Direct Admissions mechanism is the primary mechanism by which international students enroll in the BSGP.

## **2.6 Transfers**

Students seeking to transfer to the Biomedical Sciences Graduate Program from another graduate program either at OSU or another institution must submit all the application materials required for admission to the Program. An earned cumulative grade-point average (GPA) equivalent to at least 3.0 out of 4.0 in all previous undergraduate college-level course work, or 3.3 in all graduate coursework is required. All other requirements are described under the Admission Policy (Section 2.1-2.2).

Before approval of the transfer, the student may request a transfer of credit for graduate courses from the current or previous program to the Biomedical Sciences Graduate Program. All students are required to complete the Biomedical Sciences Graduate Program course curriculum or its equivalent. Transferring students may petition to substitute prior coursework for the credit given (See Section 5 for core courses eligible for substitution). The BSGP Program Director must approve such requests, and the student must submit appropriate documentation of the contents of these courses for the Course Director to review, including a detailed syllabus for each course. The student must summarize the contents of the courses taken previously and indicate how these are equivalent to specific areas of the curriculum from which exemption is being requested.

If the student's advisor from the previous program is a faculty member in the Biomedical Sciences Graduate Program, the student can petition for an exemption from laboratory rotations. The student can also request that research data obtained while the student was in another program be applied to the Biomedical Sciences Graduate Program dissertation. This request must be accompanied by a letter from the following: (a) The advisor under whom the student was working while the data were collected and signed by the advisor; (b) All other appropriate individuals associated with that study; and (c) The current Dissertation Advisory Committee members. This letter must state that the student has permission to include this information in the dissertation. All this material must be submitted to the Biomedical Sciences Graduate Program Directors for review before approval.

### **3 INCOMING STUDENTS**

#### **3.1 Before you Arrive / First Year Advisor**

As soon as an applicant is admitted, the Graduate Studies Committee will appoint a First Year Advisor. The first meeting with the student will usually be held on Orientation Day. At this meeting, the student and First Year Advisor will discuss the student's career and educational goals, the core curriculum, and other courses that may be needed by the student as well as lab rotation choices. The minutes of this meeting will be generated by the student on the appropriate report form ([First Year Advisor Form](#)) and a copy of the signed minutes will be sent to the Biomedical Sciences Graduate Program office. Those students who enter via the Direct Admissions pathway will have their laboratory head as their First Year Advisor.

Students will start during the [summer semester](#). Students do not officially start on-campus until the 6-week [Session 2](#). The first few weeks of the summer semester, prior to the official start of on-campus classes, the student should spend the time contacting potential faculty mentors for lab rotations.

Prior to the start of the summer session, you will receive paperwork from Ohio State's Human Resources via Docusign. This paperwork needs to be signed as quickly as possible to continue the hiring process.

- Emails regarding setting up your OSU and OSUMC accounts will come to the email address you used to apply. Watch for these emails and do this as quickly as possible.
- Once you are hired, you will gain access to the Workday system where you will need to complete the I-9 process.
- Decisions regarding your health insurance and access to the retirement system can also be made through Workday.
- The HR liaison hiring you into Ohio State will schedule a time for you to come to campus and complete the BCI/FBI background check. They will let you know which documents are accepted as part of that process.
  - At the time of your background check, you will also have your photo taken for your OSUMC ID Badge. This can be picked up with a photo ID (e.g., driver's license) once your background check has cleared.

The summer semester typically starts the second week of May, this means that the student's first paycheck will not be for the full month of May.

At the end of each semester, the student will meet with the First Year Advisor for a general review of reasonable progress, a discussion about rotation experience and remaining rotations and courses to be taken during the next semester, and a potential choice of an Area of Research Emphasis for the second and subsequent years. If the First Year Advisor feels that there is sufficient reason to discuss any aspect of the student's progress, they may call a meeting of the Graduate Studies Committee with or without the student being present. The results of this meeting will be submitted to the Biomedical Sciences Graduate Program Director for inclusion in the student's file.

The role of advising will switch to the Dissertation Advisor as soon as a student joins a lab.

#### **3.2 First Rotation**

Once accepted into BSGP, students are encouraged to investigate potential rotation advisors even before they arrive. Some students arrange their first rotation in the first week of the program. During the first summer, it is expected that all students will complete one seven-week rotation.

#### **3.3 What to expect in your first week**



As soon as a student accepts the BSGP admissions invitation, it is recommended that they acquaint themselves with potential research mentors. BSGP faculty mentors can be found on the BSGP website at the [BSGP mentor link](#). In addition, those mentors actively seeking students are available on the Rotations List (available to enrolled students). Even before students arrive, they can email potential rotation advisors and discuss the timing of rotations.

Most students join the BSGP in mid-June. At that time, the student should enroll in courses and line up a laboratory rotation for the summer. One of the courses is “Meet the Faculty” which helps the students identify laboratories of interest.

### **3.4 Course Registration**

The Biomedical Sciences Graduate Program office will help register students for the first semester. **For all subsequent semesters, students will register using the Buckeye Link SIS registration system** at [Buckeyelink](#). You will be notified by the Registrar’s Office, via e-mail, with the date and time your scheduling window opens.

Courses for the first year are summarized in Table 3 (pages 18-19). Please be mindful of registration deadlines, as a late fee will be assessed. **If a late fee is assessed the Program will not pay for it.**

### **3.5 I.D. Card Processing/Replacement**

Medical Center I.D. badges may be obtained and coded from the Hospital Security Department (614-293-4452), located on the first floor of Rhodes Hall. Please report lost or stolen I.D. cards immediately. Student Buck I.D. may be obtained from the University I.D. Card Services in the Ohio Union. First-year students will receive their Medical Center and Buck I.D.s during orientation or shortly thereafter.

### **3.6 Employment**

Graduate Research Associate (GRA) and Graduate Fellowship appointments are outlined in the Ohio State University Graduate School Handbook at [OSU Grad School Handbook](#). Policies specific to the Medical Scientist Training Program (MSTP) differ and are described on the [MSTP website](#)

The university provides a health subsidy for graduate students with a fellowship, traineeship, or GA appointment paid through the Ohio State payroll system. The university provides a 100 percent subsidy for the cost of the [Student Health Insurance](#) (SHI) premium, which includes single, spouse, and dependent coverage.

It is the policy of the Biomedical Sciences Graduate Program that all doctoral students actively studying in the Program should be provided with financial support in the form of a GRA or a sponsored Fellowship. GRA support will be provided by either the Biomedical Sciences Graduate Program or the student’s research advisor. Fellowship support will be awarded by either the Graduate School or from sources external to Ohio State University. Consequently, admission to the Program is dependent upon the availability of multiyear financial support for the incoming student. In keeping with NIH guidelines for the Biomedical Sciences Graduate Program obtaining funds from an NIH-sponsored Training Program grant, the Biomedical Sciences Graduate Program will consider only those applicants who are U.S. citizens or registered aliens to be recipients of any financial support directly from Biomedical Sciences Graduate Program funds. Thus, international applicants must document that they have arranged for financial support for themselves, such as from a home government or from a Biomedical Sciences Graduate Program professor with whom they have communicated personally.

### **3.7 Payroll**

The Ohio State University uses a paperless pay system. Students can enroll in direct deposit of their monthly pay to a bank of their choice through [BuckeyeLink](#).

### **3.8 First-year Stipend**

During the first year of coursework, students are awarded either a Graduate Research Associateship (GRA) or a Fellowship. The Biomedical Sciences Graduate Program intends that students do not have outside employment that interferes with their GRA responsibilities or their course of studies. Initial graduate positions are usually funded by the Biomedical Sciences Graduate Program for a period not to exceed one year, after which time the support is through the dissertation advisor. A GRA for domestic students also includes tuition and fee authorizations. GRA appointments are for 50% time, which is considered to represent 20 hours per week of research service, fulfilled in part through laboratory rotations.

Continuation of the GRA appointment by the Biomedical Sciences Graduate Program after the first year in the Program is dependent upon the students making reasonable progress and will be evaluated by the Biomedical Sciences Graduate Program Directors.

### **3.9 Support beyond the first year**

Upon selection of a Dissertation Advisor, the Dissertation Advisor will sign a Memorandum of Understanding (MOU), which is a contract documenting that they have the resources and commitment to support a student making reasonable progress through the completion of the program. The MOU (See Section 14) is a binding agreement that the faculty/dissertation advisor will support the student with a stipend throughout the years until graduation. The student also signs the agreement to acknowledge that they are aware of the financial commitment being made by their advisor to promote their development as a scientist. The Chair of the advisor's home department also signs the agreement to acknowledge that they will financially support the student should the advisor have difficulty with funding. Financial support will become the responsibility of the dissertation advisor upon accepting a student in their lab. The BSGP encourages the dissertation advisor to increase the stipend to \$37,500 after the student has passed candidacy. It is expected that in most cases, financial support after year 1 will be from either the advisor's research grant or training grants/fellowships. Hours per week in the lab are determined by the dissertation advisor. The BSGP sets guidance for leave per the standards set forth by the University. Leave requests are approved by the research advisor and by the approval by the Biomedical Sciences Graduate Program Director in compliance with OSU Graduate School policies found in the OSU Grad School Handbook

### **3.10 Fellowships**

As part of the application process, the BSGP may nominate students for the OSU University Fellowship program. The student generally is unaware of the fellowship application unless it is awarded. Students must be nominated by the Biomedical Sciences Graduate Program for University fellowships and the Program will process the student's application. Periods of training in the Program not funded by a Fellowship will be funded by either GRA appointments provided by the Biomedical Sciences Graduate Program or the faculty research advisor, as described above.

A student may apply for a fellowship from a variety of intramural and extramural sources. These fellowships include those offered by the NSF, NIH, and a variety of research foundations.

### **3.11 Other support**

Students that do not qualify for support from either the Biomedical Sciences Graduate Program or through Fellowships can be admitted into the Ph.D. program, but only following approval of documentation of financial support covering stipend, tuition, and fees. Stipends, in the form of a GRA

appointment, must be at least equivalent to those provided to Biomedical Sciences Graduate Program students enrolled in the Program.

### **3.12 Outside employment/activities**

The rules established for outside employment are outlined in the Graduate Schools Graduate Student Handbook Section 9.2 and clarified in [Appendix E.1.2 22](#). Students appointed to a graduate associate position may not hold an appointment of more than 75 percent FTE, whether as a single appointment or a combination of appointments. International students may not hold a single GA appointment, or a combination of appointments, for more than 50 percent FTE. GAs must consult with their graduate advisors and/or supervisors before engaging in employment outside the university to ensure that these additional commitments would not interfere with their progress or GA responsibilities.

Students that are appointed to a graduate school fellowship must hold no other appointment or outside employment during the term of appointment (see [Section 11](#) regarding other appointments). Students appointed to fellowships are responsible for adhering to the specific terms and conditions of the fellowship for outside employment.

Students employed by the university are expected to devote their work activities primarily to the functions of the university. The BSGP Program does not prevent student trainees employed by the university from engaging in external work provided that such work complies with the Graduate School's Policies, does not detract from the performance of their duties and responsibilities to their graduate training and responsibility in the lab and does not create a conflict of interest and/or conflict of commitment with their lab mentor's research or university responsibilities. All university employees who wish to engage in external work which may be a conflict of interest or commitment must obtain authorization before starting the activity. For more information regarding authorization contact the program office, [OSU College of Medicine](#), or the [OSU Office of Compliance](#) to determine if outside activities need to be disclosed. In all cases, the BSGP requires students to disclose outside activities with the BSGP program and the research advisor. Outside activities should benefit the education and professional development of the trainee.

### **3.13 Leave**

This policy is based on the OSU Graduate School's guidelines to provide clear and comprehensive leave policies for graduate associates (GAs), fellows, and trainees within the Biomedical Science Graduate Program ([Grad School Hand Book](#) Section 11.2 Time Off and Appendix F).

#### General Leave Information

Most Graduate Associates (GAs) are part-time student employees (50% time) and therefore do not meet the eligibility criterion for the Family and Medical Leave Act (FMLA) Policy 6.05. GAs that have held an appointment for more than 60.1% FTE for an entire 12-month period may qualify for leave under FMLA and should contact their local unit and FML Administrator to determine eligibility. GAs, fellows, and trainees do not accrue vacation or sick leave.

#### Paid Leave

Graduate students shall receive all University holidays and no more than 10 business days of vacation per year, with no year-to-year accrual. Students will continue to receive stipends during vacations and holidays. The times between academic semesters and the summers are considered active parts of the training period and are not free time. Students taking courses are expected to attend all classes and take all exams as scheduled. Vacation time should be arranged with the dissertation advisor using the policy outlined in each lab. If GAs are scheduled to work on a holiday, they must receive an alternate day off. The University observes New Year's Day, Martin Luther King Day, Memorial Day, Juneteenth,

Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Columbus Day, Presidents' Day, and Christmas. Consult the OSU HR website for the actual day of observance, as it is not always on the calendar day of observance.

#### Sick/Bereavement Leave

Graduate students may continue to receive stipends for up to 10 business days of sick leave per annum, with no year-to-year accrual. Under exceptional circumstances, additional sick days may be granted following a written request and approval by the Biomedical Sciences Graduate Program Director. Sick leave may be used for medical conditions related to pregnancy and childbirth.

#### Parental Leave

Graduate students may receive up to 3 weeks of leave for childbirth or adoption and an additional 3 weeks for health recovery of the birth parent. Leave must be planned and approved by the research advisor and program directors.

#### Professional Development Leave

Graduate students may receive at least 5 business days per year allotted for professional development activities such as attending workshops or presenting scholarly work at conferences. Additional days can be granted at the approval of the research advisor for professional development related to the research and continued training of the graduate student.

#### Unpaid Academic Leave

For more than 10 business days of sick leave, or more than the allowed parental leave, approval for an unpaid leave of absence must be sought from the Biomedical Sciences Graduate Program Director. Funded graduate students requesting academic leave should discuss options with their advisor, and the Biomedical Sciences Graduate Program Director. Approved leaves must be on file with the Graduate School.

#### Military Leave

GAs in the Ohio National Guard or other reserve components of the U.S. Armed Forces ordered to extended service are granted leave without pay in accordance with the Ohio State Military Call for Active Duty policy. Students must submit military orders to their supervisor and are encouraged to withdraw from courses during leave. Within 90 days of honorable discharge, GAs will be returned to their former position or its equivalent upon reenrollment as a graduate student.

### **3.14 Residency**

Fees and tuition are based on a student's residency status. Therefore, to obtain in-state tuition rates ***students are required to apply for residency status*** (if applicable) after 12 consecutive months of coursework. Please go to the [Registrar's website](#) for more information.

### **3.15 Fee Waivers**

Students who are awarded a fellowship or GRA appointment will have their fees and tuition waived. **Students are responsible for other expenses, i.e., COTA, student union fees, etc.**, and should pay for their portion by the deadline established by the Registrar's office.

### **3.16 Financial Aid**

You can find the forms and information for scholarships, student loans, and grants on the Student [Financial Aid website](#).

## 4 CURRICULUM

### 4.1 Core Curriculum

To receive a Ph.D. from the BSGP program, students must complete all the required coursework, pass the candidacy exam, and successfully defend their Ph.D. Dissertation. All students are required to have at least one first-author original research published in a peer-reviewed journal that is either published or in-press at the time of the defense. To receive Graduate Specialization Transcript Designations, students must complete the courses outlined in the descriptions of the specific areas of research interest.

### 4.2 Tracks

The Biomedical Sciences Graduate Program offers two tracks, and the required courses differ for each track. The Umbrella track is the default track taken by most students. The new Biomedical Informatics (BMI) track offers more didactic classroom training that prepares the students with the knowledge and skills for informatics research. Students in the Umbrella track may take elective courses offered in the BMI track.

### 4.3 Required Courses

Students will take the entire curriculum of the Biomedical Sciences Graduate Program, leading to the degree of Doctor of Philosophy. A student may modify it only by making a formal petition to the Graduate Studies Committee. Per ***the requirements of the Graduate School, students must register for a minimum of 80 graduate credit*** hours to graduate with a Ph.D. degree. Graduate Research Associates holding 50 percent or greater appointments must register for at least 8 credit hours per semester, except in summer sessions, when the minimum is 4. Students holding the titles Graduate Fellow or Graduate Trainee, regardless of the source of the funds, must register for a minimum of 12 credit hours each semester the appointment is held except in summer sessions when the minimum is 6. The total number of courses, including laboratory rotations and dissertation research, in the Biomedical Sciences Graduate Program, is to total at least 80 credit hours.

The distribution of these hours is shown below for the Umbrella track in Table 1 and the BMI track in Table 2. A sample curriculum in the Umbrella track is provided in Table 3. Students will begin their first year in the summer term. It is required that before choosing a dissertation advisor by the end of the first year, students complete at least two laboratory rotations (BSGP-7930). Students should spend a minimum of 4 hours per week in the laboratory for each credit hour of BSGP-7930. By the end of the spring semester, students are expected to have a dissertation advisor and subsequently register for laboratory research as BSGP-8999.

During the first two years of the program, the students should have taken all the didactic courses listed in the Core Curriculum Table 1 or Table 2.

#### 4.4 Table 1 Required Course in the Umbrella track:

Table 1

Course	Credits
BSGP 8050 Research Techniques and Resources	4 credits
BSGP 7060 Meet the Faculty (not required for direct admits)	1 credit
BSGP 7000* Biomedical Sciences Survey	6 credits
BSGP 7040* Research Problem Solving in Biomedical Science	4 credits
BIOPHRM 7510* Professional and Ethical Issues in Biomedical Science	2 credits
BSGP 7070* Fundamentals of Grant Writing	4 credits
BMI 5750 Methods in Biomedical Informatics and Data Science	3 credits
BSGP 7930 Individual Studies in Biomedical Sciences	variable
BSGP 7972* Research Seminar (Student Presentation) (taken at any time post-candidacy)	1 credit
BSGP 8999* Research in Biomedical Sciences	variable
Elective Courses ( $\geq 6$ of these credits must be from in-class courses)	$\geq 10$ credits
TOTAL	$\geq 80$ credits

\*These courses are not eligible for substitution or exemption and must be taken by all graduate students.

#### 4.5 Table 2. Required Courses in the BMI track:

Table 2

Course	Credits
BMI 5750 Methods in Biomedical Informatics and Data Science	3 credits
BMI 5780 Programming for Biomedical Informatics	3 credits
BSGP 7000 Biomedical Sciences Survey	6 credits
BMI 5710 Introduction to Biomedical Informatics	3 credits
BIOPHRM 7510 Professional and Ethical Issues in Biomedical Science	2 credits
BMI 5730 Introduction to Bioinformatics <b>OR</b> BMI 5740 Introduction to Research Informatics	3 credits
BMI 7235 Applications of Machine Learning and Artificial Intelligence in Biomedical Informatics	3 credits
BSGP 7070 Fundamentals of Grant Writing	4 credits
STAT 5301 Intermediate Data Analysis I <b>OR</b> STAT 6450 Applied Regression Analysis	4 credits
STAT 5302 Intermediate Data Analysis II <b>OR</b> STAT 6570 Applied Bayesian Analysis	3 credits (STAT 5302) <b>OR</b> 2 credits (STAT 6570)
BSGP 7930 Individual Studies in Biomedical Sciences	variable
BSGP 7972 Research Seminar (Student Presentation) (taken the semester before or semester of graduation)	1 credit
BSGP 8999 Research in Biomedical Sciences	variable
Elective Courses [Note] $\geq 6$ of these credits must be from in-class BMI 7000- or 8000-level courses while the remaining 4 credits can be seminars. BMI 7891 Seminars are recommended for the remaining 4 credits.	$\geq 10$ credits
<b>TOTAL</b>	<b><math>\geq 80</math> credits</b>



#### **4.6 Elective courses**

Elective Courses (may be in BSGP or in other departments at OSU). At least 6 credit hours of the 10 required elective credit hours must be in the classroom setting and the remainder may be seminars; electives may be consistent with recommended courses in a chosen Area of Research Emphasis.

#### **4.7 Curriculum After Candidacy Examinations**

The candidacy examination will be taken by the end of Autumn Semester of the third year for Ph.D. students, and by the beginning of year 4 for MSTP students. In the years after the candidacy exam, students must continue to enroll for a total of 3 credit hours each semester, which will include lab research (BSGP 8999) and any other advanced coursework required. There is no programmatic restriction on the number of advanced courses and seminars taken, but they should be discussed and approved by the student's Advisor and Dissertation Advisory Committee and indicated in the meeting form.

#### **4.8 Credit Hour Requirements**

##### **4.8.1 Graduate Research Associates**

Graduate Research Associates must register for at least 8 credit hours per semester, except in summer session, when the minimum is 4. Post-candidacy doctoral students must register for at least 3 credit hours each semester or summer session an appointment is held. Most students register for 12 credit hours per semester. These registration requirements can include research hours (BSGP-7930 or BSGP-8999).

##### **4.8.2 Fellows and Trainees**

Students holding the titles Graduate Fellow or Graduate Trainee, regardless of the source of the funds, must register for a minimum of 12 credit hours each semester the appointment is held except in the summer session when the minimum is 6. Graduate Fellows or Graduate Trainees who are post-candidacy doctoral students must register for at least 3 credit hours per semester or summer session an appointment is held. These registration requirements can include research hours.

##### **4.8.3 International Students**

International students are required to register for a minimum of eight credit hours per semester except in the summer session when the minimum is four unless they hold appointments as fellows or trainees. International students who are post-candidacy must register for at least three credit hours. These registration requirements can include research hours.

For more information, see the [Graduate School Handbook](#) (Section 3.1: Course Load) on the Graduate School Website.

#### **4.9 Areas-Of-Research Emphasis**

Successful completion of the Biomedical Sciences Graduate Program leads to a Ph.D. in Biomedical Sciences. At the end of the first year, students may choose one of several areas-of-research emphasis that highlights at least one area in which the student will take advanced courses and seminars. Completion of the requirements will result in a Graduate Specialization Transcript Designation at the completion of the Ph.D.

The following are [Graduate Specialization Transcript Designations](#) that are currently approved by the Biomedical Sciences Graduate Program Graduate Studies Committee:

- Anatomy
- Cancer Biology



- Cellular and Molecular Physiology
- Biomedical Informatics
- Experimental Therapeutics
- Genetics and Genomics
- Immunology
- Microbial Pathogenesis
- Molecular Basis of Disease
- Neurological and Neuromuscular Disorders
- Translational Research

#### **4.10 Graduate Specialization Transcript Designation**

A student may request Graduate Specialization Transcript Designation in one or more of these areas. To obtain this designation, the student should discuss the plan with the First Year Advisor or dissertation advisor. Then the student should contact the Faculty Liaison for a particular area-of-research emphasis (see Biomedical Sciences Graduate Program website for contact name) during the first year of graduate study to determine the course and seminar requirements for the area of emphasis, and to be certain that the nature of the dissertation research that is planned is appropriate for this designation. It is the responsibility of the student to be certain that all requirements for this area of emphasis are met. The student will notify the area-of-emphasis Faculty Liaison that she/he wishes to receive a Graduate Specialization Transcript Designation in the area-of-research emphasis. The Faculty Liaison will review the transcript and dissertation, and if these meet the requirements for Graduate Specialization Transcript Designation in that area- of-research emphasis, the liaison will notify the graduate program office so the office can initiate the online specialization form.

For a new area-of-research emphasis to be added, a faculty member who is willing to serve as the Faculty Liaison for this area will submit such a request to the Biomedical Sciences Graduate Program Graduate Studies Committee. This request must address the following issues:

- The theme of an area-of-research emphasis should be potentially fundable as a Training Program Grant from a source outside of the College of Medicine.
- The theme should fit into the Biomedical Sciences Graduate Program and College of Medicine mission of Biomedical Research.
- The Graduate Studies Committee will grant official status to an area-of-research emphasis after it reviews materials presented to it by representatives of the proposed area. The proposed new area-of-research-emphasis is then submitted as an application for a new subplan to the Graduate School. This proposal should address the following:
  - *Rationale* for identifying this area-of-research emphasis according to items 1 and 2 above.
  - Relation and contributions of the Area to the goals of the Biomedical Sciences Graduate Program. This should also address all the issues stated above in this policy.
- *Graduate Specialization Transcript Designation* This should include statements about the following:
  - Application process
  - Dissertation requirements
  - Curricular requirements, i.e., required courses and seminars
  - List of appropriate elective courses

## 5 REASONABLE PROGRESS

### 5.1 Overview

The OSU Graduate School policy on reasonable progress can be found in the [Graduate School Handbook](#) Section 5.4.

It is the responsibility of the student to maintain reasonable progress toward their PhD. For example, for a first-year student, reasonable progress is defined as finding a permanent laboratory for dissertation research by the end of year 1. For a student in their dissertation lab, reasonable progress is determined by their committee. If a student is considered by their committee to be not making reasonable progress in their research, the committee notifies the graduate program Directors, and the Directors will consult with the Mentor and Student. A letter of warning with an achievable timeline and concrete milestones identified will be issued to the student. In that letter, it will be stated that if the student does not satisfy the indicated conditions by a specific date, then they will be denied future registration in BSGP.

### 5.2 Timeline

The following timetable is useful for setting expectations for reasonable progress toward a 5-year PhD in the Biomedical Sciences Graduate Program. Students should use this as a guideline for setting goals and aligning expectations with their research advisor and mentoring committee. A sample timetable is provided below.

#### 5.2.1 Year 1

- Meet with First Year Advisor at orientation and complete Advising Report ([First Year Advisor Form](#))
- Complete and Individualized Development Plan (<https://myidp.sciencecareers.org/>)
- Complete Year 1 Core and elective coursework
- Complete 3 (or more) lab rotations and the associated [post-rotation form](#)
- Meet with First Year Advisor at the beginning of the SP semester and complete Advising Reports ([FYA Autumn Form](#), [FYA Spring form](#))
- Select research advisor by end of Spring Quarter of the first academic year (or 3<sup>rd</sup> semester of study) and Complete MOU for Joining a lab
- Attend relevant program activities, (Town halls, Orientation, Retreat, etc.) and seminars
- Annual evaluation, due each academic year no later than June 30

#### 5.2.2 Year 2

- Complete Remainder of core and elective coursework. Conduct thesis research
- Selection of Mentoring committee by end of Autumn Quarter
- Develop and write thesis proposal (BSGP 7070)
- Complete Year 2 committee meeting prior to the qualifying exam
- Write a fellowship application (strongly encouraged)
- Attend relevant program activities, (Town halls, Orientation, Retreat, etc.) and seminars
- Annual dissertation advisory committee evaluation form, due each academic year no later than June 30 ([BSGP student forms](#))

#### 5.2.3 Years 3-4

- Candidacy/Qualifying Exam by end of Autumn Semester.
- Conduct thesis research
- Publish academic research as first author or co-author
- Attend conferences

- Take Senior Seminar Course (BSGP-7972)
- Review IDP and career goals with advisor and committee
- Attend relevant program activities, (Town halls, Orientation, Retreat, etc.) and seminars
- Biannual evaluation, due each academic year no later than June 30 ([BSGP student forms](#))

#### **5.2.4 Years 5+**

- Conclude experiments and begin writing thesis
- Take Senior Seminar Course (BSGP-7972) if not already completed
- Publish academic research as first author or co-author
- Attend conferences
- Attend relevant program activities, (Town halls, Orientation, Retreat, etc.) and seminars
- Search and interview for postdoc/employment
- Complete thesis and final oral defense.
- Biannual evaluation, due each academic year no later than June 30 ([BSGP student forms](#))
- Graduate with PhD

## 5.2.5 Sample Timetable

Table 3

Summer	Autumn	Spring
<b>1<sup>st</sup> Year</b> BSGP-8050 Research Techniques and Resources  BSGP-7060 Meet the Faculty (not required for direct admits)  BSGP 7930 Laboratory Rotation	BSGP -7000 Biomedical Sciences Survey  BSGP 7930 Laboratory Rotation	BSGP -7040 Research Problems  BIOPHRM-7510 Biomedical Research Ethics  BSGP 7930 Laboratory Rotation Select Research Advisor  <b>Select Research Advisor</b>
Minimum Credit Hours 6	Minimum Credit Hours 12	Minimum Credit Hours 12
<b>2<sup>nd</sup> Year</b> BMI 5750 Methods in Biomedical Informatics and Data Science  BSGP 8999 Dissertation Research	BSGP -7070 Fundamentals of Grant Writing  Elective Course(s)  BSGP 8999 Dissertation Research	Elective Course(s)  BSGP 8999  Dissertation Research
Minimum Credit Hours 6	Minimum Credit Hours 12	Minimum Credit Hours 12
<b>3<sup>rd</sup> Year</b> Elective Course  BSGP 8999 Dissertation Research	Elective Course  BSGP 8999 Dissertation Research  <b>Candidacy Exam</b>	Elective Course  BSGP 8999 Dissertation Research
Minimum Credit Hours 6	Minimum Credit Hours 12	Minimum Credit Hours 3
<b>Post Candidacy Year</b>  BSGP 8999 Dissertation Research	BSGP 8999 Dissertation Research	BSGP 8999  Dissertation Research  BSGP 7972 BSGP Senior Seminar

## 5.2.6 Program Requirements

### 5.2.7 Year One

As soon as an applicant is admitted, the Graduate Studies Committee will appoint a First Year Advisor. (See Section 3: Incoming Students). A meeting of the student with the First Year Advisor should take place on the afternoon of Orientation Day or at another convenient time and should be arranged ahead of time via email communication. At this meeting, the student and First Year Advisor will discuss the student's career and educational goals, the core curriculum, and other courses that may be needed by the student as well as lab rotation choices. If the student starts in the Autumn semester, then the first rotation will begin during the latter half of the Autumn semester. During the first half, when the student takes the Laboratory Methods class, they should arrange the rotation. During the academic year, rotations are expected to be 7 weeks in duration (one-half semester). Students who are recruited by a faculty member and admitted directly into their laboratory do not rotate.

All rotations chosen throughout the first year should be conducted in laboratories of potential dissertation advisors. The rotations will count for BSGP-7930 course credit. At the start of each rotation, the student and rotation advisor must complete a rotation proposal form ([Rotation Form](#)). At the end of each rotation, and **to receive course credit, the student must initiate the Faculty Lab Rotation Evaluation form online** ([Post-rotation form](#)).

At the end of Autumn semester, the student will meet with the First Year Advisor for a general review of progress, a discussion about rotation experience and remaining rotations and courses to be taken during the next semester, and a potential choice of an Area of Research Emphasis for the second and subsequent years. ([FYA Autumn Form](#)) If the First Year Advisor feels that there is sufficient reason to discuss any aspect of the student's progress, they may call a meeting of the Graduate Studies Committee with or without the student being present. The results of this meeting will be submitted to the Biomedical Sciences Graduate Program Director for inclusion in the student's file.

Toward mid-Spring semester the student must meet again with the First Year Advisor. By this time the student should have chosen a Dissertation Advisor with whom the student will begin working full time during the second summer. Decisions should also be made about the choice of an Area of Research Emphasis (see Policy for Areas of Research Emphasis, (Section 5.3) and the Biomedical Sciences Graduate Program website for details on required advanced courses). Other topics to be discussed will include academic performance, financial support, courses for the coming year, MOU, and a target date for the Candidacy Examination. ([FYA Spring form](#))

### 5.2.8 Year Two

During the Summer semester, students will work in the laboratory of their Dissertation Advisor. The Dissertation Advisor and student must have signed the Memorandum of Understanding (MOU - see Section 14, page 38). The student will register in BSGP-8999 for credit for work in the laboratory and may take any available courses that will be of benefit, but only after consultation with their advisor. By the end of summer semester, the student should have a good idea for a dissertation research project and should decide on members of the Mentoring Committee. The mentoring committee should consist of a minimum of four faculty members, **with at least two faculty members who have mentored at least one student to completion of their PhD**. The Committee must be selected and convened by the spring semester of the second year and must include:

- The advisor, who must be a member of the Biomedical Sciences Graduate Program faculty
- At least two other Biomedical Sciences Graduate Program faculty members
- At least one person from outside of the advisor's home department. This person might also be from another graduate program and not a member of the Biomedical Sciences Graduate Program faculty. However, either person must be approved by the Graduate School as having

“M” or “P” faculty status, eligibility to supervise MS or PhD students, respectively. Note: “M” status faculty may sit on a candidacy exam committee, but NOT on a dissertation committee (see section 13.3 regarding M/P Status definitions).

- Any other faculty that contributes to the development of the student can be included on the committee but will not be allowed to vote on the candidacy or dissertation exams.
- The advisor’s spouse cannot be part of this committee.

To reiterate, all committee members should have “P” faculty status with the Graduate School, although one member may have “M” faculty status for the candidacy exam only. For “M” faculty status to be a non-voting member of the dissertation committee, the student and mentor must request approval from the Graduate Studies Committee. For any exceptions outside of “P” and “M” faculty, e.g., professors from outside of OSU, the student and mentor must request approval from the Program Directors, who will then request the Graduate School for an official exemption.

Once established, the mentoring committee will meet with the student at least annually. (It is preferred, and better for the student, to have two committee meetings per year.) At these meetings, there will be a review of the student’s reasonable progress in classes and research. This committee should comment on the validity and feasibility of the proposed project. They will also suggest courses, seminars, etc., that the student should either take for credit or audit.

The student must initiate the appropriate form with their committee members online at: [BSGP student forms](#). After each meeting of the Dissertation Advisory Committee, the student must solicit evaluations from each committee member via an on-line survey [on the BSGP website under student forms: Committee Meeting Survey](#).

At the beginning of the Autumn semester, the student will meet with the Dissertation Advisor to discuss the dissertation project that will form the basis of the written document for the Candidacy Examination (See Section 8). The student must initiate the appropriate form with their committee members online at: [BSGP student forms](#).

During the Mid-Autumn semester, the student should meet with the Dissertation Advisor for a general review of progress and a discussion of courses to take in Spring semester.

A target date for the Candidacy Examination should be set at this time. The student must initiate the appropriate form with their committee members online at: [BSGP student forms](#).

During Spring semester, the student will write a research grant proposal based on the proposed dissertation research. See section 7 (page 30) for more information about the candidacy exam.

At the beginning of Spring Semester, the student will meet with the Dissertation Advisor for a general review and discussion of courses to take in summer semester. The student must initiate the appropriate form with their committee members online at: [BSGP student forms](#).

During Spring Semester, a target date for the Candidacy Examination should be set, and the research proposal from the grant writing class, which will form the basis for the written part of the candidacy examination, should be discussed in a meeting with the Candidacy Exam Committee. The student must initiate the appropriate form with their committee members online at: [BSGP student forms](#). The Biomedical Sciences Graduate Program Core Curriculum should be completed by the end of the summer semester.

Once a date for the candidacy exam is determined, the student will initiate the application for candidacy through the Graduate School’s [GRADFORMS](#) webpage during the semester the student will take the

candidacy exam. The oral portion of the candidacy examination is held after completion of the written portion and must be completed within one month of the written portion. To schedule the oral exam, the student must apply for Candidacy on [GRADFORMS](#) and have this approved by their program and advisor at least two weeks before the proposed date of the oral exam. The Graduate School will not retroactively approve a candidacy exam for which the student did not pre-register on GRADFORMS.

The number of dissertation credit hours is determined by each individual student's situation. This depends on how many credit hours are necessary for full-time status (see below), how many credit hours are allowed for each term, and how many credit hours the student is registering for in other courses. **Students need to keep in mind that they will need at least 34 credit hours in BSGP 8999 and a total of 80 credits hours to graduate.**

### **5.2.9 Third and Subsequent Years**

The Candidacy Examination must be completed by the end of Autumn Semester of the third year for Ph.D. students, and by the beginning of year 4 for MSTP students. Any exceptions to this deadline must be approved by the Program Directors. A written request must be submitted to the Program Directors in which the student and advisor discuss the reasons for a delay. The student must initiate the appropriate form with their committee members online at: [BSGP student forms](#). During these years the student is engaged in research and training. See section 9 for relevant information pertaining to the planning and preparation for the dissertation exam.

### **5.3 Time to Degree Standards**

The entire Ph.D. program should be completed in 4 to 6 years; the program must be completed within 5 years of the Candidacy Examination, or a second Candidacy Exam must be taken. The Biomedical Sciences Graduate Program office will track these events and notify the student, Advisor, and Dissertation Committee if the above is not conducted in a timely fashion.

### **5.4 Authorship Requirement**

Students are required to have at least one first-author original research publication in a peer-reviewed journal that is either published or In Press at the time of the defense to be awarded the Ph.D.

### **5.5 Checklist for Required Meetings**

The student will arrange all meetings. For each meeting with the First Year Advisor (FYA), the student is responsible for completing the appropriate online form. This is an important mechanism for us to track a student's progress. After the first year and each year thereafter, students should ask their advisor and committee members to complete the [Annual Dissertation Advisory Committee Evaluation form](#). After 4 years, the Dissertation Advisory Committee must meet every 6 months with forms due at the end of each semester.

Student forms can be found at: [BSGP student forms](#).

## 5.6 Year One

Table 4

MEETING TIME	FACULTY	MEETING DISCUSSIONS
Before first semester	First Year Advisor	<ul style="list-style-type: none"> <li>E-mail introduction</li> </ul>
Orientation Day or by arrangement for another time	First Year Advisor	<ul style="list-style-type: none"> <li>Career &amp; Educational Goals</li> <li>Discuss Core curriculum &amp; courses</li> <li>Confirm or discuss rotation choices</li> <li>Meeting with First Year Advisor Form</li> <li>Lab Rotation Proposal Form</li> </ul>
Autumn	First Year Advisor	<ul style="list-style-type: none"> <li>Review academic performance</li> <li>Discuss lab rotations and mentor possibilities</li> <li>Faculty Lab Rotation Evaluation Form(s)</li> <li>Meeting with First Year Advisor Form</li> <li>Lab Rotation Proposal Form</li> <li>Lab Rotation Minutes Form</li> </ul>
Spring	First Year Advisor	<ul style="list-style-type: none"> <li>Review academic performance</li> <li>Discuss choice of Dissertation Lab and Mentor</li> <li>Discuss dissertation research plans</li> <li>Discuss choice of an area-of-research interest</li> <li>Set a target date for completion of candidacy exam</li> <li>Faculty Lab Rotation Evaluation Form(s)</li> <li>Meeting with First Year Advisor Form</li> <li>Lab Rotation Proposal Form</li> <li>Lab Rotation Minutes Form</li> </ul>



### 5.6.1 Year Two

Table 5

MEETING TIME	FACULTY	MEETING GOALS
Beginning of Autumn	Dissertation Advisor	<ul style="list-style-type: none"><li>• Discuss dissertation project</li><li>• Choose courses for coming year</li></ul>
Mid-Autumn	Dissertation Advisor	<ul style="list-style-type: none"><li>• Review progress</li><li>• Discuss research grant proposal</li><li>• Choose courses for Spring</li></ul>
Beginning of Spring	Dissertation Advisor	<ul style="list-style-type: none"><li>• Discuss research grant proposal</li><li>• Review progress</li><li>• Discuss courses</li><li>• Assemble and meet with Candidacy exam Committee</li></ul>
Mid-Spring	Mentoring Committee	<ul style="list-style-type: none"><li>• General review &amp; choice of courses</li><li>• Set date for Candidacy exam</li><li>• Discuss written Candidacy exam</li></ul>

### 5.6.2 Year Three and Beyond

Table 6

MEETING TIME	FACULTY	MEETING GOALS
Summer/ Autumn	Mentoring Committee	<ul style="list-style-type: none"><li>• Complete Candidacy exam</li><li>• Faculty Candidacy Exam Committee Form</li><li>• Candidacy Exam Committee Form</li></ul>
Soon after Candidacy Exam	Mentoring Committee	<ul style="list-style-type: none"><li>• Review of Dissertation Research</li></ul>
Every 6 months	Mentoring Committee	<ul style="list-style-type: none"><li>• Review progress &amp; courses required</li><li>• Faculty Annual Dissertation Advisory Committee Evaluation Form</li></ul>

## 6 LABORATORY ROTATIONS

A student in the first year of study in the Biomedical Sciences Graduate Program will be financially supported as outlined in the "Policy for Graduate Student Financial Support." A student whose stipend and tuition are paid by the Biomedical Sciences Graduate Program will be required to complete at least two laboratory rotations with two different Biomedical Sciences Graduate Program faculty members. The major goal of this is to identify a Biomedical Sciences Graduate Program faculty member who will serve as the student's dissertation advisor, and as such will be responsible for the student's stipend and tuition after the first year of study.

Completing the Memorandum of Understanding (Section 14, page 42) secures this arrangement. **All BSGP students must have a dissertation advisor selected**, with a signed MOU, by the end of the first academic year.

Financial support of a student by the Biomedical Sciences Graduate Program to conduct an additional rotation after one year is a rarity and will only be considered under extenuating circumstances. This continued funding is not guaranteed. To obtain such support a student must petition the Graduate Studies Committee for approval. This petition should include:

- A detailed explanation of each laboratory rotation has already been completed.
- Reports that were submitted to the Biomedical Sciences Graduate Program office at the end of each of the previous rotations.
- The reasons why a dissertation advisor was not identified consequently to these rotation experiences.
- The name of the graduate faculty member with whom the student will be rotating during the additional requested rotation, and an outline of what will be accomplished during this rotation.
- A letter of support from the faculty member in whose laboratory the rotation will be conducted stating:
  - That they can support the student as their dissertation advisor, and
  - They are willing to hire the student as a GRA depending upon the performance of the student in the planned laboratory rotation
- A letter from the First Year Advisor documenting the above and providing additional information as appropriate for this request.

The decision of the Graduate Studies Committee will depend on the justification of the request and the availability of funds for this purpose. If the request is denied, the student will be responsible for his or her own tuition and no stipend will be provided by the Biomedical Sciences Graduate Program during the additional rotation(s).

## 7 CANDIDACY

For a student to take the Candidacy Examination, they must first meet the requirements of The Ohio State University Graduate School. This includes being in good standing, i.e., with a minimum grade point average of 3.0 in the Graduate School and registered for at least eight graduate credit hours during the semester of the Examination. The written and oral parts of the candidacy exam will be evaluated separately.

### 7.1 The candidacy exam committee

The candidacy exam committee should be drawn from the student's mentoring committee. To reiterate, all committee members of the candidacy exam committee should have "P" faculty status with the Graduate School, although one member may have "M" faculty status for the candidacy exam only (see section 13.3 regarding M/P Status definitions). For "M" faculty status to be a non-voting member of the dissertation committee, the student and mentor must request approval by the Graduate Studies Committee. For any exceptions outside of "P" and "M" faculty, e.g., professors from outside of OSU, the student and mentor must request approval by the Graduate Studies Committee, who will then request the Graduate School for an official exemption.

### 7.2 Written Portion

The written portion of the Candidacy Examination will be taken between the Spring semester of year 2 and the Autumn semester of year 3 and must be complete by the end of Autumn Semester of the third year for Ph.D. students. For MSTP students, the candidacy exam must be completed by the beginning of year 4. Any deviation from this timetable must be appealed in writing and approved by the Program Director prior to the beginning of the expected semester. The examination will culminate in the completion of a full-length research proposal that reflects the intended area of the student's dissertation research. The proposal will be written in the format of an NIH small grant, as taught, written, and reviewed in the grant writing class in the second year. The student must write the proposal independently, although the student may consult with their Dissertation Advisor, who should approve the dissertation proposal for suitability of distribution to the Candidacy Exam Committee.

The format for the written proposal is:

- Page 1: Title and Abstract (≤ 30 lines of text)
- Page 2: Specific Aims Page
- Page 3-8: Text of grant proposal, including figures
  - Significance
  - Innovation
  - Aim 1
    - Background
    - Rationale
    - Experimental Methods
    - Anticipated Outcomes
    - Potential Pitfalls and Alternative Approaches
  - Aims 2 and 3
- Pages 9 and the following: Literature Cited

It is the student's responsibility to make all arrangements for establishing a date for the oral portion of the examination that is agreeable to all members of the examination committee. This date needs to be established early so that there will be enough time to complete the candidacy exam by the time stipulated by the Graduate School (end of Autumn Semester of the third year). At least 4 weeks before

the established oral exam date, the student must deliver the written document to the Candidacy Exam Committee members for their review. After 2 weeks of review time, the Examination Committee will determine the result of the written portion of the examination to be either satisfactory or unsatisfactory, and this result will be communicated to the mentor. It is the responsibility of the student to remind the committee that they will need to make this evaluation within 2 weeks and to communicate it to the mentor. It is also the responsibility of the student to remind the mentor to obtain the result from the committee members.

If the proposal is found to be unsatisfactory, the student will be given an opportunity to do a re-write according to suggestions made by the committee. The corrected written document must be re-submitted to the committee in a period that does not exceed one academic semester.

### **7.3 Oral Portion**

Students must register their planned oral candidacy exam with the Graduate School ([GradForms](#)) and complete the BSGP form for registering for the committee ([Pre-candidacy committee form](#)). If the student does not pre-register their oral exam in [GradForms](#), the exam will need to be repeated; retroactive approvals are not allowed by the Graduate School.

The oral portion of the Candidacy Examination will be based on the written document but will include any materials considered to be relevant by the Candidacy Exam Committee. At least half of the oral examination will be based on general science questions that are designed to elicit critical thinking. The oral examination will be held in compliance with the rules set by The Ohio State University Graduate School.

While the advisor participates in the evaluation of the written portion of the exam, during the oral exam the advisor should be present and in the ideal case participates minimally. The advisor must not answer for the student, may ask some questions if necessary, and is available to help other committee members as needed. The advisor may not serve as chair of the Committee. The format for the oral exam will be a chalkboard presentation; computer-based presentations will be limited to a maximum of 10 slides (without animations). The oral portion of the candidacy examination allows the Candidacy Committee to assess whether the student has sufficient knowledge to perform his/her/their research and publish in the field. This knowledge base includes the student's broad scientific knowledge, ability to understand and discuss methods/techniques, ability to understand and discuss experimental design/models, and any other topic that is consistent with the background and themes in the written candidacy exam. Students are encouraged to meet with their committee prior to scheduling the exam to discuss the oral exam format. The oral exam format is set in advance of the exam by the Candidacy Committee. The Candidacy Committee will provide students with clear expectations as to exam format, what materials the Committee requires in advance of the exam, and any deadlines that should be met. The Candidacy Committee must give students reasonable time to prepare any required materials in advance of the exam.

Successful completion of the Candidacy Examination indicates that the student passed both portions, written and oral. Students who fail to pass the exam may be allowed to re- take the examination one more time, and this may or may not require revisions to the submitted proposal. The re-take of the exam should take place in a period that does not exceed one academic semester. A Graduate Faculty Representative will be assigned by the Graduate School. Students who do not pass the candidacy examination the second time will be unable to continue the program. Students must send an email reminder to their committee members to complete an evaluation form for the candidacy exam ([Candidacy Evaluation Form](#)).

## 7.4 Candidacy checklist

1. Select your candidacy committee
  - a. Verify with the BSGP that all members of your committee fulfill the requirements to serve on the candidacy exam.
  - b. Verification should take place prior to submitting the written candidacy exam.
  - c. Please allow at least two weeks for the program to verify the committee member's status.
  - d. If a committee member is not eligible to serve on the candidacy exam the student and advisor will need to select an additional committee member that is eligible. Please consult with the program when determining a faculty member's status in BSGP.
2. Start preparing for the exam
  - a. Fill out "Application for Candidacy Exam Readiness" ([BSGP Student Handbook and Forms](#)) as soon as the committee is established
3. The written portion of the candidacy exam
  - a. Prepare your aims and share them with your advisor and the full committee. Revise as instructed and begin preparing the written portion of the exam once the committee agrees with the aims.
  - b. Students are encouraged to overlap the writing of the candidacy exam while taking BSGP 7070 - Fundamentals of Grant Writing in the Fall Semester.
  - c. Submit the final written proposal to the candidacy exam committee at least 4 weeks prior to the desired oral examination date.
  - d. The committee will provide feedback and approval or disapproval to proceed with the oral exam within 2 weeks. It is strongly encouraged that the student meets with the committee to receive feedback on the written candidacy proposal before the oral exam.
  - e. Discuss the format of the oral exam with the committee and advisor. This can include how questions will be handled. Topics that may or may not be included, etc. This is a valuable opportunity for the student to discuss the exam with the committee.
4. The oral portion of the exam
  - a. Finalize the oral exam date and time with the committee.
  - b. Book the room for the oral exam (if in person).  
<https://wexnermedical.osu.edu/utility/footer/events-and-video-production>. For students in labs at Nationwide Children's Hospital, please note that the Graduate School requires candidacy exams to be done on the main campus.
  - c. Fill out "Application for Candidacy" ([Gradforms](#)). This must be done at least 2 weeks before the oral date. BSGP may be coded as IBGP.
  - d. Students are encouraged to submit this form before the 2-week deadline so that there is time for the advisor and grad chair to approve the application
5. After the oral candidacy exam,
  - a. If the student passed, the committee must indicate that exam was approved and satisfactory in grad forms in the report on candidacy within 24 hours of the oral candidacy exam.
  - b. If the student did not pass, the committee must indicate that the exam was not approved and whether the student will be allowed to retake the exam.
  - c. In both situations, students are encouraged to meet with the committee as a group or individually to obtain constructive feedback. The exam is an excellent opportunity to learn from and build upon.
  - d. Students must send an email reminder to their committee members to complete an evaluation form for the candidacy exam ([Candidacy Evaluation Form](#)).

## 8 DISSERTATION DEFENSE

### THE STUDENT IS RESPONSIBLE FOR MAKING SURE THAT ALL REQUIREMENTS FOR GRADUATION HAVE BEEN FULFILLED

#### 8.1 The dissertation exam committee

The dissertation exam committee should be drawn from the student's mentoring committee. To reiterate, all committee members of the candidacy exam committee should have "P" faculty status with the Graduate School. For "M" faculty status to be a non-voting member of the dissertation committee, the student and mentor must request approval by the Graduate Studies Committee. Any exceptions outside of "P" and "M" faculty, e.g., professors from outside of OSU, the student and mentor must request approval by the Program Directors, who will request the Graduate School for an official exemption.

#### 8.2 Checklist for Doctoral Degree

See Checklist for Doctoral Degree Procedures and Requirements for Graduation: [OSU PhD checklist](#).

#### 8.3 Planning for the final semester

When the student, mentor, and committee agree to a target defense semester, the student should plan accordingly by counting back from deadlines. If the student wishes to walk in the graduation ceremony, the deadline is sooner than the deadline for the end-of-semester option; for the latter deadline, the student can walk in the ceremony after the following semester. Important deadlines:

- The application to graduate must be completed by the third Friday of the semester.
- The final pre-defense version of the dissertation document must be circulated to committee members four weeks before the defense date.
- The defense date should be earlier than two weeks before the deadline to submit the final dissertation.
- The final approved dissertation must be submitted by the appropriate deadline.

Students must register their oral exam date with the University ([GradForms](#)) and complete a form at BSGP to support readiness to defend ([BSGP Grad Readiness form](#)).

Students must send an email reminder to their committee members to complete an evaluation form for the candidacy exam ([PhD Defense Evaluation Form for BSGP](#)).

Students working at Nationwide Children's Hospital must schedule their defense exams on the main campus.

## **9 CHANGE OF DISSERTATION ADVISOR**

Should a situation arise in which either the student or advisor believes that the student should be under the direction of a different dissertation advisor, the following steps should be taken:

1. Prior to seeking another advisor, the student and advisor should hold discussions to determine if the problems or situation can be satisfactorily resolved in another manner.
2. If a resolution between the student and advisor cannot be obtained, such that the student will remain with the advisor, a formal meeting of the student's Dissertation Advisory Committee should be arranged by the student at which both the student and advisor will be present. Prior to this meeting both the advisor and student will submit to the committee members a summary of the situation from both points of view. The issues and any reasonable alternatives should be thoroughly discussed at the meeting. Minutes will be kept by a faculty committee member who is other than the advisor or new advisor. The minutes will be distributed to the committee members for approval of content, and the approved minutes will be sent to the Biomedical Sciences Graduate Program Directors. A copy of the minutes will be placed in the student's permanent file. If a resolution to change labs is agreed upon, then the Graduate School will be notified for further recommendations.
3. If a resolution that is agreeable to both the student and advisor cannot be reached at the meeting of the Dissertation Advisory Committee, so that the student can remain with the advisor, there should be a meeting of the student, advisor, and the Biomedical Sciences Graduate Program Director. The issues should be discussed, and a resolution of the problems obtained, if possible. The Biomedical Sciences Graduate Program Manager will be present and write minutes of this meeting, which will be sent to the student, the advisor, the advisory committee, and the Biomedical Sciences Graduate Program Director. A copy of the minutes will be placed in the student's permanent file.

If a resolution that is agreeable to the student and advisor cannot be reached at the meeting with the Biomedical Sciences Graduate Program Director, so that the student can remain with the advisor, the issues will then be discussed by the Biomedical Sciences Graduate Program Graduate Studies Committee. Prior to this meeting, all written materials related to this issue will be provided to the committee members, and both the student and advisor will be given the opportunity to supplement these materials. The issues will be discussed at a meeting of the Graduate Studies Committee. The student and advisor may be asked to be present at this meeting. After discussing these issues, the committee will make a recommendation concerning whether the student can transfer to a different dissertation advisor.

- 1) If, after following the above procedure, the student wishes to seek a different dissertation advisor, the Biomedical Sciences Graduate Program may provide a stipend and costs of tuition and fees for up to one semester, depending upon availability of funds. After that semester, the student should have identified an advisor who is willing to pay the stipend from a grant that collects full indirect costs. The Biomedical Sciences Graduate Program will then arrange for payment of tuition and fees. If the change occurs during a semester, the credit hours for independent research should be divided between the two advisors, according to the amount of time the student spends under the direction of each advisor. The student and new advisor may wish to form a different Dissertation Advisory Committee.



## **10 ACADEMIC STANDARDS AND ACADEMIC MISCONDUCT**

### **THE BIOMEDICAL SCIENCES GRADUATE PROGRAM REQUIRES ALL STUDENTS TO ADHERE TO THE RULES AND INTENT OF THE OHIO STATE UNIVERSITY GRADUATE SCHOOL AND THE UNIVERSITY CODE OF STUDENT CONDUCT**

#### **10.1 Biomedical Sciences Graduate Program Academic Standards**

The Graduate School requires all students enrolled in graduate programs at The Ohio State University to maintain a grade point average of 3.0 or above to be in good standing. Students who fail to do so are placed on academic probation until they raise their GPA to 3.0 or above within a maximum of 2 academic semesters or sessions. As per university rules, students whose GPA remains below 3.0 following two semesters of academic probation will be denied future registration in the Biomedical Sciences Graduate Program.

#### **10.2 Academic Misconduct**

All students are expected to follow the OSU Code of Student Conduct. The code applies to on-campus and off-campus conduct of students. All students are informed that copying or paraphrasing paragraphs, sentences, or phrases directly from textbooks, journal publications, or any form of written or electronic document, and then submitting them as answers for any examination or fulfillment of other academic assignment is an act of plagiarism. Plagiarism includes the use of someone else's words or ideas as your own, without proper documentation. In no instance will any form of academic misconduct be tolerated. University Rules require that any suspected academic misconduct be reported to the Committee on Academic Misconduct (COAM). If COAM determines a student has violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include probation, suspension or dismissal from the University by action of COAM and a failing grade in the course. The Graduate School and the BSGP take academic misconduct by graduate students especially seriously. The BSGP reserves the right to dismiss a student receiving probation or suspension given by COAM.

## **11 PETITIONS AND GRIEVANCE PROCEDURES AND GUIDELINES**

### **11.1 Petitions**

A student may petition for relaxation of, or modification to, any rules in the Biomedical Sciences Graduate Program handbook by submitting a written petition to the Biomedical Sciences Graduate Program Graduate Studies Committee (GSC). Such a petition by a student should be accompanied by a letter of support from the first-year advisor, the dissertation advisor or members of the mentoring committee.

## 11.2 Grievances

Occasionally, conflicts may arise either between graduate students, between students and faculty and/or staff members. Sincere attempts should be made to resolve conflicts among the involved parties before any grievance policy is activated. Conflicts between a student and the dissertation advisor that cause either party to seek a change in the student's advisor must follow the Procedure for a Student to Change Dissertation Advisor (Section 9).

If a grievance remains after exhausting the informal process between the involved parties, the person having the unresolved complaint may file a written grievance with the Biomedical Sciences Graduate Program GSC. The following protocol will be used:

- At least four members of the Biomedical Sciences Graduate Program GSC will act as the Graduate Student Grievance Committee (GSGC).
- One of the Biomedical Sciences Graduate Program Directors will chair the GSGC, unless personally involved, in which case the Chair will be excluded from all deliberations on the matter and the GSC will select a Chair from among the remaining Biomedical Sciences Graduate Program GSC members.
- Members of the Biomedical Sciences Graduate Program GSC directly involved in the case will also be disqualified from sitting on the panel for that specific case. In such circumstances, the Chair will designate an alternate, when possible, from the same area of expertise as the disqualified member.
- The Chair of the Biomedical Sciences Graduate Program GSGC will set a hearing date no later than two weeks after the grievance statement is received.
- At least 72 working hours prior to the hearing, the chair of the GSGC will provide to all parties a written statement of the specific grievance, a notification of the time and place of the hearing, and copies of documents relevant to the grievance hearing.
- Each party will appear in person to present his or her case. Each party will be allowed one support person to attend but will not be allowed to present.
- The Chair will preside over the hearing and determine all procedural matters. This is an administrative proceeding and, therefore, the formal rules of legal procedures do not apply.
- All parties will be entitled to an expeditious hearing.
- The final decision of the GSGC will be reported in writing to the parties involved no later than two weeks after the hearing. The report on this decision will also include a statement concerning the validity of the complaint.
- Throughout this process the GSGC will attempt to mediate a resolution.
- Cases not resolved at this level will be referred to the Graduate School, and formal grievance procedures shall be activated as defined by the Graduate Associate Grievance Procedures Guidelines (available from the Graduate School).

## **12 GRADUATE FACULTY AND GRADUATE TEACHING FACULTY**

### **12.1 Mission**

The mission of the Biomedical Sciences Graduate Program is to train successful researchers in biomedical sciences. The BSGP Faculty are required to have sufficient mentoring time and research funding to support these activities. Graduate Faculty Status in the Biomedical Sciences Graduate Program is for faculty with at least a 25% appointment in the College of Medicine who are independent regular or research faculty.

### **12.2 Expectations of the BSGP Graduate Faculty**

It is fully expected that all Graduate Faculty will contribute in a substantive way to the program. Faculty members who do not make a substantive contribution to the program will have their Graduate Faculty status with the Biomedical Sciences Graduate Program revoked.

- Mentor students and faculty in the Biomedical Sciences Graduate Program.
- Teach in the core Biomedical Sciences Graduate Program curriculum or any other Biomedical Sciences Graduate Program course.
- Serve the Biomedical Sciences Graduate Program through participation on student mentoring / development committees, lead core course modules, aid in graduate admissions and recruiting.

### **12.3 Requirements to Recruit and Mentor New Graduate Students**

Faculty seeking to mentor BSGP graduate students must meet the following criteria:

- Faculty must have P status in the BSGP program (See definition of M and P status below)
  - Regular tenure track faculty with extramural funding or sufficient startup funding who commit to meeting the expectations outlined above may be granted P-status by the Director(s) of the program.
  - Research track faculty may be eligible for P status but require a strong record of mentoring, scholarship, and independent research support. Applications will require a full review and vote by the BSGP GSC.
- Faculty must demonstrate a strong desire to be a good mentor. Evidence of active engagement in mentoring include:
  - A sustained track record of successful graduation and placement of students.
  - Completion of an OSU sponsored course on implicit bias.
  - Completion of the OSU UITL Teaching Practices Inventory survey.
  - Completion of BSGP required mentor training.
  - Honors and recognition by students for teaching and mentoring.
  - Junior faculty with limited experience may have an experienced co-mentor appointed to the graduate student's mentoring committee.
- Faculty member must have at a minimum of five years of independent funding available for student expenses at the time the student begins work in the lab. Faculty and their Department chair will be required to submit a signed MOU that funding is in place to support the student (See example at end of document).
- Faculty member must have sufficient research space to support the research needs of the student. Faculty and their Department chair will be required to submit a signed MOU that space is assigned to the faculty member to support the student (See example at end of document).

### **12.4 Appointments to the BSGP Graduate Faculty**

Appointments to the BSGP graduate Faculty are made by the Director(s) of the Program and the

Graduate Studies Committee. Appointments consist of a five-year term with renewal dependent upon the faculty's continued contribution to the BSGP program in the form of mentoring, teaching, and service on committees. Faculty may apply for membership in the graduate program using the online form provided on the BSGP website. The Program Director(s) will review all applications and approve faculty applications that comply with the policy above. Exceptions to the policy or challenges to the Director(s) decision will be reviewed by the Graduate Studies Committee (GSC). The GSC may request further documentation and conduct interviews with Faculty applicants. The GSC will render a decision via a majority vote to approve or deny the request. The Directors of the Biomedical Sciences Graduate Program will prepare the required forms for the Graduate School and inform the applicant of the decision.

## **12.5 Category P and Category M Membership**

The Graduate School Handbook describes the criteria for appointment and responsibilities of graduate faculty with Category M or P status (see below). Briefly, Category P faculty advise Ph.D. and MS students; category M faculty advise MS students only. Category M faculty may serve on dissertation exams and advisory committees of Ph.D. students only upon the approval of the Graduate Studies Committee. Please see the guidelines below, as described in [Graduate School Handbook](#) - Qualifications, Rights, and Responsibilities, SECTION 12.4

## **12.6 Category P Qualifications.**

### **12.6.1 The faculty member:**

- holds a tenure-track or research faculty appointment
- holds an earned Ph.D., DMA, or petitions the Graduate School for an equivalent degree
- is engaged and primarily directs an active program of research, scholarship, or creative activity, or demonstrates the significant promise of establishing such a program and has engaged and demonstrated experience in mentoring graduate students

### **12.6.2 Rights and Responsibilities of Category P Graduate Faculty.**

- acts as the primary advisor for master's and doctoral students
- participates in the governance of graduate education at all levels within the university
- serves on doctoral examination committees
- serves as a GFR on second candidacy examinations and final oral examinations Minimum

## **12.7 Category M Qualifications.**

### **12.7.1 The faculty member.**

- holds a tenure-track or clinical faculty appointment
- holds a master's degree or higher, or equivalent Rights and Responsibilities of Category M Graduate Faculty.
- acts as the primary advisor for master's students

### **12.7.2 Rights and Responsibilities of Category M Graduate Faculty.**

- participates in the governance of graduate education at all levels within the university
- serves on doctoral examination committees at the discretion of the Graduate Studies Committee

### **13 M.S. in Biomedical Sciences**

Students who do not make progress in their mentored research projects can transition from the PhD program to take a terminal degree in the M.S. in Biomedical Sciences. The requirements for this degree are:

- Completion of 50 credits of course work
- Students must have a GPA of 3.0 or higher.
- Students must be currently enrolled for 3 or more credits per term.
- The student must be recommended for the M.S. degree by their advisor/mentor and approved by the directors of the BSGP.
- Students may not enter the BSGP with the intent of obtaining an M.S. degree.

#### **13.1 Thesis option**

Students who are post-candidacy may prepare a written thesis describing their research accomplishments and present an oral seminar that may be public or private and should be 30 minutes or less. The committee must include the student's mentor plus two other faculty members, all with M- or P-status in BSGP. The committee may ask questions of the candidate in a closed-door session, and the total time for the exam must be less than two hours. Video conferencing of the presentation and closed-door question and answer session is allowable. All committee members must approve the thesis, and the thesis must be formatted according to University directions and be deposited.

#### **13.2 M.S. based on completed candidacy exam**

The student may opt to take a Master of Science degree based on having successfully passed the candidacy examination. Students taking this option must be registered for three credits or more per term and must be within the time limit for eligibility of candidacy. These students must not already hold an M.S. degree in Biomedical Sciences. Requirements for this option are consistent with the [OSU Graduate School Handbook](#) section 6.1.

#### **13.3 Non-Thesis option**

Students who are pre-candidacy may qualify for an M.S. degree if they take a Master's examination. This examination is similar in format to the candidacy examination. The committee must include the mentor plus two other faculty members with M- or P-status in BSGP. The written component of the exam includes an Abstract, Specific Aims (1 page), Research Approach (6 pages), and Literature Cited (no page limit). The student should include in this document relevant experiments that have been completed. The written component of the exam must be submitted to the committee members at least two weeks prior to the date of the oral component of the examination.

The oral component of the examination includes a presentation that cannot exceed 30 minutes and may be available to the public if the student wishes. The committee may then question the student in a private session, and the total time of the oral component cannot exceed 2 hours. Video conferencing is permissible for the oral component of this examination. For a passing grade, all committee members must grade the presentation as Satisfactory.

## **14 STUDENT ORGANIZATIONS AND ACTIVITIES.**

### **14.1 BSGP Student Congress**

The Biomedical Student Congress was founded in 2018. The main goal of the BSGP-SC is to provide is to give students an opportunity to participate in BSGP Leadership strategic planning and decision making. The BSGP-SC functions as the communication vehicle between the entire student body and the administration of the graduate program. It also provides professional and social opportunities.

### **14.2 Biomedical Sciences Graduate Student Organization**

The Biomedical Sciences Graduate Student Organization (BSGO) was founded by the inaugural class of the Program in 2001. The main goal of the BSGO is to provide comradeship to all students. The BSGO functions as the communication vehicle between its membership and the administration of the graduate program. It also provides professional and social opportunities. The BSGO strives to inform, interact with, and serve the biomedical community. The BSGO also serves the public at large in ways related to biomedical research and education. During meetings, topics discussed include future course work, recruiting events, community service projects, and student concerns. The BSGO also co-sponsors the new student orientation and The OSU Medical Center Research Day. See Section 17 (page 42) for the BSGO Constitution.

### **14.3 Bennett Society**

The Bennett Society was founded in 1984 in the College of Medicine and was named in honor of the Bennett Foundation. The goals of the Bennett Society are to promote and recognize excellence in graduate research and education, as well as to enhance communication between graduate students and the faculty within the College of Medicine. The Bennett Society extends an open invitation to all graduate students in the College of Medicine to join the society to promote graduate student education and research.

### **14.4 OSUMC Research Day**

For many years there have been several different events in the College of Medicine (COM) at which students presented results of their research. While this showcased some organizations and gave a few students multiple opportunities to gain experience in scientific presentations, it also resulted in smaller audiences. In 2002, for the first time, the COM combined several events, which previously had been held individually, into one OSU Medical Center Trainee Research Day. This event is held annually. In addition to students from the Biomedical Sciences Graduate Program, this event is sponsored by research trainees from the Bennett Society, Landacre Honor Society, Medical Scientist Student Organization, medical students, including those supported by the Roessler Foundation, students in interdisciplinary graduate programs who have an advisor that is a faculty member of the COM, and existing departmental graduate programs. This is also a forum for Postdoctoral Trainees, Clinical Fellows, and Residents to present their work. **Students are strongly encouraged to present a poster at this event each year after their first year of study.**

## 15 MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN STUDENT, DISSERTATION ADVISOR, AND BIOMEDICAL SCIENCES GRADUATE PROGRAM

### Memorandum of Understanding (MOU) between Student, Dissertation Advisor and Biomedical Sciences Graduate Program (BSGP)

This Memorandum of Understanding (MOU) documents agreements regarding BSGP student progress expectations, administrative oversight, and financial obligations for *MENTOR NAME* as Dissertation Advisor for *STUDENT NAME* effective *DATE*. In addition to fulfilling the commitments outlined in the Biomedical Sciences Graduate Program Student Handbook, this agreement includes the obligation to provide a stipend and tuition for this student for each year of study until the student graduates from the Biomedical Sciences Graduate Program. The term of commitment is expected to be at least three years. The stipend is determined annually by the College of Medicine (COM) and is currently **\$33,960**. In addition to providing the current stipend level, the Dissertation Advisor is also expected to cover the tuition and fees for the student according to the student's Graduate Program's policies. Although the tuition and fees amount does change over time, the advisor should expect the amount for the academic year (Autumn, Spring, and Summer) to be roughly \$19,000/year (pre-candidacy Ohio resident).

Should the source of the stipend come to an end, the Dissertation Advisor will arrange another source for the stipend (and tuition/fees according to the student's Graduate Program's policies). If these efforts are unsuccessful, the Dissertation Advisor will work with the Department Chair to establish a funding source for the stipend, tuition & fees in a timely fashion. This may involve reassigning the student to a new dissertation advisor.

In the event that the Dissertation Advisor leaves the University, the Dissertation Advisor will work with the student to arrange a new situation; either the student will move with the mentor, or the mentor will facilitate the student identifying a new Dissertation Advisor. The Advisor should notify the Biomedical Sciences Graduate Program Directors as early as possible and no later than the semester in advance of institutional departure. In addition, the Dissertation Advisor is expected to prepare a transition plan addressing such topics as ongoing data access, authorship opportunities etc. designed to minimize interruption to the student's research productivity and academic progression.

If the student receives external funding, the Dissertation Advisor must supplement the stipend if the level of support is below the BSGP standard stipend, bringing the student up to the BSGP stipend amount. If the student receives external funding and the funding comes to an end while the student remains enrolled, the Dissertation Advisor will provide financial support until the student graduates.

We encourage all BSGP students to apply for both internal and external funding opportunities. Funding application resources, specifically letters of recommendation and previously successful submissions, are provided to all of our students.

Any change in funding source during the student's training including, but not limited to, T32 Fellowship, F30/F31 Fellowship, TL1 Fellowship, and external society fellowship/grant should be communicated to the BSGP office in a timely fashion (within one week of award notification).

Advisor expectations are with the understanding that the student also meets the program performance expectations, advisor's expectations and professionalism expected of a research scientist trainee.

Any student grievances that may arise should be addressed following the established process outlined in the BSGP student handbook. If any issues arise that the signatories (or their successors) are unable to resolve, the signatories may appeal to the Vice Dean for Education in the College of Medicine and/or leaders in the College of Medicine for support in negotiating a solution.

## **Mentor-Mentee Expectations**

From the Association of American Medical Colleges (AAMC) Group on Graduate Research, Education, and Training (GREAT).

### **Commitments of Graduate Student Mentee**

- I acknowledge that I have the primary responsibility for the successful completion of my degree. I will be committed to my graduate education and will demonstrate this through my efforts in the classroom and the research laboratory. I will maintain a high level of professionalism, self-motivation, engagement, scientific curiosity, and ethical standards.
- I will meet regularly with my research advisor and provide them with updates on the progress and results of my activities and experiments.
- I will work with my research advisor to develop a thesis/dissertation project. This will include establishing a timeline for each phase of my work. I will strive to meet the established deadlines.
- I will work with my research advisor to select a thesis/dissertation committee. I will commit to meeting with this committee at least annually (or more frequently, according to program guidelines). I will be responsive to the advice of and constructive criticism from my committee.
- I will be knowledgeable of the policies and requirements of my graduate program, graduate school, and institution. I will commit to meeting these requirements, including teaching responsibilities.
- I will attend and participate in laboratory meetings, seminars and journal clubs that are part of my educational program.
- I will comply with all institutional policies, including academic program milestones. I will comply with both the letter and spirit of all institutional safe laboratory practices and animal-use and human-research policies at my institution.
- I will participate in my institution's Responsible Conduct of Research Training Program and practice those guidelines in conducting my thesis/dissertation research.
- I will be a good lab citizen. I will agree to take part in shared laboratory responsibilities and will use laboratory resources carefully and frugally. I will maintain a safe and clean laboratory space. I will be respectful of, tolerant of, and work collegially with all laboratory personnel.
- I will maintain a detailed, organized, and accurate laboratory notebook. I am aware that my original notebooks and all tangible research data are the property of my institution but that I am able to take a copy of my notebooks with me after I complete my thesis/dissertation.
- I will discuss policies on work hours, sick leave, and vacation with my research advisor. I will consult with my advisor and notify fellow lab members in advance of any planned absences.
- I will discuss policies on authorship and attendance at professional meetings with my research advisor. I will work with my advisor to submit all relevant research results that are ready for publication in a timely manner prior to my graduation.
- I acknowledge that it is primarily my responsibility to develop my career following the completion of my doctoral degree. I will seek guidance from my research advisor, career counseling services, thesis/dissertation committee, other mentors, and any other resources available for advice on career plans.

\_\_\_\_\_ (Student initials) *EXAMPLE ONLY*



### **Commitments of Graduate Student Mentor**

- I will be committed to mentoring graduate student to be a future member of the scientific community.
- I will be committed to the research project of the graduate student. I will help to plan and direct the graduate student's project, set reasonable and attainable goals, and establish a timeline for completion of the project. I recognize the possibility of conflicts between the interests of externally funded research programs and those of the graduate student and will not let these interfere with the student's pursuit of their thesis/dissertation research.
- I will be committed to meeting one-on-one with the student on a regular basis.
- I will be committed to providing financial resources for the graduate student as appropriate or according to my institution's guidelines, in order for them to conduct thesis/dissertation research.
- I will be knowledgeable of, and guide the graduate student through, the requirements and deadlines of their graduate program as well as those of the institution, including teaching requirements and human resources guidelines.
- I will help the graduate student select a thesis/dissertation committee. I will assure that this committee meets at least annually (or more frequently, according to program guidelines) to review the graduate student's progress.
- I will lead by example and facilitate the training of the graduate student in complementary skills needed to be a successful scientist, such as oral and written communication skills, grant writing, lab management, animal and human research policies, the ethical conduct of research, and scientific professionalism. I will encourage the student to seek opportunities in teaching, if not required by the student's program.
- I will expect the graduate student to share common laboratory responsibilities and utilize resources carefully and frugally.
- I will not require the graduate student to perform tasks that are unrelated to their training program and professional development.
- I will discuss authorship policies regarding papers with the graduate student. I will acknowledge the graduate student's scientific contributions to the work in my laboratory, and I will work with the graduate student to publish their work in a timely manner.
- I will discuss intellectual policy issues with the student with regard to disclosure, patent rights and publishing research discoveries.
- I will encourage the graduate student to attend scientific/professional meetings and make an effort to secure and facilitate funding for such activities.
- I will provide career advice and assist in finding a position for the graduate student following their graduation. I will provide honest letters of recommendation for their next phase of professional development. I will also be accessible to give advice and feedback on career goals.
- I will provide for every graduate student under my supervision an environment that is intellectually stimulating, emotionally supportive, safe, and free of harassment.
- Throughout the graduate student's time in my laboratory, I will be supportive, equitable, accessible, encouraging, and respectful. I will foster the graduate student's professional confidence and encourage critical thinking, skepticism, and creativity.

\_\_\_\_\_ (Dissertation Advisor initials) *SAMPLE ONLY*

## **Example Mentor-Mentee Compact & Expectations Form**

Compact to be used to align expectations. The mentor and mentee should complete this form and share it with the mentoring committee.

From the Association of American Medical Colleges (AAMC) Group on Graduate Research, Education, and Training (GREAT).

### **Mentor and Mentee Establishment of Expectations**

- Communication and meetings:
  - What is the best way/technology to get a hold of each other? What is the appropriate time frame to expect a response?
  - When do you plan to meet (be as specific as you can), how long will the meeting be?
  
- Mentee's role on project:
  - Describe trainee's primary area(s) of responsibility and expectations (e.g., reading peer-reviewed literature, in-lab working hours, etc.).
  
- Participation in group meetings, journal clubs, seminars, etc. (as relevant):
  - Trainee will participate in the following ongoing events:
  - What does this participation look like (attending, presenting, asking questions)?
  
- Opportunities for feedback:
  - In what form and how often can the trainee expect to receive feedback regarding overall progress, research activities, etc.?
  - Professional meeting(s) that the trainee will attend and dates (local and national):
  - What funding is available to attend these meetings?
  
- Networking opportunities:
  - Discuss additional opportunities to network (e.g., meeting with seminar speakers, etc.)
  
- When to be and not to be in lab:
  - Discuss expectations regarding vacations and time away from campus and how best to plan for them.
  - What is the timeframe for notification regarding anticipated absences?
  - What is the expectation for time in lab?
  - How will mentor and mentee discuss participation in other activities (internships, student groups, teaching, outreach and other)?
  
- Funding:
  - Discuss the funding model and plans for future funding (fellowships, etc.).
  
- Completion of programmatic milestones and other milestones (as applicable).
  - Consult Program Director and Coordinator for Academic Milestones and complete according to program guidelines.
  - List expectations for years 1-5. Include coursework, MTE, qualifying exam deadlines, thesis proposal, intervals for thesis update meetings
  
- Personal and professional goals:

- Identify short-term and long-term goals and discuss any steps/resources/training necessary to accomplish the goals (reference IDP discussions as appropriate).
- If career goals are uncertain, discuss ways to identify opportunities for career exploration.
- Skill development:
  - Identify the skills and abilities that the trainee will focus on developing during the upcoming year. These could be academic, research, or professional skills, as well as additional training experiences such as workshops, courses, or internships.
- Discuss the plan to balance coursework, program requirements, thesis work and professional development:
  - Will you expect to meet specifically to discuss this balance on a regular basis or as commitments to efforts outside the lab change?
  - How will you resolve conflicts? Both mentor and mentee should be aware of the Resolution of Conflict Policy and the Code of Conduct Policy posted by DBBS.
- Other areas:
  - List here any other areas of understanding between the mentee and mentor regarding working relationship during the trainee's tenure.

We agree to uphold the Compact. We agree on the stated goals in the Expectations form and will discuss any needed modifications at least once a year.

*SIGNATURE LINE INCLUDED FOR EXAMPLE ONLY*

\_\_\_\_\_  
 Jeffrey Parvin, MD, PhD  
 Associate Dean, Graduate Studies  
 Director, Biomedical Sciences Graduate Program

\_\_\_\_\_  
 Date

*SIGNATURE LINE INCLUDED FOR EXAMPLE ONLY*

\_\_\_\_\_  
 Michael Freitas, PhD  
 Director, Biomedical Sciences Graduate Program

\_\_\_\_\_  
 Date

*SIGNATURE LINE INCLUDED FOR EXAMPLE ONLY*

\_\_\_\_\_  
 Dissertation Advisor

\_\_\_\_\_  
 Date

*SIGNATURE LINE INCLUDED FOR EXAMPLE ONLY*

\_\_\_\_\_  
 Department Chair (Advisor's Home Department)

\_\_\_\_\_  
 Date

I hereby understand the investment being made by my advisor to foster my development as a research scientist. I also understand my responsibilities in this program as outlined in the *BSGP student handbook*.

*SIGNATURE LINE INCLUDED FOR EXAMPLE ONLY*

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Student

Date

**Addendum for Direct Admission Students to Memorandum of Understanding (MOUs):**

**Mentor Agreement:**

As the mentor taking on this student directly into my laboratory, I hereby assume full responsibility for funding the student throughout their graduate training. In the event that I choose to terminate the student's position in my laboratory, I commit to continuing their funding for a period of up to one year as they seek placement in another laboratory. I acknowledge that grant funds may not be allocated to students who are no longer part of my laboratory, and I will utilize alternative funding sources to fulfill this obligation, should the need arise.

*Signature of Mentor: SIGNATURE LINE INCLUDED FOR EXAMPLE ONLY*

*Date: \_\_\_\_\_*

**Student Agreement:**

I, the undersigned, am entering the laboratory of the named mentor, \_\_\_\_\_. Prior to this commitment, I have thoroughly explored the nature of my working relationship with my mentor and have engaged in discussions with potential colleagues within the laboratory. I am fully prepared to commit to this laboratory setting. I acknowledge that should I decide to leave this laboratory, neither the Biomedical Sciences Graduate Program (BSGP) nor my mentor will be required to provide my stipend and tuition during my transition to another laboratory.

*Signature of Student: SIGNATURE LINE INCLUDED FOR EXAMPLE ONLY*

*Date: \_\_\_\_\_*

## 16 BSGP GUIDELINES FOR AUTHORSHIP ORDER AND INCLUSION IN SCIENTIFIC PUBLICATIONS

Almost uniformly, guidelines for authorship from the NIH, journals ([Authorship article 1](#), [Authorship article 2](#)) or OSU (see below) cover whether an individual merits inclusion as an author and how these disputes are mediated. Very few guidelines or scholarly articles address issues of authorship order. This lapse in enumerating common practice in authorship has potentially important consequences for the careers of trainees since authorship and authorship order are the currencies by which the trainee is judged and advanced in the next level. This document should complement other policies, such as OSU policy on publications in document [OSU Research Data Policy](#).

The order of authorship in publications is guided by (in order of importance): 1) experimental results; 2) analysis. Generally, the first author leads the experimental findings and writes the first draft of the manuscript. It is the responsibility of the PI to consult with all authors in open discussion to appropriately assign the order of authorship before submission of the manuscript.

Details of the guidelines:

1. Research disciplines differ in the placement of authors. In the biomedical sciences, the most common practice is for the senior scientist acting as responsible/corresponding author to be the last author in the list, and the experimenter who led the project as first.
2. Authorship in a potential publication is best discussed at the onset of a project and openly discussed as new scientists join the project and as the manuscript is drafted.
3. It is general practice that the first author is the individual who is primarily responsible for the completion of laboratory experiments that are used as figures in a manuscript to be submitted for publication. When multiple individuals contribute experimental data, then authorship order can be guided by a) the number of figures; b) the impact of figures; c) the preliminary work that established the initial finding; and d) the concept or idea that has led to the experimental rationale. In practice, it is generally clear which individual has led a project from idea to completed results, and this author is listed first.
4. Completion of research projects can sometimes be complicated by, for example, if the prime mover for a project leaves the laboratory. In such a case, there must be a reasonable incentive to recruit another individual to complete the manuscript, and co- first authorship is a useful mechanism.
5. Data analysis has increasingly become important in the interpretation of experimental results, and often a second individual is a prime mover behind the analysis. In such circumstances in which the analyst applies standard approaches that may elevate the conclusions of a study, they are often listed as the second author. If they have created novel algorithms and completed a high level of analysis, as typically found in genomics research, then the analyst may be listed as co-first. If the analysis preceded the experimental data, the lead analyst may be the first author.
6. The order of authorship of other contributing scientists from second to penultimate positions on the author list should reflect the relative contributions to the study and are based on discussions between the first and senior authors.
7. It is important that all authors discuss their relative contributions with the other authors during the preparation of the manuscript and the design of the figures, and certainly before submission of the manuscript. Ultimately, the senior author decides the final order of the manuscript.
8. Collaborations between laboratories are common, and an open discussion of authorship is essential in these cases. Co-first authorship and co-senior authorship are often appropriate in such a study.
9. The first author generally writes the first draft of the manuscript, and commonly the first author controls all the drafts as the paper is edited and prepared for submission.