Program Overview
Pathology is an integrative discipline that looks simultaneously at the whole organism and its component cells, tissues, and molecules to study the causes and mechanisms of disease. It is a discipline that strives to understand the mechanisms of disease at fundamental levels, and to apply this understanding to improve management of these diseases in the clinical setting. The Pathobiology Graduate Program provides a strong background in pathology and related basic sciences to prepare students for academic, research, teaching, and biotechnology careers.

Program of Study
The Graduate Program in Pathobiology of the Department of Pathology offers a program of study leading to the Ph.D. degree in Pathobiology.

The Program provides students with opportunities to elucidate the mechanisms and origins of human diseases through an integrative approach emphasizing systemic processes based on molecular and cellular pathologic underpinnings. Students are prepared with formalized classroom instruction in all general areas of disease mechanisms and undertake specialized training (including thesis research) one of five programmatic areas: Immunopathology; Microbiology & Infectious Disease; Neoplasia; Neuropathology; Vascular Biology & Hemostasis.

Applicants are not required to designate a specific programmatic area of interest at the time of application or matriculation, and laboratory rotations across multiple disciplines are typical for students in the Program. However, special funding opportunities may be available for applicants with commitment to a particular discipline.

Pathobiology encompasses fundamental and applied studies of the biological basis of disease. Like the discipline of pathology itself, it straddles the traditional basic and clinical sciences. Research in Pathobiology is typically aimed toward the discovery of the basic mechanisms that cause disease with the goal of developing fresh insights leading to improved treatments or preventative measures. Thus, the students in the Pathobiology program are prepared for careers in the translation of basic biological principles to solve specific disease problems.

Learner Mental Health and Well-Being
The health and wellness of students are of utmost importance to us here at Johns Hopkins. Students struggling with anxiety, stress, depression, or other well-being-related concerns, can contact the Johns Hopkins Student Assistance Program (JHSAP) at jhsap.org (http://jhsap.org/). Additional resources are available at https://www.hopkinsmedicine.org/getting-help/(https://www.hopkinsmedicine.org/getting-help/).

Students with a disability or any health issue may request accommodations and are encouraged to contact the School of Medicine Disabilities Services Coordinator for graduate students to discuss your specific needs (Kristina Nance, GradDisabilityOffice@jh.edu).

Diversity and Inclusion
Johns Hopkins is a community committed to sharing values of diversity and inclusion in order to achieve and sustain excellence. We firmly believe that we can best promote excellence by recruiting and retaining a diverse group of students, faculty and staff and by creating a climate of respect that is supportive of their success. This climate for diversity, inclusion and excellence is critical to attaining the best research, scholarship, teaching, health care and other strategic goals of the Health System and the University. Taken together these values are recognized and supported fully by the Johns Hopkins Institutions leadership at all levels. Further, we recognize that the responsibility for excellence, diversity and inclusion lies with all of us at the Institutions: leadership, administration, faculty, staff and students. More details and resources can be found at the following link: http://web.jhu.edu/dlc/resources/hopkins_resources/index.html (http://web.jhu.edu/dlc/resources/hopkins_resources/)

Facilities
Classroom instruction is conducted in the lecture, seminar, and conference rooms of the School of Medicine. Student research is conducted in the state-of-the-art research facilities of program faculty. These fully equipped laboratories support studies ranging from molecular, cellular, and physicochemical analyses through whole animal and informatics-based techniques. The Program takes special advantage of its clinical service laboratories and clinical activities to familiarize students with and provide resources for translational research.

Financial Aid
Candidates accepted into the Program are offered full support providing payment of tuition, health, dental and vision benefits as well as a stipend for the duration of their studies.

Admission Requirements
Students typically matriculate in July or August. The following 6 key elements are required for application and ultimately for admission into the Program:

1. a bachelor’s degree from a qualified college or university;
2. your updated CV;
3. coursework with laboratory in inorganic & organic chemistry, general biology, and calculus;
4. transcripts of undergraduate grades;
5. a minimum of three letters of recommendation; and
6. a one-to-two page personal statement including your research and career goals.

GRE Scores Not Required. As of Sept, 2019, when applying to the Graduate Program in Pathobiology, we no longer require the GRE General or Subject Tests scores, however if taken, applicants are encouraged to share their scores.

Underrepresented minority students are strongly encouraged to apply and to contact the program directors for guidance. Personal interviews at Johns Hopkins are preferred.

Inquiries should be directed to:
Ms. Stacey R. Morgan, Sr. Academic Program Coordinator
Graduate Program in Pathobiology
The Johns Hopkins University School of Medicine
720 Rutland Avenue, Ross 558
Baltimore, MD 21205
E-mail: smorgan9@jhmi.edu (pathobio@jhmi.edu)
http://pathology.jhu.edu/department/training/pathbio_ProgramOverview.cfm
PROCEDURES FOR CHOOSING ROTATIONS AND A THESIS ENVIRONMENT:

1. Each student will complete 3 research rotations prior to selecting a thesis laboratory. A fourth rotation may be completed if desired.
2. Upon starting the rotation, students and their rotation mentors will complete the Rotation Plan form.
3. Upon completion of the rotation, the mentor will provide an evaluation of the student’s work.
4. Students will present their rotation work at the Pathobiology Journal Club or at the annual Pathobiology retreat.
5. The 3 required rotations must be completed with Pathobiology faculty members. If a student decides to take a fourth rotation with an outside faculty member, it is with the understanding that the student will NOT be able to undertake the thesis in that lab.
6. Each research rotation will be about 3 months in length, with the exception of summer rotations. A full-time summer rotation (July-August) will be about 2 months in length.
7. The 3 required rotations must be completed during the first year.
8. The student must select a thesis advisor no later than 1 year from the date of admission to the program. **In general, students will not be permitted to conduct their thesis research in a laboratory where they have been previously employed. Any exceptions to this policy will be determined by the Pathobiology Executive Committee.
9. Interim Advisors: each student will be assigned an interim advisor during the time period between starting the program and choosing a thesis advisor. The student must meet with the interim advisor AT LEAST once every 4 months. These meetings will be initiated by the student.

ORAL EXAMINATION

The Graduate Board Oral Examination tests the breadth and depth of the graduate student’s scientific knowledge and readiness to begin thesis research. These exams are administered by the Pathobiology program through an oral examination committee consisting of 3 faculty members. This preliminary oral examination will be scheduled by lottery at the end of the first year meeting with the Program Director. The exam takes place during October after the student has completed all required first year courses. The exam is required for graduation.

THESIS ADVISOR AND ADVISORY COMMITTEE

After the first year is completed, the student will choose an advisor from the Pathobiology faculty. After completing the Oral Examination for the Ph.D. Degree for the School of Medicine Programs, a Thesis Advisory Committee will be formed to monitor the student’s thesis research progress. The student, with the consent of his/her advisor, decides on the composition of the thesis committee. The thesis committee consists of at least three experts in the student’s field of study or related fields. Committee members help with research direction and technical challenges, and oversee the student’s progress until research is complete and the doctorate is awarded. Students must meet with their Committee at least once per year to review progress.

ELECTIVES

All students in their second year and beyond are required to take a one-semester elective course for credit in each academic year. Courses may be taken for a grade or pass/fail. Students may choose a course offered in the Johns Hopkins Medical Institutions, or on the Homewood Campus subject to approval by the Program Director.

TRANSLATIONAL ROTATIONS (2 REQUIRED)

The objectives of these rotations are to give graduate students an interactive exposure with the clinical diagnostic dimension of Pathology. Students should learn the fundamental clinical questions, the current state of the technologies to address these questions, and how basic science can be translated to advances in diagnostic and therapeutic modalities. Students must complete 2 translational rotations as a graduation requirement. These rotations need not require an experimental project involving bench work. If the student wishes to complete such a project, it should be decided jointly between the student and rotation advisor.

DEPARTMENTAL THESIS SEMINAR

Shortly before your submission of graduation materials, you must present your thesis work to the department in a one-hour talk.

SEMINARS, JOURNAL CLUBS, AND LAB MEETINGS

Graduate students are required to attend the weekly Pathobiology Journal Club Course and all are expected to attend weekly Pathobiology lunch meetings as well as all lab meetings in their mentor/thesis advisor’s departments throughout their training period. Students are encouraged to attend the many seminars presented by invited speakers who are involved in cutting edge research.

PATHOBIOLOGY ANNUAL RETREAT:

The annual Pathobiology Retreat (held in early Fall), from 8:00 a.m. to 4:00 p.m. includes a series of short research talks by senior students and poster presentations by second-year and beyond students. Attending keynote speaker(s) will deliver a special lecture and faculty members and alumni will discuss their research. All members of the Pathobiology Graduate Program are expected to participate in this event.

GRADUATE STUDENT ASSOCIATION POSTER SESSION

The Graduate Student Association Poster Session is held every year. This activity allows faculty, fellows, residents, and students to learn more about the diverse ongoing research in the Pathology department. All fellows, residents, graduate students and medical students working with a faculty member who holds an appointment in the Department of Pathology or the Pathobiology Program are invited to submit abstracts and present posters at the annual event.

AWARD OF THE PH.D. DEGREE AT THE JOHNS HOPKINS UNIVERSITY

From the Doctor of Philosophy Board website:
There are three fundamental requirements for the Ph.D. at Johns Hopkins University: dissertation, residence, and oral examination. None
of these requirements can be modified or changed without unanimous consent of the schools and the Provost.

1. **Dissertation**: All Ph.D. students must successfully complete a dissertation in accordance with relevant school and program guidelines prior to degree conferral.

2. **Residence**: All Ph.D. students must have completed two consecutive semester of full-time study prior to degree conferral.

3. **Oral Examination**: All Ph.D. students must successfully pass a required oral examination conducted by five faculty members. The oral examination must include the chair and at least one other member from outside the candidate’s home department.

It is university policy that all program and university requirements for the Ph.D. must be completed in 9 years or less from start of the doctoral program. The Doctor of Philosophy Board reviews all candidates for the Ph.D. prior to conferral to ensure that the fundamental requirements for the Ph.D. have been met within the time frame delineated.