The Experimental Pathology Graduate Program

2018-2019
Student Handbook

utmb Health
OBJECTIVE OF THIS BOOKLET
This handbook is offered to provide current information specifically related to the Experimental Pathology Graduate Program within the Graduate School of Biomedical Sciences (GSBS) at the University of Texas Medical Branch (UTMB). The handbook adheres to the rules and regulations put forth by the GSBS and the Basic Biomedical Science Curriculum (BBSC). Please use the handbook in conjunction with the information provided by the GSBS, the BBSC and the UTMB General Catalog. Below are web sites that also provide additional information:

Experimental Pathology Graduate Program Web Site: http://www.utmb.edu/pathology/education/graduate_program/default.asp
GSBS Web Site: http://gsbs.utmb.edu/
UTMB Enrollment Services Web Site: http://www.utmb.edu/enrollmentservices/.

OBJECTIVES OF THE EXPERIMENTAL PATHOLOGY GRADUATE PROGRAM

Experimental pathology is a biomedical discipline concerned with the nature of human disease, and examines mechanisms by which molecular, structural and functional aberrations cause disease or are caused by disease. There are five specific objectives of the program:

1. Educate students in the basic biomedical sciences of cell morphology, biochemistry, molecular biology, physiology and their pathologic counterparts in disease processes. Additionally, students are trained in the study of human pathogens and their vectors.
2. Provide interactions between students and clinical scientists to facilitate student development of an appreciation for the problems, issues and technology of diagnosis, management and treatment of human disease.
3. Educate students in research methodology, data analysis and critical thinking while providing exposure to the multiple approaches to research about mechanisms of disease.
4. Provide students with the guidance, training and support needed to complete an original research project in a specialized area of experimental pathology.
5. Prepare students for the diverse careers that are available to Ph.D.’s in biomedical sciences.

ORGANIZATION OF THE EXPERIMENTAL PATHOLOGY GRADUATE PROGRAM

Program Director: Jere W. McBride, PhD
1.136B Keiller Bldg, (409) 747-2498
Fax (409) 747-2455
E-mail: jemcbrid@utmb.edu

Program Coordinator: Ashley Rhame
1.136 Keiller, (409) 772-2521
Fax: (409) 747-2455
E-Mail: anrhame@utmb.edu

Graduate Faculty Committees:
Admissions and Recruitment Committee
Student Evaluation and Advisory Committee
Curriculum and Academic Planning Committee
Scholarship Committee
GRADUATE TRAINING IN EXPERIMENTAL PATHOLOGY

It takes approximately five years to obtain a doctoral degree in the Experimental Pathology Graduate Program. The primary activities that engage students during Years 1-5 are outlined below:

Year 1. In the first term, students take core courses (Biochemistry, Cell Biology, and Molecular Biology and Genetics) offered as part of the Basic Biomedical Science Curriculum (BBSC). The BBSC is a contemporary, integrated, multidisciplinary curriculum that provides a strong basic training in biomedical sciences prior to a specialized Program-specific course of study. In Year 1 (terms II and III), students take Program-specific course of study and complete laboratory rotations. Students are fully supported by the GSBS in Year 1.

Year 2. Students complete EP Program course of study and a qualifying examination process that includes both written and oral qualifying examination components according to guidelines created by the Student Evaluation and Advisory Committee (SEAC). Upon passing the qualifying examination, students begin developing their dissertation projects in order to advance to doctoral candidacy during their third year. Second year students also participate in the weekly Experimental Pathology Work in Progress (WIP) (PATH 6115) and are required to give an introductory seminar (30 minutes) on their current research. The WIP seminars are attended by faculty, students, post-doctoral trainees and others, who provide input and suggestions to help trainees improve their project and presentation skills. EPGP students are also expected to attend other campus seminars including Frontiers of Infectious Diseases (PATH 6145).

Year 3. Students are heavily involved in their research and other activities including journal clubs and research in progress presentations. In the first term, students must divide their time between laboratory research and drafting a dissertation proposal that they will defend orally in order to formally advance to doctoral candidacy at the end of the spring term (May). Primary direction and day-to-day guidance are obtained from the mentor.

Year 4. Students are heavily involved in their laboratory research and other activities including research in progress presentations. Semiannual meetings with the supervisory committee to update research progress are required, and final revisions of the dissertation project are vetted through the supervisory committee. Students typically present their work at regional, national, and international scientific meetings and consider the final stages of research leading to their dissertation defense.

Year 5. In the first term, students are completing final laboratory experiments, writing and submitting scientific manuscripts for peer-reviewed publication, and begin drafting their dissertation. They attend local, national, and international scientific meetings to present research findings. The doctoral studies culminate on dissertation defense day when the trainee orally presents and defends their research in public and private forums. If the supervisory committee is satisfied and all course requirements have been fulfilled, the dissertation is approved and the student is awarded the Ph.D. degree.

The Department of Pathology Annual Trainee Research Day has been held annually since 1995 and provides an opportunity for all departmental faculty, doctoral students, and postdoctoral fellows to meet and present their latest research at a poster session forum. Other activities include Researcher of the Year award and presentation during lunch, monetary awards for best poster presentations (sponsored by faculty and the Center for Biodefense and Emerging Infectious Diseases), and the Graduate Student Organization recognition of faculty for Excellence in Teaching and Mentoring. In 2018, there were 72 poster presentations by all trainees and Researcher of the Year was Dr. Saravanan Thangamani who presented "Vecto-Virus-Host Interface: Nidus of Arbovirus Transmission."
## COURSE OF STUDY FOR THE EXPATH GRADUATE PROGRAM 2017-18

<table>
<thead>
<tr>
<th>BBSC Core Courses-Year 1</th>
<th>Course Director</th>
<th>Course Number</th>
<th>Term/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry</td>
<td>Lee/Morais</td>
<td>BBSC 6401</td>
<td>I, A</td>
</tr>
<tr>
<td>Bioinformatics</td>
<td>Fofanov</td>
<td>BBSC 6223</td>
<td>I, A</td>
</tr>
<tr>
<td>Cell Biology</td>
<td>Choudhary/</td>
<td>BBSC 6302</td>
<td>I, A</td>
</tr>
<tr>
<td></td>
<td>Oberhauser</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biostatistics</td>
<td>Spratt</td>
<td>BBSC 6222</td>
<td>II, A</td>
</tr>
<tr>
<td>Molecular Biology &amp; Genetics</td>
<td>Barral/Bouyer</td>
<td>BBSC 6403</td>
<td>II, A</td>
</tr>
<tr>
<td>Responsible Conduct in Biomedical Research</td>
<td>McKinney/</td>
<td>BBSC 6129</td>
<td>I,II,III, A</td>
</tr>
<tr>
<td>Laboratory Rotations</td>
<td>Toliver-Kinsky</td>
<td>BBSC 6043</td>
<td>I,II,III, A</td>
</tr>
</tbody>
</table>

### ExPath Program-Year 1

<table>
<thead>
<tr>
<th>ExPath Program-Year 1</th>
<th>Course Director</th>
<th>Course Number</th>
<th>Term/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles of Laboratory Biosafety</td>
<td>Brocard</td>
<td>BBSC 6217</td>
<td>I or III, A</td>
</tr>
<tr>
<td>Frontiers of Infectious Diseases</td>
<td>McBride</td>
<td>PATH 6145</td>
<td>I,II, A</td>
</tr>
<tr>
<td>Basic Human Pathobiology-Tox or ID</td>
<td>Olano/Boor/Khan</td>
<td>PATH 6276</td>
<td>II, A</td>
</tr>
<tr>
<td>Functional Histology and Pathobiology</td>
<td>Olano</td>
<td>PATH 6436</td>
<td>II, A</td>
</tr>
<tr>
<td>Research in Pathology</td>
<td>McBride</td>
<td>PATH 6097</td>
<td>I,II,III, A</td>
</tr>
<tr>
<td>Frontiers of Infectious Diseases</td>
<td>McBride</td>
<td>PATH 6145</td>
<td>I or II, A</td>
</tr>
</tbody>
</table>

### Program Electives (3 cr)

<table>
<thead>
<tr>
<th>Program Electives</th>
<th>Course Director</th>
<th>Course Number</th>
<th>Term/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Vaccinology</td>
<td>Milligan/Bourne</td>
<td>PATH 6161</td>
<td>I, A</td>
</tr>
<tr>
<td>Workshop in Phylogenetics</td>
<td>TBD</td>
<td>PATH 6211</td>
<td>I, B</td>
</tr>
<tr>
<td>Cellular Microbiology &amp; Disease</td>
<td>Aguilar/Sahni</td>
<td>PATH 6289</td>
<td>I, A</td>
</tr>
<tr>
<td>General Virology</td>
<td>Bente</td>
<td>MICR 6403</td>
<td>I, A</td>
</tr>
<tr>
<td>Foundations of Virology</td>
<td>TBD</td>
<td>PATH 6140</td>
<td>II, A</td>
</tr>
<tr>
<td>Tropical Infectious Diseases &amp; Biodefense</td>
<td>Melby/Travi</td>
<td>PATH 6318</td>
<td>II, B</td>
</tr>
<tr>
<td>Advanced Immunology</td>
<td>Endsley/Milligan</td>
<td>MICR 6408</td>
<td>I, A</td>
</tr>
<tr>
<td>Teaching Skills &amp; Course Devel.</td>
<td>Aronson</td>
<td>PATH 6101/6102</td>
<td>II, III, B</td>
</tr>
<tr>
<td>Biology of Arthropod Dis Vectors</td>
<td>Thangamani</td>
<td>PATH 6112</td>
<td>III, B</td>
</tr>
<tr>
<td>Fundamentals of Inflammation</td>
<td>Hawkins/Reyes/Midor-Horiuti</td>
<td>BBSC 6210</td>
<td>III, A</td>
</tr>
<tr>
<td>Vaccine Development Pathway</td>
<td>Bourne/Milligan</td>
<td>BBSC 6219</td>
<td>III, A</td>
</tr>
<tr>
<td>Cellular &amp; Molecular Mechanisms In Health &amp; Disease</td>
<td>Singh/Vargas</td>
<td>CELL 6401</td>
<td>III, A</td>
</tr>
<tr>
<td>Pathogenic Bacteriology</td>
<td>Torres/Motin</td>
<td>MICR 6315</td>
<td>III, A</td>
</tr>
<tr>
<td>Clinical Microbiology Practicum</td>
<td>Williams-Bouyer/Loeffelholz</td>
<td>PATH 6123</td>
<td>I,II,III, A</td>
</tr>
<tr>
<td>Research Rotations</td>
<td>McBride</td>
<td>PATH 6012</td>
<td>I,II,III, A</td>
</tr>
<tr>
<td>Thesis</td>
<td>McBride</td>
<td>PATH 6098</td>
<td>I,II,III, A</td>
</tr>
<tr>
<td>Dissertation</td>
<td>McBride</td>
<td>PATH 6099</td>
<td>I,II,III, A</td>
</tr>
<tr>
<td>Seminar in Pathology</td>
<td>McBride</td>
<td>PATH 6195</td>
<td>I,II,III, A</td>
</tr>
<tr>
<td>Special Topics</td>
<td>McBride</td>
<td>PATH 6000</td>
<td>I,II,III, A</td>
</tr>
</tbody>
</table>

### Key

I = Fall, II = Spring, III = Summer, A = Annual, B = Biennial
Grades for Required Core Courses: Pathobiology of Human Diseases Parts I & II, Experimental Design and Introduction to Competitive Grant Writing, and Teaching in Pathology

1. Students must obtain a B grade or better in all required courses.

2. Accumulation of two C grades in graduate school constitutes grounds for dismissal from graduate school at UTMB. In addition, a grade of C in the core courses of this program will be deemed a deficiency, which will have to be corrected. This will involve repeating all or parts of courses where a grade C or lower was obtained and require a grade B or better when the parts of the course are repeated. Decisions on which parts of courses require repeating will involve discussions of the respective course director with the Student Evaluation and Advisory Committee (SEAC).

3. A grade of F will require the entire course to be retaken and a grade of B or better obtained on repeating the course.

Academic Progress

1. Students must maintain a GPA of 3.0 or better. This includes all courses and rotations.

2. A student will be put on probation if the average GPA falls below 3.0 in any one semester. Students whose average in the subsequent semester does not achieve 3.0 or better are subject to dismissal from graduate school.

M.D. /Ph.D. Curriculum in Experimental Pathology

Experimental Pathology will require a minimum of 9 hours of classes. Coursework must include PATH 6276 Basic Human Pathobiology-Toxicology or PATH 6386 Basic Human Pathobiology-Infectious Disease, PATH 6436 Functional Histology and Pathobiology, and an elective course appropriate for the student's area of specialization within the Experimental Pathology program. The academic record of each M.D. /Ph.D. student will be evaluated by the Program Director and if deficiencies are noted, additional coursework may be required.

STUDENTS MAY BE EXEMPTED FROM EXPERIMENTAL PATHOLOGY AND BBSC REQUIRED CORE COURSES BASED ON THEIR PRIOR ACADEMIC RECORD IN GRADUATE COURSES PREVIOUSLY TAKEN. EXEMPTION FROM BBSC COURSES CAN ALSO BE DETERMINED BY EXAMINATIONS. OTHER EXEMPTIONS MAY BE MADE DEPENDING ON THE BACKGROUND OR QUALIFICATIONS OF THE STUDENT AT THE DISCRETION OF THE STUDENT EVALUATION AND ADVISORY COMMITTEE (SEAC), THE PROGRAM DIRECTOR, AND THE DIRECTOR OF THE BBSC.

List of Conferences and Seminars at UTMB

Attending seminars is a critical part of the training program. Since Pathology is uniquely positioned at the interface between basic sciences and clinical medicine, Experimental Pathology graduate students have an exceptional opportunity to interact with clinicians regarding observations and unknowns in human disease. Departmental seminars provide formats for such interactions on a regular basis.

UTMB offers numerous seminars and conferences sponsored by various departments, programs, centers and interest groups. Information about these seminars is disseminated through a variety of mechanisms including UTMB Daily Announcements, Departmental Weekly Announcements, IHII Weekly Calendar, the UTMB web site, posted announcements, and in targeted emails. The number and diversity of seminars...
opportunities precludes a detailed listing of them. Listed below are several conferences/seminars that directly relate to many of the students in Experimental Pathology.

**Experimental Pathology Trainee Work in Progress (PATH 6115)** (weekly, fall/spring terms) – Thursday, 12 Noon, GNL 1.100. Trainees in Pathology, including graduate students and post-doctoral fellows engaged in research, present their current findings to their peers, faculty and staff. Graduate students in their first year in the program present 30-minute talks, while more senior students and post-doctoral fellows present 45-minute talks. This seminar series serves several purposes: 1) to provide trainees the opportunity to develop their verbal presentation skills; 2) to provide a forum for trainees to receive input into their research; and 3) to help develop a cohesive identity among trainees interested in the diverse research topics within the Department of Pathology. Participation in the annual Pathology Department Trainee Research Day, which usually occurs the first part of May each year, is a requirement of this course. **Graduate students are expected to attend these seminars and attendance is considered for final grades.** Evaluations with numerical scores for specific components related to science presented and presentation quality and written comments from faculty and students are summarized, and provided to the trainee and mentor.

**Interdepartmental Infectious Disease Work in Progress** (weekly, year round) – Tuesday, 8:30 a.m., Marvin Graves Bldg., Room 4.208. Laboratories engaged in infectious disease research at UTMB present their current research in this relatively informal seminar setting designed to provide an interactive exchange of ideas. This series encourages the dissemination of research interest information encouraging the development of collaborative research efforts.

**Immunology and Biodefense Journal Club** (three times per month, year round) – Wednesday, 12 Noon, MRB 4.145. Faculty, postdoctoral fellows, and graduate students present recently published papers in high-impact journals. These informal discussion sections allow fellows to strengthen their presentation skills and broaden immunological concepts and research tools.

**Environmental Health and Medicine Seminar** -The seminar series brings outstanding toxicologists to UTMB for lectures and informal interactions with faculty and trainees. This is typically held in Levin Hall room 3.320 at noon on Mondays in the Fall and Spring semesters.

**Grand Rounds (PATH 6195)** – (Weekly, Fall and Spring terms) - Monday, 12 Noon, GNL 1.100. This seminar series emphasizes topics of interest to those involved in the clinical activities of the Pathology Department. Faculty and invited guests from other UTMB departments and other educational institutions present current clinical research or other relevant clinical topics of interest.

**Colloquium of Frontiers of Infectious Disease and Tropical Medicine (PATH 6145)** (weekly, Fall and Spring terms) - Tuesday 12:00 p.m. 2.212 BSB. National and international renowned researchers are invited to present their most recent research in the fields of infectious disease, emerging infectious diseases, biodefense and tropical medicine.

**EXPERIMENTAL PATHOLOGY COURSE DESCRIPTIONS**

**PATH 6097 RESEARCH IN PATHOLOGY - 1-9 cr**
This course varies in credit according to the work performed. The student concentrates on a problem of his or her own choosing with faculty advisor. Grading is S/U (satisfactory/unsatisfactory); Prerequisite: None; Terms offered: I, II, III; Year offered: Annually; Course Director: McBride

**PATH 6115 EXPERIMENTAL PATHOLOGY TRAINEE WORK IN PROGRESS - 1 cr**
Trainees in Pathology, including graduate students and post-doctoral fellows engaged in research, present their current findings to their peers, faculty and staff. Graduate students in their first year in the program present 30-minute talks, while more senior students and post-doctoral fellows present 45-minute talks. This seminar series serves several purposes: 1) to provide trainees the opportunity to develop their verbal presentation skills; 2) to provide a forum for trainees to receive input into their research; and 3) to help develop a cohesive identity among trainees interested in the diverse research topics within the Department of Pathology. Participation in the annual Pathology Department Trainee Research Day, which usually occurs the first part of May each year, is a requirement of this course. Evaluations with numerical scores for specific components related to science content presented, delivery, importance, impact and written comments from course directors, faculty evaluators and students are summarized and provided to the trainee and mentor. Attendance is also required and considered in the final grade. Prerequisites: Consent of program director; Hours per week: Conference 1; Terms offered: I, II; Year offered: Annually; Course Director: Aguilar/Bouyer/Sahni/Freiberg/Thangamani/Sarathy

PATH 6145 FRONTIERS OF INFECTIOUS DISEASES & TROPICAL MEDICINE - 1 cr
Frontiers of Infectious Diseases & Tropical Medicine is an Experimental Pathology course that uses the Colloquium of Infectious Diseases and Immunity for its didactics. The colloquium is organized and sponsored by the Center for Biodefense and Emerging Infectious Diseases (CBEID), the Center for Tropical Diseases (CTD), and the Departments of Microbiology & Immunology (M&I) and Pathology at UTMB. This colloquium was created to offer faculty, staff, and trainees the opportunity to learn about the latest research of recognized experts in the fields of infectious diseases, microbiology, and immunity. Invited speakers are usually from academic institutions throughout the United States and occasionally from international institutions. The Colloquium offers a wide range of topics within the fields of infectious diseases, microbiology, and immunity, including epidemiology, vaccine development, pathogenesis, pathophysiology, molecular biology, cellular microbiology, etc. Students registered for this course will have the opportunity to meet the speaker in a separate small-group session called “meet the professor”. This is a great opportunity to learn not only about the details of the speaker’s research, but also about their motivations in science, their life experiences, and their advice as it relates to professional and academic advancement. Grading is S/U (satisfactory or unsatisfactory) and depends on attendance. Specific requirements are the following: First year students will register for this course for the fall and spring semesters, and they must attend more than 80% of the seminars offered during those semesters; second through fifth year students will register for this course for either the fall or the spring semester, and they must attend more than 80% of the seminars offered during the selected semester. Terms offered: I, II; Year Offered: Annually; Course Director: McBride

PATH 6276 BASIC HUMAN PATHOBIOLOGY – TOXICOLOGY – 2 cr
The objective of this course is to introduce the principles of toxicology. This is achieved by presenting specific clinically-relevant examples of toxic injury and exploring the biochemical, cellular and pathogenetic mechanisms that underlie these examples. Mechanisms of toxin-induced cellular injury discussed could include injury by reactive oxygen and nitrogen species, xenobiotic adduction and metabolism, and receptor/signal disruption. Grading is based on contributions to class discussion (40%) and a final examination (60%). Grading is Standard (A-F); Hours per week: Lecture I, Conference I; Term offered: II; Year offered: Annually; Course Directors: Boor/Khan

PATH 6279 INTRODUCTION TO COMPETITIVE GRANT WRITING – 2 cr
This course will provide an introductory and interactive experience to competitive grant writing. Topics to be covered include understanding the review process, and planning, organizing, writing a successful hypothesis driven application. Students will be required to write a two year grant application, provide written critiques. Grading is Standard (A-F) and based on class participation (30%), written assignments (40%), quality of the final application (40%) and an oral defense. Prerequisites: Consent of Instructor, Term offered: I, Year offered: Annually; Course Director: Vasilakis

PATH 6386 BASIC HUMAN PATHOBIOLOGY - INFECTIOUS DISEASE – 3 cr
The objective of this course is to introduce basic principles of infectious disease pathogenesis. This is achieved by introducing selected and representative pathogens and exploration of their virulence mechanisms from the biochemical, molecular and pathogenetic point of view. Presentation of clinically-relevant cases will illustrate these principles. This course is centered on the interaction of infectious organisms and their host rather than an "infectious agent"-centered course. Two general lectures on infectious disease pathogenesis and molecular diagnostics are followed by topics related to viral and bacterial diseases. The course is generously complemented by journal club sessions related to the topics presented at lectures. Grading is based on contributions to journal club discussion (30%) and a final examination (70%). Grading is Standard (A-F); Hours per week: Didactic lectures: 4 hours; Journal Club: 2 hours; Term offered: III; Year offered: Annually; Course Director: Olano

PATH 6436 FUNCTIONAL HISTOLOGY AND PATHOBIOLOGY – 4 cr
This 16-week course will provide a fundamental background for students who are interested in pursuing experimental pathology. This course will include, but is not limited to, general pathobiology, basic functional histology, and organ development of humans. Pathobiology topics will include cell injury/death, acute inflammation, immunopathology, neoplasia, coagulation, and genetic diseases. Functional histology will include the following organ systems: cardiovascular, respiratory, nervous, hematopoietic, gastrointestinal/hepatic, and urinary. For each system, normal functional histology and the main categories of diseases will be discussed (infectious, neoplastic, environmental, hemodynamic, etc.). Supplemental lectures on experimental techniques used in pathology research will also be included: histology/immunohistochemistry, electron microscopy, flow cytometry, and laser capture microdissection. Topics will be discussed as didactic lectures and use of glass slides/virtual imaging for demonstration of histology slides. Seven journal club sessions will take place during the course and will be related to the topics discussed during the course. Grading is Standard (A-F) and will be based on two mid-term exams and one final exam. Participation during journal clubs will also be graded. (Examinations: 20% + 20% + 20%; Journal Club: 20%; Attendance: 20%. Term offered: II; Year offered: Annually; Course Directors: Olano

BBSC 6217 PRINCIPLES OF LABORATORY BIOSAFETY – 2 cr
This course has been designed to include theoretical and practicum approach to biosafety for all students working in a laboratory. This course will focus on the BSL1-2 program with an introduction to BSL3. Topics will include risk assessment, personal protective equipment, proper use and selection of biological safety cabinets (BSCs) & chemical fume hoods, aerosol producing procedures, chemical safety, biological and chemical exposures, transport of biological materials, disinfection, waste handling and emergency laboratory procedures, regulatory requirements. Emphasis will be on development of competencies in fundamental laboratory techniques and using risk assessment to work safely and aseptically in the laboratory. This class will prepare students for future advancement opportunities into BSL 3 laboratories. The laboratory portion of the course will focus on organizing a biosafety cabinet (BSC) or fume hood, proper techniques in a BSC, preventing aerosols, transportation of biological material, disposing of wastes, and emergency procedures and decontamination. Grades will be based on attendance, participation, oral presentation and laboratory skills. Both classroom and laboratory components must be successfully completed to pass the course. Prerequisites: None; Hours per week: Laboratory 2; Lecture 1.5; Term offered: I, III; Year offered: Annually; Course Director: Brocard

PROGRAM ELECTIVES

PATH 6000 SPECIAL TOPICS – 1-3 cr
Study of Special Topics in Experimental Pathology. Topics are selected and study programs arranged on an individual basis with staff member. Prerequisites: Consent of Instructor; Hours per week: Conference or discussion, 2; Terms offered: I, II, III; Year offered: Annually; Course Director: McBride

PATH 6012 RESEARCH ROTATIONS - 1-6 cr
It is the goal of research rotations to provide exposure to the breadth of research opportunities in Experimental Pathology and to ensure that students receive diverse training. Rotation policies are flexible and responsive to students' background and interest. The number and types of rotations are determined by the SEAC, which will take the student's experience and interests into consideration. Three rotations in combination of BBSC and Pathology Rotations are recommended for most students. Rotations within an area of interest should be representative of the different types of research within that area and ensure that students are exposed to diversity in approaches, thought and techniques. Students can request a waiver from the required rotations in writing to the SEAC, and the request must include justification for that waiver. The SEAC can grant such waivers based upon the justification and records submitted in support of such a waiver request supplied by the student. The purpose of this course is to provide introductory laboratory experiences that will help students choose their areas of specialization and assist in the selection of a supervisory professor for their subsequent dissertation research. A student works on an individual basis with a member of the faculty for all or part of a term (8 or 16 weeks), either independently performing a short project designed by the faculty member, or jointly working on some facet of ongoing research. Prerequisites: Consent of instructor; Hours per week: Conference 1; Lab, up to 20; Terms offered: I, II, III; Year offered: Annually; Course Director: McBride

PATH 6098 THESIS – 1-9 cr
Formal research and writing leading to the preparation and completion of the thesis for the Master of Science degree under the direction of the student's supervisory committee. Grading is based on the student's level of performance as reported by the chairperson of the student's supervisory committee and is assigned as satisfactory, needs improvement, or unsatisfactory. Prerequisite: Admission to candidacy for the master's degree; Terms offered: I, II, III; Year offered: Annually; Course Director: McBride

PATH 6099 DISSERTATION – 1-9 cr
Formal research and writing leading to the preparation and completion of the dissertation for the Doctor of Philosophy degree under the direction of the student's supervisory committee. Grading is based on the student's level of performance as reported by the chairperson of the student's supervisory committee and is assigned as satisfactory, needs improvement, or unsatisfactory. Prerequisite: Admission to candidacy for the Ph.D. degree; Terms offered: I, II, III; Year offered: Annually; Course Director: McBride

PATH 6101 TEACHING SKILLS AND COURSE DEVELOPMENT I – 1 cr
Participation in Teaching Workshops: During these interactive sessions, students will learn about basic principles of course design, teaching strategies (especially small group teaching to foster active student learning and application), public speaking, and types of assessments (evaluations of student performance). In these workshop settings with their peers and the instructors, students will have an opportunity to explore their own ideas and attitudes about teachers and learners, discuss learning style preferences, investigate evidence-based best teaching practices, practice public speaking skills, and learn about selected computer-based educational technologies. Small group teaching in Integrated Medical Curriculum: Student teachers will apply principles of small group teaching in small group sessions for first year medical students in the Integrated Medical Curriculum. Each student will co-teach 4 laboratory exercises with a faculty instructor, on topics that include histopathology and pathobiology of inflammation, immunity, clinical and basic microbiology, neoplasia, and developmental/pediatric diseases. Students will receive feedback on their teaching effectiveness from the faculty instructor with whom they are paired. Students will have an opportunity to evaluate and critique lab exercises in terms of their effectiveness in fostering Significant Learning in students. Grading is Standard (A-F) and will be based on participation in and preparation for teaching workshop sessions, oral presentation, and written assignments, and faculty evaluations of small group teaching in IMC labs. Prerequisites: PATH 6266, consent of instructor; Hours per week: 2; Term offered: II; Year offered: Biennially; Course Director: Aronson

PATH 6102 TEACHING SKILLS AND COURSE DEVELOPMENT II – 1 cr
Participation in Teaching Workshops: Students will receive focused, hands-on instruction in writing course objectives and multiple choice test items. Teaching a module in the Clinical Laboratory Sciences
Program: Students will develop a module in a “Case-Studies” course for Clinical Laboratory Sciences Students in the School of Health Professions. Under the guidance of CLS instructors, student teachers will identify a topic or theme for consideration, develop objectives for the module, create lecture and case study material accordingly, and write MCQ style exam questions assessing CLS student acquisition/application of concepts addressed. This component will require that student teachers learn about clinical/diagnostic applications of basic science and demonstrate the ability to foster CLS student integration of laboratory data, basic science information, and clinical information. Student teachers will receive feedback about the effectiveness of their teaching from CLS students at the end of the module. Student teaching sessions will be video-recorded and reviewed by student and faculty mentor. Grading is Standard (A-F) and will be based on attendance and participation in teaching workshops, student and faculty evaluations of teaching effectiveness, and module development in CLS course [contribution to module planning; timeliness and appropriateness of objectives, lecture material, and test questions; and performance of test items]. Prerequisites: PATH 6101; Hours per week: 2; Term offered: III; Year offered: Biennially; Course Director: Aronson

PATH 6112 THE BIOLOGY OF ARTHROPOD DISEASE VECTORS – 1cr
The goal of this course is to introduce students to arthropods that are vectors for a wide variety of infectious agents that cause human diseases. The unique biology of hematophagous arthropods that has evolved to facilitate the coexistence between the vectors, pathogens, and the vertebrate host will be illustrated in both lectures and practical sessions. The curriculum will build upon a general introduction to arthropods. Then, using specific examples, the processes of infection, development, and transmission of pathogens will be discussed. This will include vector behaviors involved in location of the host, physiological adaptations to facilitate blood feeding and digestion, and factors that influence the vector-pathogen relationship. Options for controlling vector-borne diseases will be discussed from a historical perspective, with a consideration of how modern molecular approaches might be used in the future. Required reading: The Biology of Disease Vectors (Marquardt, W.C., Kondratieff, B., Moore. C.G., Freier, J., Hagedorn, H.H., Black, W. III., James, A.A., Hemingway, J. & Higgs, S. editors). Elsevier Academic Press. 2004. Evaluations are based on full-term examination (80%) and laboratory practical (20%). Final examination: Students will be evaluated based on multiple-choice questionnaires, short essays and the demonstration of practical knowledge. Grading is Standard (A-F); Prerequisites: consent of instructor; Hours per week: 2; Term offered: III; Year offered: Biennially; Course Director: Thangamani

PATH 6123 CLINICAL MICROBIOLOGY PRACTICUM – 1cr
This course is designed to provide graduate students with an opportunity to gain both understanding and practical, hands-on experience in the policies, procedures and regulatory/safety standards of the clinical microbiology laboratory, and its role in infectious disease diagnostics. It serves as an introduction to the field of clinical microbiology, for those students interested in pursuing this area as a career choice. The student will rotate through different sections of the clinical microbiology laboratory. Bench-level rotations will expose the student to laboratory subspecialties including bacteriology, virology, serology, mycology, mycobacteriology and parasitology. The student will be given simulated specimens on which to perform bacterial identification, under the guidance of microbiology technologists. Throughout the rotation, students will participate in daily laboratory rounds and are encouraged to attend Clinical Microbiology Diagnostic Management Team sessions and weekly Adult and Pediatric Infectious Disease Case Conferences. Prerequisites: Consent of instructor; Hours per week: Conference or discussion up to 5; Lab, up to 30; Grading is based on a written and oral assignment. Final grade will be assigned as either Satisfactory/Unsatisfactory (S/U); Terms offered I, II, III; Year offered: Annually; Course Directors: Williams-Bouyer/ Loeffelholz

PATH 6140 FOUNDATIONS OF VIROLOGY – 1 cr
Discoveries and discoverers, inventors and inventions, developers and technologies -- the historic bases for the state of virology research today and the larger context in which laboratory, field, and public health virology contribute to the prevention and control of viral diseases. I will use the tabular material and the 800 slide Powerpoint slide sets http://www.utmb.edu/ihii/virusimages/index.shtml to provide an
overview of the history of medical virology, emphasizing as stated, "the discoverers and discoveries, the inventors and inventions, the developers and their technologies." In producing these materials I have accumulated quite a bit of information, enough to provide in lecture / discussion format a sense of the context of the discoveries, and in key instances lots of detail that everyone is sure to find exciting. 16 lectures will each cover an “era,” starting with key events forming the base for the rise of microbiology in the 19th century, continuing with the discovery of the first viruses and the rise of the science in France, Germany and the United States in the early years of the 20th century, continuing with the discovery of most of the important human pathogens throughout the 20th century (and continuing today), and setting the stage for the molecular virology revolution that also continues. Grading is S/U (satisfactory/unsatisfactory). Pass/fail will be determined by attendance and participation in class discussions. Term offered: II; Year offered: Annually; Course Director: TBD

PATH 6161 INTRODUCTION TO VACCINOLOGY: Vaccines for the 21st Century – 1 cr
Vaccines for the 21st Century is a six-week, one-credit hour introductory course taught in lecture format with a small number of expert lecturers. The course is designed to provide the basic scientist with an understanding of vaccine development from conceptualization through development, testing, and utilization. The course objectives are to learn: 1. An introduction to pathogens and diseases for which vaccines are needed.
2. The pathophysiologic approach to developing vaccine strategies.
3. The principles of the development, availability, and use of vaccines.
4. The application of traditional and new technologies to vaccine development.
There will be assigned reading in preparation for each class session. Reading materials will be provided prior to each class. Each session will be 1 hour. Course performance will be determined by one take home mid-term examination (45%), one final examination (45%), and class attendance (10%). Prerequisite: Consent of Instructor; Term offered: I; Year offered: Annually; Course Directors: Bourne/Milligan

PATH 6195 – SEMINAR IN PATHOLOGY – 1 cr
This course requires attendance at, and participation in, weekly Pathology Grand Rounds, where the staff and guests from other departments and other educational institutions present current research or relevant topics of interest. Prerequisites: None; Hours per week: Seminar 1; Grading is S/U (satisfactory/unsatisfactory); Terms offered: I,II,III; Year offered: Annually; Course Director: McBride

PATH 6211 WORKSHOP IN PHYLOGENETICS – 2 cr
Phylogenetic methods are becoming increasingly popular for studies of microbial systematics, molecular epidemiology and evolution, pathogen emergence, predicting host and vector relationships, inferring biochemical and drug sensitivity similarities, etc. Although user-friendly algorithms are now widely available, proper analyses require a theoretical understanding of the assumptions underlying the algorithms used, and the statistical methods for determining the stability of phylogenetic trees generated. This course is designed to provide students with a basic practical and theoretical knowledge of phylogenetic methods for analyzing nucleotide and amino acid sequences. Upon completion of the course, the student will be able to make sound decisions on the best methods for analyzing their own sequences, run a variety of algorithms on a UNIX workstation and Macintosh personal computer, and interpret results to reach valid, statistically-supported conclusions.
The course will meet for one session of two hours each week. The first hour will be devoted to theoretical discussions of methods, and demonstrations using a laptop computer and projection system. The second hour will be a computer laboratory session where students will be given hands-on training with phylogenetic algorithms. Grading is S/U (satisfactory/unsatisfactory) and based on a class project involving phylogenetic analysis of the students’ sequences (either their own sequences from a research project or GenBank sequences of interest) as well as completion of a mock research paper suitable for submission to a journal. The results of class projects will also be presented to the class in typical scientific meeting format. Requirements for a passing grade include both publication quality data and writing, and a presentation of quality suitable for a national meeting. The final grade will be based 75% on the written class project (mock research paper) and 25% on the oral class presentation.
Prerequisites: Consent of Instructor; Hours per week: 2; Term offered: I; Year Offered: Biennially; Course Director: TBD

**PATH 6289 CELLULAR MICROBIOLOGY AND DISEASE – 2 cr**
This advanced course provides an in-depth examination of the molecular mechanisms of host-pathogen interactions (bacteria/viruses) to understand the strategies for successful infection of the host cell and evading host defense mechanisms. All topics are conceptual overviews of the principal mechanisms of bacterial/viral pathogenesis. Topics include molecular mechanisms of pathogen adherence/entry to host cells and pathogen signaling host cells through adhesion molecules, subversion of endocytic pathways, manipulation of the host cell cytoskeleton, bacterial secretion systems, immune evasion mechanisms and persistent infection. Emphasis is given to diseases with prototypic pathogenic mechanisms. Instruction involves lectures, class discussions and readings in contemporary or classic literature. Grading is based on attendance (20%), class discussions and participation (30%), and one final examination (50%). The format of final exam will be for students to choose 5-6 out of 10-12 questions. Grading is Standard (A-F); Hours per week: Lecture 4, Conference 1; Term offered: II; Year offered: Annually; Course Directors: Aguilar/Sahni

**PATH 6318 TROPICAL INFECTIOUS DISEASES AND BIODEFENSE – 3 cr**
This course is designed to provide graduate students with an overview of tropical infectious diseases and related current research. The course is not designed to be comprehensive, but will sample representatives of major infectious tropical diseases. Emphasis is placed on the ecology, epidemiology and control of tropical diseases. The class will meet two (2) times a week for 90 minutes; each session includes a 45-minute lecture by a faculty member, followed by a student-led discussion of a relevant research paper selected by the faculty instructor.
Grading is Standard (A-F); Prerequisites: Consent of instructor; Hours per week: Lecture 3; Term offered: II; Year offered: Annually; Course Directors: Melby/Travi

**CELL 6401 CELLULAR AND MOLECULAR MECHANISMS IN HEALTH AND DISEASE – 4 cr**
The course is designed to teach latest advances in Cell Biology, with emphasis on molecular mechanisms and signaling pathways. Topics will be taught by faculty who have the expertise and conduct research in the subject matter. A total of 14-15 topics will be taught. Prior to the start of the course, students will receive suggested reading for each topic to be covered in the course. Suggested reading material will help the students gain basic and current understanding of the topic to be covered, and students will read the suggested literature before the week in which the topic is taught. On Day 1 (Monday) of the week, faculty will present an overview of the topic and query the students for knowledge they are expected to have gained by reading the suggested literature. Faculty will then assign students specific topics that they will need to present and discuss on Wednesday. On Day 2 (Wednesday), students (in pairs or singly) will be requested to lead the discussion on the assigned topics. Each week, 2-3 topics within an area, will be covered. Students will lead the discussion and faculty will facilitate the discussions, to ensure that all students contribute to the discussion. On Day 3 (Friday), faculty will have a wrap-up session and challenge the students with specific questions on the topic, to judge critical thinking skills. Grades will be based on student knowledge (day 1), participation and written/oral presentations (day 2), and answers to critical thinking Qs (such as problem solving exercises) (day 3). Faculty will provide a score for each day, on a scale of 10, for each student. A grid for each day will be sent to the faculty for providing written scores. Grades on all three days from all weeks will be combined and calculated as a percent. Final grade will be formulated as a letter grade, according to GSBS guidelines. Prerequisites: All Graduate Students, other than the MD-PhD students, should have passed the required BBSC courses, including BBSC 6401-Biochemistry; BBSC 6302-Cell Biology; BBSC 6403-Molecular Biology & Genetics; BBSC 6222-Biostatistics; Hours per week: Lecture 5; Term offered: III; Year offered: Annually; Course Directors: Singh/Vargas

**MICRO 6315 PATHOGENIC BACTERIOLOGY – 3 cr**
The objective of this course is to introduce students to concepts of research on bacterial pathogens. Pathogens infecting man will be studied, with emphasis given to their pathogenic mechanisms, induction of immunity, and
physiochemical characteristics. The course will consist of lectures and discussions. Grading based on written examinations. Prerequisites: BBSC First Year Curriculum; Hours per week: Lecture 2; Conference or discussion 1; Term offered: III; Year offered: Annually; Course Directors: Torres/Motin

MICRO 6403 GENERAL VIROLOGY – 4 cr
Principles and concepts of animal virology will be presented, but the majority of the course will be devoted to the study of viruses of medical importance. Emphasis will be placed upon the chemical and physical characteristics of viruses, viral interaction with the immune system, pathogenesis of viral infections, and the mechanisms of replication of viruses. The course consists of lectures and discussion periods. Grades will be based on exams (60%), participation/critical thinking and journal club discussion (15%), review paper and oral presentation (25%). Prerequisites: BBSC First Year Curriculum; Hours per week: Lecture 3; Conference 1; Term offered: I; Year offered: Annually; Course Directors: Bente

MICRO 6408 ADVANCED IMMUNOLOGY – 4 cr
An in-depth study of the immune response and related events with emphasis on the mechanism of cellular and humoral immunity. Some of the topics to be covered include antibody structure and function, antigen-antibody reactions, cells involved in the immune response, antibody formation, cellular immunity, mediators, tolerance, and immunogenetics. Material will be presented in lectures and assigned readings of texts, reviews, and research articles. Grading will be based on written examinations and class participation. Prerequisites: BBSC First Year Curriculum; Hours per week: Lecture 3; Conference or discussion 1; Term offered: I; Year offered: Annually; Course Directors: Endsley/Milligan

BBSC 6210 FUNDAMENTALS OF INFLAMMATION – 2 cr
This seven-week course deals with fundamental concepts pertaining to inflammation. Inflammation plays a necessary role in wound healing and tissue surveillance, but can also lead to chronic wounds and pathologic states such as inflammatory bowel disease. By moving fluids and white blood cells from the blood into extravascular tissues the host can eliminate abnormal cells, foreign particles, microorganisms, etc. and initiate repair processes. Topics include inflammatory cells, the role that pathogens (bacterial, viral and parasitic) play in inflammation, the mediators (lipids, cytokines, peptides, and other molecules) and cellular events involved in cell recruitment and movement through the vessel wall into tissue spaces. Common inflammatory processes and wound healing will be discussed. Grades will be determined by performance in the discussion of current literature and on one take-home short-essay exam. Prerequisites: BBSC 6302, BBSC 6401, BBSC 6403 or consent of instructor; Hours per week: Lecture 3; Conference/Discussion 1; Term offered: III; Year offered: Annually; Course Directors: Hawkins, Midori-Horiuti, Reyes

BBSC 6219 VACCINE DEVELOPMENT PATHWAY – 2 cr
This eight-week introductory course will be taught in lecture format with a small number of expert lecturers. The course is designed to provide the basic scientist with an understanding of vaccine development from conceptualization through development, testing, and utilization. This multidisciplinary course was designed to introduce students to all of the aspects of vaccine development and utilization to include aspects of vaccines for infectious diseases and chronic non-infectious diseases (e.g., cancer, neurodegenerative diseases, and addiction). The course objectives are for students to understand:
1. The principles of pathogenesis of infectious diseases, immune protection, and eliciting protective immunity by vaccination.
2. The application of traditional and new technologies to vaccine development.
3. The principles of preclinical development, manufacturing, and clinical evaluation of a vaccine.
4. The importance of the regulatory process to vaccine development.
5. The utilization of epidemiology to measure vaccine need and effectiveness.
6. Immunization practices in developed and developing countries including targeting of non-infectious chronic diseases.
Prerequisites: BBSC 6302, BBSC 6401, BBSC 6403 or consent of instructor. Each session will be 1.5 hours. Course performance will be determined by one take home mid-term examination (45%), one final take-home
POLICY REGARDING LABORATORY ROTATIONS
In an effort to track the progress and performance of our students throughout their tenure at UTMB, we request that a specific research plan be outlined by the students and the faculty members in whose laboratory they would like to rotate. This plan for the rotation should be agreed upon and outlined on the form provided and submitted at the Pathology Education Office by the second week of the rotation period. At the completion of the rotation, the student will be asked to provide a report as to the results of their rotation. The faculty will be asked to provide a written evaluation of the student within two weeks after the end of the rotation period. These reports and evaluations will become part of the student's permanent file, enabling us to better evaluate and grade our students for each rotation period. It is essential that we generate complete and detailed records of student performance in all phases of the program. Your assistance in these efforts would be greatly appreciated.
The Student Examination Advisory Committee (SEAC) Chair (Dr. Vasilakis) assigns students to their Preliminary Examination Committee (PEC) consisting of SEAC committee members, select Experimental Pathology (3) and other (external) department (1) faculty.

Student selects a topic directly related to the research interests of the mentor’s laboratory for developing the preliminary examination proposal. The topic may directly overlap current projects in the mentor’s laboratory. If the student decides to write a proposal outside the scope of the hosting laboratory’s research, the published paper describing the preliminary data used in the proposal to support the hypothesis must be provided to the PEC.

- RETAKE GRANT WRITING COURSE NEXT YEAR
- MUST HAVE MENTOR

PASS

FAIL

REWRITE

FAIL

APPEAL TO SEAC IN PERSON

PASS

FAIL

2nd TRY TWO WEEKS LATER

PASS

FAIL

LEAVE PROGRAM or POSSIBLY OFFERED OPTION OF MASTERS DEGREE
A. General Information

The qualifying examination in the Experimental Pathology Graduate program requires that the student proposes, writes and orally defends an NIH-style F31 research proposal, which will be evaluated by a faculty committee. The graduate student preliminary (qualifying) examination (often referred to as “Prelim’s” or “Qualifiers”) must be successfully completed in order to pursue your graduate research and to advance to doctoral candidacy in the Graduate School of Biomedical Sciences (GSBS)/Program according to the timeline set forth in the GSBS bylaws. The purpose of this examination is to test your understanding of the BBSC (Basic Biomedical Science Curriculum) course work, program-specific course work, general science and critical thinking, the basis of research methods and, to evaluate your aptitude for scientific research. The examination will ordinarily be completed by the end of April of the second year of study, including for those admitted through the direct admission mechanism, and is a prerequisite for admission to candidacy to the Ph.D. program. Students who fail the examination cannot enter candidacy and are eligible to repeat the exam once in the following year. However, the following stipulations apply: (i) the student’s mentor must agree to support the student for the extra year (that is pay for the student’s stipend and tuition fees); (ii) the student must retake the grant-writing course. If the student fails again, s/he is subject to dismissal from the Graduate School of Biomedical Sciences (GSBS) and s/he must be prepared to submit a Master’s thesis.

B. Preliminary Examination Committee Selection

Congruent with the student’s acceptance into a research laboratory, the Student Evaluation and Advisory Committee (SEAC) Chair will select the members of the student’s Preliminary Examination Committee (PEC). The PEC consists of the following five Program Faculty (PF) members: Pathology research (2), Pathology clinical/education (1), external (UTMB) research (1), and a SEAC member (1).

All committee members will be Experimental Pathology Program Faculty.

C. Research Description

The written component of the exam must be an original proposal of work completed by the student. The research proposal can be derived from the student’s own scientific interest or projected dissertation project. If the student decides to write a proposal outside the scope of the hosting laboratory research, the published paper describing the preliminary data used in the proposal to support the hypothesis must be provided to the PEC committee. The student is required to independently develop the hypotheses, design of the specific aims and research strategy and write the proposal. However, s/he may seek advice from faculty mentors only during the initial stages in selecting available projects in the host lab that could be independently developed by the student as dissertation proposal. The submitted F31-style proposal must be an original work.

IMPORTANT NOTEs:

- The student must submit a copy of the final draft of the proposal to her/his mentor to ensure originality. However, submission and review of the final draft by the mentor MUST take place after submission of the proposal AND the mentor is required to notify the PEC Chair in writing. The mentor must acknowledge by signing at the signature line, located at the end of the proposal, that s/he has read the proposal and agrees that it is an original work.

- The student is required to sign a disclaimer indicating that the submitted proposal is an original work and produced in its entirety by her/him. The mentor and the student must each sign the disclaimer stating: “The submitted work was fully developed by the student (name) and it is an original piece of work”. The disclaimer is due by noon the following Monday.
after the due date of the proposal and will be inserted in the ‘Acknowledgement Section’ of the proposal by the PEC coordinator.

- The submitted proposal must include:
  - Cover page (With Title)
  - Abstract (alternatively known as ‘project summary’)
  - Relevance
  - Specific aims (1 page)
  - Continuation (including: significance, innovation and research strategy)(6 pages)
  - References (no page limit)

- Plagiarism is a serious offense in the Experimental Pathology Graduate program and the penalties for any evidence of plagiarism will be strictly enforced as outlined by the GSBS policies on plagiarism.

D. The Structure of the Preliminary Examination

The examination commences in the Spring semester of Year 2 (January to April) and consists of a written NIH-styled F31 grant proposal that you must orally present and defend to your PEC. The examination is administered by your PEC. The Preliminary Examination (written and oral components) generally should be completed in approximately four months. Each part of the examination (written proposal and oral defense) will be evaluated using standard criteria and graded as pass/fail. The student has a maximum of two chances to pass each part of the exam. A schedule detailing when specific tasks must be done (i.e. deadlines) and by whom, will be supplied to each student by the Program Coordinator (PC) by the end of the Fall semester of Year 2 (September – December). Typically, the student will be allocated 6 weeks (January – February) for writing the proposal. The proposal will be due on the second Friday in February (with NO EXCEPTIONS). The PEC decision will be forwarded to the student by the PC, on the last Friday in February. If the student proposal is judged a failure, a rewritten proposal will be due in 1 month (due on the last Friday of the month of March). If the student receives a passing grade s/he has up to 8 weeks to schedule an oral defense of the proposal before the PEC (no later than the last week of April).

E. Help and Feedback

As outlined above (Research Description section), the student will not receive any help from fellow students, faculty or mentor(s) in the preparation of the Preliminary Examination written grant proposal or its oral defense. However, the student can hold an oral practice session with their student peers (no faculty or post docs can be present). The student will receive specific feedback on their written proposal from their PEC prior to their oral defense. The specific comments on the written proposal are designed based on the NIH guidelines of grant review and the student must address them, in the form of a revised proposal submitted to the Program Coordinator one week prior to the oral defense. In the event of a failing grade, the PEC chair will also provide a detailed summary of the committees’ concerns that need to be addressed in the introduction to the revised proposal (1 page) and changes clearly marked in rewritten proposal.

VIOLATIONS OF ANY OF THESE TERMS CONSTITUTE ACADEMIC DISHONESTY AND STUDENTS WILL RECEIVE A FAILURE FOR THIS PART OF THE EXAM AND BE SUBJECT TO DISCIPLINARY ACTION AS PER UTMB & GSBS GUIDELINES

F. Statement of Examination Expectations

Students in Experimental Pathology are expected to demonstrate reasonable competence in subject areas related to the written proposal and BBSC/Program curriculum, and can expect to be probed by the PEC faculty to determine the depth of their scientific knowledge and acumen. Students are expected to demonstrate the ability to clearly define the premise and defend the hypothesis put forth after careful review and consideration of the scientific literature or host laboratory research interests.
from which the hypothesis is derived. The student should be prepared to provide a logical rationale for the approach and demonstrate a technical and scientific understanding of all proposed experiments and have considered potential problems and alternative approaches. The Experimental Pathology Graduate Program Faculty members of the student’s PEC must fully explore the limits of a student’s understanding of general scientific subject areas related to the written proposal and that obtained through the BBSC/Program curriculum in order to provide a challenging and constructive examination experience. Faculty must ensure that the student competently defends the proposed hypothesis and has fully considered the scientific literature from which the hypothesis is derived. Members of the PEC are responsible for probing the student’s knowledge related to approach including organization, technical and scientific understanding, and consideration of potential pitfalls and alternative approaches.

G. Basis of Proposal Selection
The student can select a topic directly related to the research interests of the mentor’s laboratory for developing the preliminary examination proposal. The topic may directly overlap current projects in the mentor’s laboratory. However, if the student decides to write a proposal outside the scope of the hosting laboratory’s research, the published paper describing the preliminary data used in the proposal to support the hypothesis must be provided to the PEC.

H. Written Proposal Format
The written proposal will consist of no more than 7 pages (including one specific aims page; maximum of two specific aims) and contain a Research Strategy section consistent with the current NIH F30 format. Abstract and Literature Cited are not included in this page limit. If you exceed the 7-page limit, the PEC will not evaluate it, and a fail grade will be issued. Students will have approximately 6 weeks to prepare and submit their written grant proposal to the Experimental Pathology PC. The PEC will be asked to evaluate and vote on the proposal [pass/fail; one PEC dissenting vote is allowed (i.e., 4 pass/1 fail)]. Students will not be permitted to schedule for the oral examination until they have passed the written component. Preliminary proposals may be screened for evidence of plagiarism. If plagiarism is detected, the student will fail the written examination and must appeal to the SEAC for consideration of reexamination. All PEC members evaluate the proposal based on designated evaluation criteria set forth in the evaluation form for the written examination that includes (a) scientific soundness, (b) whether the proposed hypothesis can be tested by the proposed aims, (c) the logic and originality of the experimental approach and methodological plan. The PEC Chair will communicate the results to the SEAC Chair and PC. The SEAC Chair (through the PC) will notify students of the PEC decision (pass/fail) by email. Students receiving a passing grade will contact their PEC to arrange an oral defense of the proposal (see below).

IMPORTANT NOTE:
The student will receive specific feedback on their written proposal from their PEC prior to their oral defense. The specific comments on the written proposal are designed based on the NIH guidelines of grant review and the student must address all committee comments/suggestions (even if s/he receives a passing grade) with a separate written response and provide a revised proposal (indicating changes with track changes) to the PC one week prior the date of the oral defense. The PEC may ask for further revisions to the written proposal after the oral defense based on questions or deficiencies that are identified during the examination and summarized by the PEC Chair. The student will have 2 weeks to revise and respond in writing to the PEC immediately after successful defense of the oral presentation. As indicated in the “General Information” section Students who fail the written or oral components of the examination cannot enter candidacy and are eligible to repeat the exam once in the following year. However, the following stipulations apply: (i) the student’s mentor must agree to support the student for the extra year (that is pay for the student’s stipend and tuition fees); (ii) in the case of a ‘fail’ grade in the written examination, the student must retake the grant-writing course. Should the second version of the proposal not be found acceptable, then the student will have failed the preliminary examination process. Students that do not successfully complete this part of the preliminary examination cannot enter candidacy and are therefore to dismissal from the Graduate School of Biomedical Sciences (GSBS) and they must be prepared to submit a Master’s thesis; (iii) in the case of a student passing the written examination but
fail the oral examination, the student will not be required to retake the grant writing course. However, the student may obtain a year delay and re-defend the oral component of the examination in the following year. At that time (meaning re-examination of the oral component after a one-year delay) if the student passes the oral examination, s/he may proceed to candidacy; if the student fails the oral examination again, s/he cannot enter candidacy and are therefore subject to dismissal from the GSBS and they must be prepared to submit a Master’s thesis.

The PEC Chair (SEAC member) is responsible for helping maintain consistency of the Experimental Pathology Program (henceforth referred as the ‘Program’) standards for the written and oral examinations. If a student fails the written or oral examination on the first attempt, the PEC Chair will also provide guidance on the Program standards for the rewrite or second oral examination.

**NIH Format Specifications**

**Font and type:** Use Arial and a font size of 11 points. Type density, including characters and spaces, must be no more than 15 characters per inch. Type may be no more than six lines per inch.

**Page Margins:** Use standard size (8 ½” x 11”) sheets of paper. Use one-half inch margins (top, bottom, left, and right) for all pages.

### I. Preparing Your Proposal

**Title:** Provide a title for your proposal

**Description/Abstract (30 lines total):** State the applications long-term objectives and specific aims, making reference to the health relatedness of the project. Describe concisely the research design and methods for achieving these goals. In two or three sentences describe in plain, lay language the relevance of the research to public health.

**Specific Aims (1 page):** Define the medical importance of your work, provide a long-term objective/goal of your research, and provide two specific knowns that provide a basis for your hypothesis. Define the gap in knowledge that you are attempting to address, and explain why this gap prevents progress. Next, provide a statement outlining the specific objective for this proposal, followed by a strong, focused and specific (not vague) central hypothesis. Finally, provide a rationale for your hypothesis (i.e. what will become possible).

**Significance and Innovation (1 page):** This section is extremely important. Explain how project addresses an important problem or barrier to progress in the field. What is the positive impact that your research will have? How will the research change concepts, methods, etc. that drive the field? Are the concepts, approaches and methodologies broadly novel? Does the application challenge and seek to shift current research paradigms?

**Research Strategy (5 pages):**

a) **Background:**
   
   Only provide background directly relevant to each specific aim

b) **Feasibility studies:**
   
   Since you may or may not have your own data by this time, data from published paper(s) and/or unpublished data from ongoing projects in the mentor’s lab, etc may be briefly described in order to indicate why, for example, you are using a particular approach/technique.

c) **Approach:**
   
   Provide your approach and experiments you plan to conduct to complete the specific aim. Provide rationale for use of specific techniques, plans for interpreting anticipated results, identify limitations and alternatives available. Remember to include controls (negative and positive if appropriate), the appropriate statistical analyses that are required, as well as a time line of the experiments (table format).

**Literature Cited (no page limit).**
Where possible, you should read original papers and keep citations of review articles to a minimum. Remember that if you cite a paper it is assumed that you have actually read it!!

**Hint:** You should understand every word, experimental approach, technique that is part of your proposal. Have a rationale for everything you propose. Provide an analysis of the limitations and potential pitfalls of each and every approach. Provide alternative approaches whenever possible.

### Specific Aims Example:


#### SPECIFIC AIMS PAGE

**Introduction:** Crimean-Congo hemorrhagic fever virus (CCHFV) and Nairobi sheep disease virus (NSDV) are highly pathogenic tick-borne viruses of the family *Bunyaviridae*, genus *Nairovirus*, sporadic outbreaks of which result in severe hemorrhagic disease of humans and sheep/goats with reported mortality rates as high as 80% and 90% respectively (Whitehouse 2004 & www.merckvetmanual.com). Recent observations by Garcia et al., (2005) have incriminated RNA interference (RNAi) as a potential antiviral mechanism to Hazara virus (HAZV) (family *Bunyaviridae*, genus *Nairovirus*, CCHFV serogroup) replication following prophylactic or therapeutic stimulation in *Ixodes scapularis* (ISE6) cells. Concurrently RNAi-mediated gene silencing of tick midgut and salivary gland transcripts has been demonstrated following inoculation of sequence specific double stranded (ds) RNA via injection or capillary feeding (Karim et al., 2005 & Soares et al., 2005). However, the implications of an activated sequence specific RNAi response on nairovirus replication in the arthropod vector and vertebrate host remain unknown. This gap in the knowledge is an obstacle to understanding conserved anti-nairovirus replication mechanism in the arthropod vector and vertebrate host and as such impedes the development of antiviral strategies toward the abatement of infection and transmission of medically important bunyaviruses.

The **long-term goal** of this research is to investigate tick-bunyavirus-vertebrate interactions in attempt to develop novel antiviral strategies. The **objective of this proposal** is to examine the effects of prophylactic stimulation of the host RNAi pathway on replication, dissemination, and transmission capability in an arthropod vector as well as on replication in vertebrate cells. The central hypothesis is that *stimulation of the conserved antiviral RNA interference response to Nairovirus infection inhibits virus replication in arthropod vectors and vertebrate cells*. The results of the proposed research will provide new insights into arbovirus-host interactions as it relates to the replication, dissemination, and transmission of tick-borne viruses. Vector-borne diseases are emerging/reemerging at an alarming rate and the lack of vaccines, antiviral drugs, and effective vector control necessitates the development of novel anti-arbovirus strategies. An in-depth understanding of the natural molecular responses of the host cell/organism (arthropod and/or vertebrate) to tick-borne viruses will facilitate the development of highly targeted molecular therapeutics and control strategies with the potential to interrupt multiple components of transmission via activation of conserved antiviral molecular machinery.

**Specific aim 1:** To investigate the effect of stimulation of the midgut RNA interference response on Hazara virus replication, dissemination, and transmission in *Ixodes scapularis* ticks. 

**Hypothesis:** Expression/transfection of Hazara virus RNA sequences in *Ixodes scapularis* ticks results in decreased vector competence, i.e. intra-vector replication, dissemination, and transmission capability. 

**Rationale:** Silencing of host transcripts via an RNAi mechanism following inoculation of sequence specific dsRNAs has been demonstrated in *Amblyomma americanum* tick midguts and salivary glands (Karim et al., 2005). Furthermore arbovirus resistance in mosquitoes via RNAi, stimulated using double subgenomic Sindbis viruses (SINV) expressing flavivirus specific RNAs, has been successfully demonstrated to result in decreased and/or loss of transmission capability for yellow fever and dengue (Higgs et al., 1998 & Olson et al., 1996).
Specific aim 2: To determine the effect of stimulation of the mammalian RNA interference pathway on Hazara virus replication in vertebrate (BHK-21) cells. Hypothesis: Prophylactic stimulation of the RNAi pathway in BHK-21 cells results in significantly decreased Hazara virus replication. Rationale: Significant decreases in picornavirus replication, foot-and-mouth disease virus (FMDV), has been demonstrated to occur in BHK-21 cells subsequent to treatment with sequence specific small interfering (si) RNAs via an RNA interference mechanism (Kahana et al., 2004 & Caplen et al., 2002) similar to the observations of Garcia et al., (2005) following RNAi stimulation against Hazara virus replication in ISE6 cells.

Expected Results and Importance: This research is the first in vivo investigation of the effects of a virus specific RNAi response on replication, dissemination, and transmission of a tick-borne virus. In addition it will add to a growing body of literature supporting the idea that arbovirus control can be achieved through developing arbovirus resistance in the vector via molecular manipulation of the RNAi pathway resulting in the silencing of virus replication thereby severing transmission cycles. In Specific Aim 1 we expect to observe significantly decreased HAZV replication in the midgut subsequent to expression/ transfection of S segment sequence RNA resulting in decreased dissemination to secondary tissues including the salivary glands thereby compromising transmission capability. This finding is important because molecular induced decreases in vector competence may represent a strategy whereby natural antiviral machinery can be exploited toward the control of medically important tick-borne viruses. In Specific Aim 2 we expect to observe significantly decreased HAZV replication in BHK-21 cells following transfection of S segment sequence siRNAs. This finding is important because it will indicate that conserved sequence specific targets can be utilized to stimulate the anti-nairovirus RNAi response in arthropods and vertebrates. Tick-borne pathogens are responsible for significant human morbidity and mortality as well as significant economic agricultural expense; we believe that characterization of the effects of RNAi responses to virus replication may facilitate development of molecular antiviral strategies capable of interrupting replication in the vector and vertebrate hosts.

Suggestions for preparing your written proposal
We strongly recommend the following book for assistance in preparing your grant proposal: http://www.grantcentral.com/workbooks/national-institutes-of-health/. This workbook is a very practical, step-by-step guide to the philosophy and proven techniques for the writing of successful grant proposals. You can order it online and use it to assist you in the preparation of your preliminary examination grant proposal. The guy who wrote it is really good; take his lessons to heart! Read it and use it!

J. Oral Defense

Preparation
In addition to reading the primary literature related to the proposal, students must read at least two relevant reviews/book chapters and identify three articles cited in the written proposal of particular interest and write a brief sentence explaining why the reference is considered to be of interest/importance. References (PDF) and annotations must be provided to the PC one week prior to scheduled oral defense. Additionally, the student must submit at the same time the revised (rewritten) written proposal and respond to committee suggestions.

Oral Examination Format
The oral examination will be conducted in a similar manner for all students. The oral presentation will consist of no more than 50 slides and should represent the following sections of the proposal: Specific Aims, Significance and Innovation, Research Strategy (background, feasibility studies, approach), and Key References. The presentation must be submitted to the PC two days prior to examination for PEC preview. Changes are allowed prior to the examination. The oral examination will last no more than 3 hours.

The student defends the proposal during an oral PowerPoint presentation to the PEC. Remember that the presentation is based directly on your written proposal, so stay focused and do not introduce new
specific aims, etc., that the committee has not evaluated. Students are responsible for contacting all
members of their committee and coordinating the time and location of their examination (typically in
Mary Moody Northern Pavilion, 5.224 conference room reserved through PC) within the time period
specified by the SEAC, and are encouraged to do as soon as it is possible. Meetings, vacations, and
external commitments by faculty can make this scheduling difficult (it has been described as
“nightmarish”!!), so be proactive and do not leave it to the last minute. The PEC Chair will confirm the
time and date for the oral presentation. The total presentation/examination should last no more than
three hours. The format is variable and should be discussed with the PEC chairman. It can, for example,
be a 1 hour presentation followed by questions, or can be a longer presentation with PEC members
asking questions during the presentation. The PEC will explore your knowledge regarding your
proposal with regards to the scientific literature, experimental design and alternative approaches and
your breath of knowledge expected of a graduate student. Be prepared to explain methodologies
(formulae, what specific reagents do, etc.), experimental plans (use of controls etc.), data analysis
(statistics) etc., etc. Remember, that questions are not limited to your proposal but can also
include knowledge that can reasonably be expected based upon the students research interest
and academic background. The PEC Chair will inform the entire PEC of the defense format prior to
the event. The defense of the proposal will be evaluated and up to one PEC dissenting votes are
allowed (i.e., 4 pass/1 fail). If the oral defense is failed, the student must re-defend the same proposal.
Two failed defenses of a proposal will result in failure of the preliminary examination process. Students
that do not successfully complete this part of the preliminary examination cannot enter candidacy and
are therefore subject to dismissal from graduate school. The PEC Chair will communicate the results to
the SEAC Chair, Program Director and PC.

Evaluation Criteria for Oral Examination

a) General Scientific Knowledge
- Competence in the scientific fields under investigation and BBSC/Program curriculum

b) Research Strategy (Student provides adequate rationale and understands approach and
technical aspects of conducting the proposed research)
- Specific Aims: Tests the hypothesis and are logical and focused
- Feasibility Studies: Relevant and supports the proposed hypothesis (from the
selected paper)
- Approach: Overall strategy, methodology, and analyses are well reasoned and
appropriate to accomplish specific aims, potential problems, alternative strategies,
and benchmarks for success.

c) Literature Review: Demonstrates a comprehensive review and understanding of relevant
literature

d) Organization: Organizes thoughts and provides well-coordinated visual presentation.

e) Response to Examiner’s Questions: Independently responds with accurate and relevant
information.

f) Overall Evaluation: Overall assessment of student’s strengths and weaknesses.

g) Comments: Faculty will identify specific items that need to be addressed in the revision
(pass) or rewrite (fail)

Experimental Pathology Preliminary Exam version 4.0; July 2016
Approved by: SEAC members
Written by: SEAC members
SEAC members:
Nikos Vasilakis, PhD (Chair)
Patricia Aguilar, PhD
Alexander Freiberg, PhD
Sanjeev Sahni, PhD
David H. Walker, MD/PhD
Jere McBride, PhD (ex-officio)
# Eligible Faculty for Preliminary Exam Committee Appointments

## Pathology Research

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Research Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aguilar</td>
<td>Virol</td>
</tr>
<tr>
<td>Ansari</td>
<td>Environ Tox/Path</td>
</tr>
<tr>
<td>Barrett</td>
<td>Virol/Path/Vacc</td>
</tr>
<tr>
<td>Bouyer</td>
<td>Bact/Path</td>
</tr>
<tr>
<td>Bukreyev</td>
<td>Virol</td>
</tr>
<tr>
<td>Freiberg</td>
<td>Virol/Path</td>
</tr>
<tr>
<td>Gelman</td>
<td>Virol/Path/Immunopath</td>
</tr>
<tr>
<td>Ikegami</td>
<td>Virol/Immuno/Vacc</td>
</tr>
<tr>
<td>Khan</td>
<td>Environ Tox/Immuno/Path</td>
</tr>
<tr>
<td>Ksiazek</td>
<td>Virol/Epi/Path</td>
</tr>
<tr>
<td>Motin</td>
<td>Bact/Path-Host</td>
</tr>
<tr>
<td>Paessler</td>
<td>Virol/Path/Diag</td>
</tr>
<tr>
<td>Sahni</td>
<td>Bact/Cell Biol</td>
</tr>
<tr>
<td>Sarathy</td>
<td>Virol/Path</td>
</tr>
<tr>
<td>Thangamani</td>
<td>Vector/Immuno</td>
</tr>
<tr>
<td>Vasilakis</td>
<td>Virol/Vector/Epi</td>
</tr>
<tr>
<td>Walker</td>
<td>Bact/Immuno/Vector</td>
</tr>
<tr>
<td>Weaver</td>
<td>Virol/Epi/Evol</td>
</tr>
</tbody>
</table>

## External Research

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Research Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beasley</td>
<td>Virol/Path</td>
</tr>
<tr>
<td>Bente</td>
<td>Virol/Micro</td>
</tr>
<tr>
<td>Bourne</td>
<td>Virol/Path</td>
</tr>
<tr>
<td>Cong</td>
<td>Immuno</td>
</tr>
<tr>
<td>Endsley</td>
<td>Immuno</td>
</tr>
<tr>
<td>Ferguson</td>
<td>Virol/Path</td>
</tr>
<tr>
<td>Garg</td>
<td>Parasit/Immuno</td>
</tr>
<tr>
<td>Hu</td>
<td>Virol</td>
</tr>
<tr>
<td>Makino</td>
<td>Virol</td>
</tr>
<tr>
<td>Milligan</td>
<td>Immuno/Virol</td>
</tr>
<tr>
<td>Peterson</td>
<td>Bact/Immuno</td>
</tr>
<tr>
<td>Pyles</td>
<td>Virol/Immuno/Path</td>
</tr>
<tr>
<td>Rajsbaum</td>
<td>Virol/Micro</td>
</tr>
<tr>
<td>Soong</td>
<td>Immuno/Parasit</td>
</tr>
<tr>
<td>Sun</td>
<td>Immunol/Virol</td>
</tr>
<tr>
<td>Torres</td>
<td>Bact/Path</td>
</tr>
<tr>
<td>Wang</td>
<td>Immunol/Virol</td>
</tr>
<tr>
<td>Sun</td>
<td>Immunol/Virol</td>
</tr>
</tbody>
</table>

## Pathology Clinical/Education

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Research Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aronson</td>
<td>Path/Virol</td>
</tr>
<tr>
<td>Boor</td>
<td>Path/Inflammatory</td>
</tr>
<tr>
<td>Brocard</td>
<td>Lab Safety/Virol</td>
</tr>
<tr>
<td>Campbell</td>
<td>Path/Physiol/CNS</td>
</tr>
<tr>
<td>Dong</td>
<td>Path/Physiol/CNS</td>
</tr>
<tr>
<td>Gelman</td>
<td>Path/Virol/Immunopath</td>
</tr>
<tr>
<td>Hawkins</td>
<td>Path</td>
</tr>
<tr>
<td>Okorodudu</td>
<td>Cell/Biol/Path</td>
</tr>
<tr>
<td>Olano</td>
<td>Path/Bact</td>
</tr>
<tr>
<td>Stevenson-Lerner</td>
<td>Immunopathology/Transplantation</td>
</tr>
<tr>
<td>Walker</td>
<td>Path/Bact/Vector</td>
</tr>
</tbody>
</table>

## SEAC (Assigned by SEAC Chair)

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Research Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vasilakis (Chair)</td>
<td>Path</td>
</tr>
<tr>
<td>Aguilar</td>
<td>Path</td>
</tr>
<tr>
<td>Freiberg</td>
<td>Path</td>
</tr>
<tr>
<td>Sahni</td>
<td>Path</td>
</tr>
<tr>
<td>Walker</td>
<td>Path/Bact/Vector</td>
</tr>
</tbody>
</table>
### Experimental Pathology
**Preliminary Examination**
**Written Proposal Assessment**

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good (Average)</th>
<th>Fair* (Below Average)</th>
<th>Poor** (Unacceptable)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abstract:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student provides a concise description including objective, hypothesis, aims, and approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hypothesis and Specific Aims:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student identifies an important gap in the knowledge and explains why the gap is a problem. States long and short term objectives, develops a focused hypothesis and appropriate specific aims that test the hypothesis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Background and Significance:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student is able to convey the significance and benefits of the proposed research and provides evidence in literature review (background) of a full understanding and appreciation of important peer-reviewed literature that is specifically relevant to their proposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Preliminary Data:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student understands data from published papers and provides rationale for including a particular experiment/approach/technique to support proposal hypothesis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research Design and Methods:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student provides adequate detail, well organized research design and methods, and provides substantial evidence of ability to conduct independent research and interpret results</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Writing and Grantsmanship:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ PASS    ☐ FAIL
The argument is articulated clearly. Reasoning is supported by relevant and accurate evidence with discussion of implications. Ideas are presented in a logical and coherent progression. There are strong topic sentences that guide the reader. Sentences are concise and well crafted. Vocabulary is appropriate and precise. The reader can effortlessly discern the meaning. No distracting spelling, punctuation, or grammatical errors. Proper citations.

SUMMARY STATEMENT:
DESCRIPTION (provided by the student):

CRITIQUE (provided by the examiner):
Overall Impact:

1. Hypothesis and Specific Aims:
   Strengths:

   Weaknesses:

2. Background and Significance:
   Strengths:

   Weaknesses:

3. Preliminary Data:
   Strengths:

   Weaknesses:

4. Approach – Research Design and Methods
   Strengths:
Weaknesses:

5. Writing and Grantsmanship:
   Strengths:

Weaknesses:

* Two fair scores = rewrite
** One poor score = rewrite

Please return this form within one week to Ashley Rhame, ExPath Program Coordinator, via fax @ 409-747-2455 or scanned to anrhome@utmb.edu. Thank you.
Experimental Pathology  
Preliminary Examination  
Oral Defense  

Student:       Date: 
Proposal Title:  
Faculty:  ___________________________     Affiliation:  _________________________

☑ PASS      ☐ FAIL

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good (Average)</th>
<th>Fair* (Below average)</th>
<th>Poor* (Unacceptable)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Scientific Knowledge:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates reasonable competence in the scientific fields under investigation and BBSC/Program curriculum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research Strategy:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student provides adequate rationale and justifies approach and technical aspects of conducting the proposed research; demonstrates reasonable understanding of pitfalls and is knowledgeable on alternative strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Scientific Content:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates a comprehensive review and understanding of relevant literature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Structure and Organization:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates exemplary presentation skills, such as information and ideas are presented in a logical, interesting, and coherent progression. Graphics and visual aids explain and reinforce text and presentation. Presentation has no misspellings or grammatical errors. Uses a clear voice and correct, precise pronunciation of terms.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Response to Examiners’ Questions:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independently responds with accurate and relevant information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Overall Evaluation:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall assessment of the student’s performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUMMARY STATEMENT**  
DESCRIPTION (provided by the student): 

DESCRIPTION (provided by the chair of the committee):  
Chair compiles a summary of the examination points representing the individual components of the committee’s members:
CRITIQUE (provider by the examiner)
Overall Evaluation:

6. General Scientific Knowledge:
   Strengths:

   Weaknesses:

7. Research Strategy:
   Strengths:

   Weaknesses:

8. Scientific Content:
   Strengths:

   Weaknesses:

9. Structure and Organization:
   Strengths:

   Weaknesses:

10. Response to Examiner’s Questions:
    Strengths:

    Weaknesses:

*Student fails examination if any one area is judged poor or two areas are judged fair.

Please return this form within one week to Ashley Rhame, ExPath Program Coordinator, via fax @ 409-747-2455 or scanned to anrhame@utmb.edu.
Thank you.
QUALIFYING EXAMINATION AND CANDIDACY

Students seeking the degree of Doctor of Philosophy must submit an application for admission to candidacy and an approved research proposal. Each student must have an overall 3.0 grade point average or better at the time of admission to candidacy. Admission to candidacy requires the fulfillment of all program requirements, including passing the qualifying examination, and must be approved by the Dean of the graduate school. The qualifying examination will ordinarily be completed by the end of the second year of study and is a prerequisite to admission to candidacy.

Steps for ExPath Candidacy:
1. Draft proposal in consultation with mentor (Sept-Dec; Y2)
2. Submit proposed members of Dissertation Committee (DC) to SEAC for approval (Jan; Y3)
3. Submit written proposal to SEAC and DC for review (Feb; Y3)
4. Revise written proposal (March; Y3)
5. Defend proposal orally in front of DC (March-June; Y3)
6. Obtain DC signatures
7. Submit candidacy application to the Graduate School (March-June; Y3)

GSBS bylaws state that all students are required to advance as a doctoral candidate within 12 months following the completion of their preliminary examinations or be subject to dismissal from the GSBS. Experimental Pathology Year 3 trainees are required to submit a draft of their candidacy proposal and a list of proposed supervisory committee members (with alternates) for approval by the Program Director and SEAC by February 1. Students will then have three months in which to defend the proposal, obtain supervisory committee approval, and formally file an application for candidacy (no later than June 1). The supervisory committee is required to complete their evaluation of the submitted dissertation proposal within one month. Should the proposal require significant alterations, the student will be given a maximum of one month to rewrite their proposal.

SUPERVISORY PROFESSOR

A Supervisory Professor is selected by the student during their first year (Term III) or, under special circumstances in the second year (Term IV). The Supervisory Professor must be a member of the Experimental Pathology Graduate Faculty, must inform the Program Director (in writing) of his/her willingness to serve in this role and provide financial support for the student while they are enrolled, and must be approved by the Student Evaluation and Advisory Committee and the Graduate School Dean. A student may change his/her Supervisory Professor without prejudice to his/her standing in the Program.

DISSERTATION SUPERVISORY COMMITTEE SELECTION

Prior to admission to candidacy, the student (in consultation with the mentor) shall select a dissertation supervisory committee which, after approval by the ExPath Program Director and SEAC and, ultimately, the GSBS Dean, will be in charge of the candidate’s doctoral dissertation. The faculty mentor will serve as chair of the dissertation supervisory committee and the supervisory committee will consist of four UTMB Health GSBS faculty members and one external member. A typical committee will consist of the following members and affiliations:

Mentor (Committee Chair; ExPath)
Two members (Dept. Pathology; ExPath)
One member (Other Dept.)
One external member (outside institution)
Dissertation Proposal Defense

Students are responsible for contacting all members of their committee and coordinating the time and location of their proposal defense (typically in Mary Moody Northen Pavilion Pathology Education Conference room reserved through the Program Coordinator). Meetings, vacations, and external commitments by faculty can make this scheduling difficult, so students should be proactive and not leave it to the last minute. The length of the dissertation proposal defense is variable, but should last no more than three hours. The format can be discussed and agreed upon by the student and committee members, but usually consists of a one hour student presentation followed by discussion and a question/answer session. Students should be prepared to fully explain details and limitations of technical approaches, experimental design, justification of animals, statistical analyses, and alternative approaches and hypotheses.

Semianual Meetings with the Dissertation Supervisory Committee

Students are required to formally meet with their dissertation supervisory committees twice annually. This process is in place to help provide oversight to the graduate process and ensure that each student is progressing as expected, and to provide an opportunity and forum for committee members to evaluate progress and provide constructive input on a regular basis. This is an important component of the graduate education process and cannot be neglected. Normally, this translates to five committee meetings during a typical dissertation project (1-Year 3, proposal defense; 2-Year 4; and 2-Year 5; last one being the final oral defense). After each meeting, a written summary of the committee recommendations will be provided to the student who must provide a written response to the committee and Pathology Education office within 1 week following the meeting.
MILESTONES AGREEMENT FORM

PROGRAM NAME

This form is provided for the purpose of informing students about the academic milestones they will be expected to reach in order to earn their Ph.D. degree and when they are expected to complete these milestones. Students are expected to reach each milestone within the specified time period in order to make satisfactory progress through the program. Students who are not making satisfactory progress may lose funding, be placed on academic probation, or be dismissed from the program.

ACADEMIC ADVISING

Upon entering the Graduate School of Biomedical Sciences (GSBS), each student will be assigned an advisor. After year 1, upon formally entering a graduate program, finding a faculty supervisory professor and forming a Dissertation Supervisory Committee, the Committee will serve collectively as advisor.

Academic advising includes the following elements designed to ensure that students remain in good academic standing and make satisfactory progress through the program. Advisors are responsible for the following:

- Ensuring that annual (or more frequent, as determined by the supervisory professor or Committee) reviews between student and advisor and/or Committee occur. This review will be included in the student’s file.
- Providing suggestions on course selection
- Reviewing whether the student is making progress consistent with the expectations of the program and is reaching milestones according to the timeline provided on this form; working with the Committee and student to determine whether modifications are necessary
- Clarifying the timetable for completing any remaining course requirements, examinations, and other requirements
- Assisting the student in understanding the requirements for successful completion of dissertation
- Assisting the student in assembling a Dissertation Supervisory Committee
- Providing experiences and information that will optimize the student’s career opportunities and success
EXPECTATIONS FOR DOCTORAL DEGREE

The SEAC has approved the following list of expectations to receive a PhD:

1. Students will meet with their dissertation supervisory committee (external member may be absent) semiannually to review and report research progress. A written response to the committee evaluation must be provided to the Program Director in Experimental Pathology and to each member of the dissertation committee within one week following the committee meeting. Failure to have a meeting and/or to file the report of the meeting will result in a grade of “Unsatisfactory” in research or dissertation and immediately place the student on academic probation. Students cannot graduate while on academic probation.

2. During the duration of the dissertation research period, a student must have presented their work (poster or oral) in at least one National Meeting. Mentors are encouraged to support student's attendance at other meetings as part of their general training. A published abstract of their presentation should be provided to the SEAC.

3. At the time of the dissertation defense, the student must be an author (first author or second if the journal states that the first and second authors are considered as equal contributors) on at least one peer-reviewed paper that has been accepted for publication. Most students have several publications by the time that they graduate.

4. It is the responsibility of the student and mentor to ensure that the version of the dissertation that is sent by the student to all committee members is complete and in the final and presentable form that is required by the GSBS. The dissertation format is not fixed and can be, for example, a sequential report of the study with introduction, methods, data, discussion and bibliography sections, or as a package of published papers linked with a general introduction and discussion. A defense cannot be scheduled unless a final draft of the dissertation has been submitted to the Program Director and supervisory committee at least one month prior to the scheduled defense. A bound file consisting of published papers alone is not considered to be an adequate dissertation. All dissertations must follow the GSBS guidelines and be approved by the GSBS. All dissertation supervisory committee members are expected to read the dissertation prior to signing the “Request for Oral Defense” to determine if the student has completed all requirements and is prepared to defend the work during a public oral defense.

5. Students will publicly defend their dissertation as required by the GSBS. This will be in the form of a one-hour public seminar and open session for questions. A private dissertation committee-only defense will be held immediately following the public defense. Upon successful dissertation defense and having met Program requirements outlined above, the committee members will formally approve the dissertation only by signing and accepting the final version.
ADMISSIONS AND RECRUITMENT COMMITTEE (ARC):

Saravanan Thangamani, Ph.D. – Chair

Patricia Aguilar, Ph.D.
Nigel Bourne, Ph.D.
Sanjeev Sahni, PhD
Ricardo Rajsbaum, PhD
Ex-officio: Jere W. McBride, Ph.D.

Student Representatives: Jacob Nelson

CURRICULUM AND ACADEMIC PLANNING COMMITTEE (CAPC):

Shakeel Ansari, Ph.D. – Chair

Judith F. Aronson, M.D.
Alan Barrett, Ph.D.
Gerald A. Campbell, M.D., Ph.D.
Hal K. Hawkins, M.D., Ph.D.
Juan Olano, M.D.
Ex-officio: Jere W. McBride, Ph.D.

Student Representative: Elizabeth Mateer

STUDENT EVALUATION AND ADVISORY COMMITTEE (SEAC):

Nikos Vasilakis, Ph.D. - Chair

Patricia Aguilar, Ph.D.
Alex Freiberg, Ph.D.
Sanjeev Sahni, Ph.D.
David Walker, M.D.
Ex-officio: Jere W. McBride, Ph.D.

Student Representative: Kubra Naqvi

SCHOLARSHIP COMMITTEE:

Grant Hughes, Ph.D.
Tetsuro Ikegami, Ph.D.

EXPERIMENTAL PATHOLOGY GRADUATE STUDENT ORGANIZATION:

Brandon Trent, Past President
Emily Davis, President
TBD, Vice-President

STUDENT ADVISORY EXECUTIVE COMMITTEE (SAEC):

Brandon Trent  Emily Davis
Emily Davis  Jacob Nelson
Nathen Bopp  Madison Rogan
1. **Executive Committee**
   a. The committee is composed of the program director and chairs of the other three standing committees.
   b. The committee appoints and replaces the members and chairs of the other committees. Goals for committee composition are that each committee is representative of program strengths and blends enthusiasm with experience.
   c. At least twice per year, schedule meetings of the entire graduate program faculty.
   d. Appoint ad hoc committees to address problems or concerns.
   e. Annually review contributions of all graduate program faculty to graduate and interdisciplinary courses, laboratory rotations, program committees, and student committees.

2. **Admissions and Recruitment Committee**
   a. The committee is composed of five members representing different areas of program strength and one student representative.
   b. The committee advertises the program and, when necessary, appoints an ad hoc committee to update/revise the program brochure and/or web site as well as other recruitment materials.
   c. Recruit applicants and coordinate program recruiting efforts with Graduate School recruiting efforts.
   d. Screen applicants and make recommendations for admission or rejection of applicants.
   e. Make recommendations concerning exceptions to the admission or rejection of applicants.
   f. Make recommendations concerning initial stipend awards.
   g. Actively recruit all outstanding candidates before and after their admission.
   h. The chair of this committee is asked to serve on the Graduate School/BBSC Recruitment Committee.
   i. The committee will meet at least once per semester. The committee chairman will ensure the preparation and distribution of the minutes of each meeting within 30 days of the meeting.
   j. Members of this committee shall be appointed by the program director and the chair of the Admissions & Recruitment committee to serve on the GSBS/BBSC Admissions Committee.

3. **Curriculum and Academic Planning Committee**
   a. The committee consists of six members with relevant experience in graduate student education and one student representative.
   b. Annually monitor and evaluate all program core courses using student and faculty feedback. Make recommendations for course improvements.
   c. Make recommendations concerning development and approval of new courses.
   d. Examine credentials of faculty wishing to become members of the Experimental Pathology Graduate Faculty and make recommendations concerning such faculty appointments.
   e. The chairman of this committee serves on the Graduate School Curriculum Committee.
   f. The committee meets at least once per semester. The committee chairman ensures the preparation and distribution of the minutes of each meeting within 30 days of the meeting.
4. **Student Evaluation and Advisory Committee**
   a. The committee consists of five members representing different areas of program strength and one student representative.
   b. Advise students concerning laboratory rotations.
   c. Review student and faculty reports of laboratory rotations.
   d. Monitor the course grades, rotation and research reports, and progress of each student at least twice per year to ensure early detection of problems.
   e. Help students choose a Preliminary Examination Committee.
   f. Oversee the Preliminary Examination process and make recommendations for modification when or where needed.
   g. Help students select a dissertation supervisory professor and supervisory committee. Faculty who wish to be considered as a dissertation supervisor must submit a financial plan for the student's stipend and laboratory expenses.
   h. The committee meets at least once per semester. The committee chairman ensures the preparation and distribution of the minutes of each meeting within 30 days of the meeting.

5. **Scholarship Committee**
   a. The committee consists of two members.

6. **Student Advisory Executive Committee (SAEC):**
   a. This committee consists of five members
Patricia Aguilar, Ph.D.
Associate Professor
3.146A Keiller Building (office) Ext. 22825/Fax: 72429
2.132 Keiller Building (lab) Ext. 22458
email: pvaguila@utmb.edu

G.A Shakeel Ansari, Ph.D.
Professor
2.318 Mary Moody Northen Pavilion (office) Ext. 23655/Fax: 71763
2.320 MMN (lab) Ext. 22822
email: sansari@utmb.edu

Judith F. Aronson, M.D.
Professor
509 Clinical Sciences Building (office) Ext. 26547/Fax: 29350
email: jaronson@utmb.edu

Alan D.T. Barrett, Ph.D.
Professor
3.230 Mary Moody Northen Pavilion (office) Ext. 26662/Fax: 26663
4.130 Keiller Building (lab) Ext. 22547
email: abarrett@utmb.edu

Donald Bouyer, Ph.D.
Associate Professor
Director, GNL-Keiller BSL3 Research Core
1.136C Keiller Building (office) Ext. 72035/Fax: 72455
1.126 Keiller Building (lab) Ext. 72414
email: dobouyer@utmb.edu

Anne-Sophie Brocard, Ph.D., RBP
Associate Professor
2.112 Materials Management Warehouse Ext. 28472/Fax: 28921
email: anbrocar@utmb.edu

Alexander Bukreyev, Ph.D.
Professor
3.145 Keiller Building (office) Ext. 22829/Fax: 72429
2.152 Keiller Building (lab) Ext. 22831
email: abukreye@utmb.edu

Gerald A. Campbell, M.D., Ph.D.
Professor
5.142 Clinical Sciences Building (office) Ext. 22413/Fax: 22415
email: gcampbel@utmb.edu
Jianli Dong, M.D., Ph.D.
Professor, Director Molecular Diagnostics
5.140 Clinical Sciences Building (office) Ext. 24866/Fax: 25683
5.190 John Sealy Annex (Molecular Diagnostics Laboratory)
9.160 Medical Research Building (Research Laboratory)
email: jidong@utmb.edu

Alexander Freiberg, Ph.D.
Associate Professor
Director, Robert E. Shope BSL-4 Laboratory
3.118D Keiller Building (office) Ext. 22822/Fax: 23338
3.144 Keiller Building (lab) Ext. 22884
email: anfreibe@utmb.edu

Benjamin B. Gelman, M.D., Ph.D.
Professor
114 McCullough Building (office) Ext. 25316/Fax: 25315
2.148 Keiller Building (lab) Ext. 25218
email: bgelman@utmb.edu

Bin Gong, M.D., Ph.D., HTL (ASCP)
Associate Professor
2.318 Mary Moody Northen Pavilion (office) Ext. 66934/Fax: 66810
2.128 Keiller Building (lab) Ext. 26550 / 5.328 Galveston National Lab (lab) Ext. 66682
email: bigong@utmb.edu

Hal Hawkins, Ph.D., M.D.
Professor
349 Shriners Hospital Building (office) Ext. 770-6635/Fax: 770-6973
627 Shriners Hospital Building (lab) Ext. 770-6654
email: hhawkins@utmb.edu

Grant Hughes, Ph.D.
Assistant Professor
2.138C Keiller Building (Office) Ext. 29713/Fax:72437
2.120 & 2.122 Keiller Building (Lab) Ext. 72154
email: glhughes@utmb.edu

Tetsuro Ikegami, Ph.D.
Associate Professor
3.206D Mary Moody Northen Pavilion (office) Ext. 22563/Fax: 71763
(lab) Ext. 22560
email: teikegam@utmb.edu

Bhupendra S. Kaphalia, Ph.D.
Professor
2.206 Mary Moody Northen Pavilion (office) Ext. 24995/Fax: 71763
email: bkaphali@utmb.edu

M. Firoze Khan, Ph.D.
Professor
2.319 Mary Moody Northen Pavilion (office) Ext. 26881/Fax: 71763
2.308, 2.304 & 2.302 MMN (labs) Ext. 70090
email: mkhan@utmb.edu
Thomas Ksiazek, DVM, Ph.D.
Professor
6.200N GNL (office) Ext. 66902/Fax: 66810
GNL BSL4 (lab)
email: tgksiaz@utmb.edu

Jere W. McBride, Ph.D.
Professor
Director, Experimental Pathology Graduate Program
1.136B Keiller Building (office) Ext. 72498/Fax: 72455
1.124 Keiller Building (lab) Ext. 72005
email: jemcbrid@utmb.edu

Vladimir Motin, Ph.D.
Professor
2.138A Keiller Building (office) Ext. 23155/Fax: 72437
3.148 Keiller Building (lab) Ext. 23158
email: vimotin@utmb.edu

Anthony Okorodudu, Ph.D.
Professor
7.412QA Clinical Sciences Wing (office) Ext. 29247/Fax: 29231
email: aookorod@utmb.edu

Juan Olano, M.D.
Professor
5.220 Mary Moody Northen Pavilion (office) Ext. 22870/Fax: 72400
4.116 Keiller Building (lab) Ext. 70922
email: jolano@utmb.edu

Slobodan Paessler, DVM, Ph.D.
Professor
5.200P Galveston National Laboratory (office) Ext. 66913/Fax: 70762
3.152 Keiller Bldg. (lab) Ext. 72489
email: slpaessl@utmb.edu

Vsevolod Popov, Ph.D.
Professor
2.138B Keiller Building (office) Ext. 72423/Fax: 72437
2.102 Keiller Building (lab) Ext. 22597
email: vpopov@utmb.edu

Sanjeev Sahni, Ph.D.
Associate Professor
2.138E Keiller Building (office) Ext. 23651/Fax: 72437
2.104 Keiller Building (lab) Ext. 23659
email: sksahni@utmb.edu

Heather Stevenson-Lerner, M.D., Ph.D.
Assistant Professor
5.506K Clinical Sciences Wing (office) Ext. 28554/Fax: 70060
email: hlsteven@utmb.edu
Saravanan Thangamani, Ph.D.
Associate Professor
Director, ACL-3 Laboratory
3.118C Keiller Building (office) Ext. 72412/Fax 23338
3.104 Keiller Building (lab) Ext. 72415
email: sathanga@utmb.edu

Nikos Vasilakis, Ph.D.
Associate Professor
3.108 Keiller Building (office) Ext. 70650/Fax: 72437
email: nivasila@utmb.edu

David H. Walker, M.D.
Professor
1.104B Keiller Building (office) Ext. 73990/Fax: 21850
1.128 Keiller Building (lab) Ext. 24813
1.132 Keiller Building (lab) Ext. 24817
email: dwalker@utmb.edu

Scott C. Weaver, Ph.D.
Professor
6.200D Galveston National Laboratory (office) Ext. 66500/Fax: 66810
4.138 Keiller Building (lab) Ext. 72440
email: sweaver@utmb.edu

Natalie Williams-Bouyer, Ph.D.
Associate Professor
Associate Director, Division of Clinical Microbiology
5.506C Clinical Sciences Wing (Office) Ext. 70603/Fax: 25683
Fax: (409)-772-5683
email: nmwillia@utmb.edu

**PRIMARY APPOINTMENTS IN OTHER DEPARTMENTS**

David Beasley, Ph.D.
Associate Professor
Department of Microbiology and Immunology
2.138F Keiller Building (office) Ext. 21120/Fax: 72437
3.122/3.138 Keiller Building (labs) Ext. 22173
5.200V Galveston National Laboratory (office) Ext. 21120
email: dwbeasle@utmb.edu

Dennis Bente, DVM, Ph.D.
Associate Professor
Department of Microbiology and Immunology
5.200E Galveston National Laboratory (office) Ext. 66935/Fax: 66810
5.326 GNL (lab) Ext. 66814
email: abente@utmb.edu

Nigel Bourne, Ph.D.
Professor
Department of Pediatrics
Sealy Center for Vaccine Development
Yingzi Cong, Ph.D.
Professor
Department of Microbiology and Immunology
4.142C, MRB (office) Ext. 24902/Fax: 25065
4.116 MRB (lab) Ext. 24909
email: yicong@utmb.edu

Janice J. Endsley, Ph.D.
Associate Professor
Department of Microbiology and Immunology
3.142G Medical Research Building (office), Ext. 23142
3.136/3.134 Medical Research Building (labs), Ext. 23136
email: jjendsle@utmb.edu

Monique R. Ferguson, Ph.D.
Associate Professor
Department of Internal Medicine
Division of Infectious Diseases
4.210C Graves Building Ext. (office) 70252/Fax 26527
5.408 Mary Moody Northen (HIV Pathogenesis Lab) Ext. 70275
email: mrfergus@utmb.edu

Nisha Jain Garg, Ph.D.
Professor
Department of Microbiology & Immunology
3.142C Medical Research Building (office) Ext. 76865 /Fax: 76869
3.154 Medical Research Building (lab) Ext. 22142
email: nigarg@utmb.edu

Haitao Hu, Ph.D.
Assistant Professor
Department of Microbiology & Immunology
Office: Medical Research Building (MRB), Rm 4.142A; Ext. 70395
Lab: Medical Research Building (MRB), Rm 4.134 and 4.138; Ext. 20926
email: haihu@utmb.edu

George C. Kramer, Ph.D.
Professor
Department of Anesthesiology
3.100 Research Building 21 (office) Ext. 23969/Fax: 28895
2-98 Old Shriners Burns (lab) Ext. 28892
email: gkramer@utmb.edu

Shinji Makino, Ph.D.
Professor
Department of Microbiology & Immunology
4.142 Medical Research Building (office) Ext. 22323/Fax: 25065
email: shmakino@utmb.edu

Gregg Milligan, Ph.D.
Johnny W. Peterson, Ph.D.
Professor
Department of Microbiology & Immunology
5.200X Galveston National Laboratory (office) Ext. 66917
3.114 Medical Research Building (Lab) Ext. 23409
email: jpeterso@utmb.edu

Richard Pyles, Ph.D.
Professor
Department of Pediatrics
Sealy Center for Vaccine Development
3.206E Mary Moody Northen (office) Ext. 78142
3.304 Mary Moody Northen (lab) Ext. 78149
email: rbpyles@utmb.edu

Ricardo Rajsbaum, Ph.D.
Assistant Professor
Department of Microbiology & Immunology
4.142I Medical Research Building (office) Ext. 24917/Fax: 25065
4.154, 4.156 Medical Research Building (lab) Ext. 24917
email: rirajsba@utmb.edu

Lynn Soong, M.D., Ph.D.
Professor
Department of Microbiology & Immunology
3.142B Medical Research Building (office) Ext. 28149
3.132 Medical Research Building (lab) Ext. 28163
email: lsoong@utmb.edu

Jiaren Sun, M.D., Ph.D.
Professor
Department of Microbiology & Immunology
3.130A Medical Research Building (office) Ext. 70186
email: jisun@utmb.edu

Alfredo G. Torres, MSc, Ph.D.
Professor
Department of Microbiology & Immunology
4.142G Medical Research Building (office) Ext.70189/Fax 76869
4.112, 4.114 Medical Research Building (lab) Ext. 22424/22141
email: altorres@utmb.edu

Tian Wang, Ph.D.
Professor
Department of Microbiology & Immunology
3.118 B Keiller Building (office) Ext. 23146/Fax: 23338
3.102 Keiller Building (lab) Ext. 23147
email: ti1wang@utmb.edu
1991- 2017
EXPERIMENTAL PATHOLOGY
GRADUATE STUDENTS

STARTED SEPTEMBER 1991

Davis Daiker - Dallas, Texas
Education: Texas A&M University, College Station
Degree: B.S.
Research Interest: Genetic Toxicology
Mentor: Jonathan Ward, Ph.D.
Mary Treinen-Moslen, Ph.D.

Leonard Wayne Velsor - Colorado Springs, Colorado
Education: University of Colorado
Degree: B.A.
Research Interest: Pulmonary Toxicology
Mentor: Edward M. Postlethwait, Ph.D.

Liqiang Wang – PRC
Education: Taishan Medical College
Degree: B.S. (Medical)
Research Interest: HIV
Mentor: Miles W. Cloyd, Ph.D.

STARTED JANUARY 1992

Suzanne Hall-Woodard – St. Louis, Missouri
Education: St. Louis University
Degree: M.S.
Research Interest: Toxicology
Mentor: Mary Moslen, Ph.D.

Ph.D. Graduated 1999

Ph.D. Graduated 1998

Ph.D. Graduated 1996

Ph.D. Graduated 1996
Suimin Qiu – PRC

Education: Xin Medical University
Degree: M.D.
Research Interest: AIDS and Flow Cytometry
Mentor: James E. Leary, Ph.D.

Ph.D. Graduated 1998

STARTED JUNE 1992

Roger Vertrees - Pontiac, Illinois

Education: Southern Illinois University
Degree: B.A.
Research Interest: Perfusion Hyperthermia
Mentor: Paul J. Boor, M.D./Scot D. Pencil, M.D., Ph.D.

Ph.D. Graduated 1999

STARTED SEPTEMBER 1993

Adrian Billings - Del Rio, Texas

Education: Texas A & M University, College Station
Degree: B.S.
Research Interest: Immunopathology & Infectious Disease
Mentor: David H. Walker, M.D.

Ph.D. Graduated 1998

Shannon Langford - Mesquite, Texas

Education: Texas A & M University, Galveston
Degree: B.S.
Research Interest: Cardiovascular Toxicology
Mentor: Paul J. Boor, M.D.

Ph.D. Graduated 1999

Hong Xie – PRC

Education: Beijing Medical University
Degree: B.S. (Medical)
Research Interest: Virology
Mentor: Alan D.T. Barrett, Ph.D.

Ph.D. Graduated 1998

STARTED JANUARY 1994
Arun Balakumaran - India

Education: Chingleput Medical College
Degree: M.B.B.S.
Research Interest: Toxicology, Apoptosis
Mentor: Mary Treinen Moslen, Ph.D.

STARTED SEPTEMBER 1994

Chih-Sheng "Jason" Huang - Taiwan

Education: National Yang-Ming Medical College
Degree: B.S.
Research Interest: Retrovirology/AIDS
Mentor: Miles Cloyd, Ph.D.

Kristin Heather (Kain) Kuzniewski - Conroe, Texas

Education: Vanderbilt University
Degree: B.S.
Research Interest: Cellular Signal Transduction
Mentor: Norbert K. Herzog, Ph.D.

Kathleen Moore Marriott - Middleton, Ohio

Education: Ohio University
Degree: B.S.
Research Interest: Virology
Mentor: Judith F. Aronson, M.D.

Beth Susan Turnbull - Holts Summit, Missouri

Education: University of Missouri
Degree: D.V.M.
Research Interest: Marine Mammal Pathology and Toxicology
Mentor: Daniel F. Cowan, M.D.

STARTED MAY 1995

Chessley R. Atchison, Major, U.S. Army - Gorman, Texas

Education: Texas A & M University, College Station
Degree: D.V.M.
Research: Toxicology
Mentor: Mary T. Moslen, Ph.D.
STARTED SEPTEMBER 1995

Aaron Brault - Houston, Texas
Education: Texas A & M University, College Station
Degree: B.S.
Research Interest: Virology
Mentor: Scott C. Weaver, Ph.D.

Neil Haycocks - Blacksburg, Virginia
Education: Mary Washington University
Degree: B.S.
Research Interest: Mycology
Mentors: Chester R. Cooper, Ph.D.
Michael R. McGinnis, Ph.D.

Erle (Ed) Murphey - Leesburg, Virginia
Education: Ohio State University
Degree: M.S., D.V.M.
Research Interest: Septic Shock
Mentor: Daniel Traber, M.D.

Vicente Santa Cruz - El Paso, Texas
Education: University of Texas, El Paso
Degree: B.S.
Research Interest: Toxicology
Mentor: Mary F. Kanz, Ph.D.

Raymond Stowe - Houston, Texas
Education: Texas A & M University, College Station
Degree: B.S.
Research Interest: Virology
Mentor: Alan D.T. Barrett, Ph.D.

Ph.D. Graduated-2001

Ph.D. Graduated 2001

Ph.D. Graduated 2000

Ph.D. Graduated 2001

Ph.D. Graduated 1999
**STARTED JANUARY 1996**

**Elsa Haubold** - League City, Texas

- **Education:** Texas A & M University, College Station
- **Degree:** M.S.
- **Research Interest:** Marine Mammal Pathology & Microbiology
- **Mentors:** Chester R. Cooper, Jr., Ph.D., Dan Cowan, M.D.
- Ph.D. Graduated 2000

**Jian-ying Chen** - PRC

- **Education:** Beijing Capital Institute of Medicine
- **Degree:** M.D.
- **Research Interest:** HIV, Virology
- **Mentor:** Miles Cloyd, Ph.D.
- Ph.D. Graduated 1999

**STARTED SEPTEMBER 1996**

**Amy Shurtleff** - Austin, Texas

- **Education:** University of Texas-Austin
- **Degree:** B.S.
- **Research Interest:** Virology
- **Mentor:** Judith Aronson, M.D.
- Ph.D. Graduated 2002

**STARTED MAY 1997**

**Claudia Marcela (Diaz) Montero** - Kingsville, Texas

- **Education:** Texas A&M Kingsville
- **Degree:** M.S.
- **Research Interest:** Intracellular Bacteria
- **Mentor:** David H. Walker, M.D.
- Ph.D. Graduated 2001

**STARTED AUGUST 1997**

**Kelly Mericle** - Nacogdoches, Texas

- **Education:** Stephen F. Austin
- **Degree:** B.S.
- **Research Interest:** Toxicology
- **Mentor:** G.A.S. Ansari, Ph.D.
- Ph.D. Graduated 2003
Rania (Milleron) Cruz - Boston, Massachusetts

Education: Harvard University
Degree: M.S.
Research Interest: Vector Biology
Mentor: Greg Lanzaro, Ph.D.

Bi-Hung Peng - Taiwan

Education: National Taiwan University
Degree: M.S.
Research Interest: CMV and Neuropathology
Mentor: Gerald Campbell, M.D., Ph.D.

Hai Qi - Beijing, PRC

Education: Beijing Medical University
Degree: B.M.
Research Interest: Leishmania Pathogenesis
Mentor: Lynn Soong, M.D., Ph.D.

Shannon (Schmura) Martin - Hagerstown, Maryland

Education: Hood College/USAMRIID
Degree: M.S.
Research Interest: Developmental Neuropathology
Mentor: Marjorie Grafe, M.D., Ph.D.

Gustavo Valbuena – Bogota, Columbia

Education: University College of Javenana, Columbia
Degree: M.D.
Research Interest: Rickettsiae Pathogenesis
Mentor: David Walker, M.D.

Barry Elsom - Pampa, Texas

Education: Texas Womens University
Degree: B.S.
Research Interest: Cellular Signal Transduction
Mentor: Norbert Herzog, Ph.D.
**STARTED SEPTEMBER 1998**

**Ivorlyne Greene** – Houston, Texas

- **Education:** University of St. Thomas
- **Degree:** B.S.
- **Research Interest:** Arbovirology
- **Mentor:** Scott Weaver, Ph.D.

**Michele Zacks** – Brighton, Massachusetts

- **Education:** Harvard University
- **Degree:** M.S.
- **Research Interest:** Host Parasite Relationships
- **Mentor:** Nisha Garg, Ph.D.

**STARTED SEPTEMBER 1999**

**Juliet Bryant** – New Haven, Connecticut

- **Education:** Columbia University
- **Degree:** M.S.
- **Research Interest:** Virology
- **Mentor:** Alan D.T. Barrett, Ph.D.

**Danyel (Tacker) Hermes** – Hondo, Texas

- **Education:** Texas A&M, Corpus Christi
- **Degree:** B.S.
- **Research:** Forensic Pathology
- **Mentor:** A. Okorodudu, Ph.D.

**Tarl Prow** – Huntsville, Texas

- **Education:** Sam Houston State University
- **Degree:** M.S.
- **Research:** Molecular Cytometry
- **Mentor:** James Leary, Ph.D.

**Erin (Webb) Scott** – Lawrence, Kansas

- **Education:** University of Kansas
- **Degree:** B.S.
- **Research:** Arenavirology
- **Mentor:** Judith Aronson, M.D.

**Ph.D. Graduated 2004**

**Ph.D. Graduated 2007**

**Ph.D. Graduated 2003**

**Ph.D. Graduated 2005**

**Ph.D. Graduated 2004**

**Ph.D. Graduated 2005**
**STARTED SEPTEMBER 2001**

*Lark Coffey – Boulder, Colorado*

- **Education:** University of the South
- **Degree:** B.S.
- **Research:** Arbovirology
- **Mentor:** Scott Weaver, Ph.D./Robert Tesh, M.D.

- **Ph.D. Graduated 2005**

*Scott “Wesley” Long – Dallas, Texas*

- **Education:** University of Texas-Austin
- **Degree:** B.S.
- **Research:** Ehrlichia
- **Mentor:** David H. Walker, M.D.

- **Ph.D. Graduated 2005**

*Ted Whitworth – San Antonio, Texas*

- **Education:** University of Texas – San Antonio
- **Degree:** B.S.
- **Research:** Rickettsiology
- **Mentor:** David H. Walker, M.D.

- **Ph.D. Graduated 2009**

**STARTED SEPTEMBER 2002**

*Jason Comer – Pittsburgh, Pennsylvania*

- **Education:** Duquesne University
- **Degree:** M.S.
- **Research:** Anthrax
- **Mentor:** Johnny W. Petersen, Ph.D.

- **Ph.D. Graduated 2005**

*Charles Todd Davis – Birmingham, Alabama*

- **Education:** Tulane University
- **Degree:** M.S.
- **Research:** West Nile Virus
- **Mentor:** Alan Barrett, Ph.D.

- **Ph.D. Graduated 2005**
Melanie Dobbs – Manhattan, Kansas

Education: Kansas State University
Degree: B.S.
Research: Viral Immunology
Mentor: Gregg Milligan, Ph.D.

Amber Engel – Durham, North Carolina

Education: University of North Carolina –Wilmington
Degree: B.S.
Research: Flavivirus
Mentor: Alan Barrett, Ph.D.

Melissa Herbst-Kralovetz – Cleveland, Ohio

Education: Mesa State College
Degree: B.S.
Research: Herpes Virus Pathogenesis
Mentor: Richard Pyles, Ph.D.

Kate McElroy – Austin, Texas

Education: University of Texas – Austin
Degree: B.A.
Research: Flavivirus – Yellow Fever
Mentor: Stephen Higgs, Ph.D.
Lucy Perrone – East Elmhurst, New York

Education: Tulane University
Degree: M.S.
Research: Phlebovirus
Mentor: C. J. Peters, M.D.

Jessica Tonry – Long Island, New York

Education: Colorado State University
Degree: B.A.
Research: Arboviruses
Mentor: Robert Tesh, M.D.

STARTED SEPTEMBER 2003

Felicia Gilfoy – Springfield, Missouri

Education: University of Missouri
Degree: B.A.
Research: Arboviruses
Mentor: Peter Mason, Ph.D.

Yvette Girard – Oakland, California

Education: Oberlin College
Degree: B.A.
Research: Vector Biology/West Nile Virus
Mentor: Stephen Higgs, Ph.D.

Jeffrey Jordan – Portland, Oregon

Education: Washington State University
Degree: B.S.
Research: Immunopathology
Mentor: David H. Walker, M.D.

M.D./Ph.D. Graduated 2009
Kimberly Nethery – Amarillo, Texas
Education: Texas A&M University
Degree: B.S.
Research: Tick Borne Bacteria
Mentor: Jere McBride, Ph.D.
M.S. Graduated 2006

Heather McSharry-Lander – Ellenburg, Washington
Education: California State University
Degree: B.S.
Research: Hemorrhagic Fever Viruses
Mentor: C.J. Peters, M.D.
Ph.D. Graduate 2013

Slobodan Paessler – Osijek, Croatia
Education: University of Munich
Degree: D.V.M.
Research: Viral Pathogenesis & Vaccine Development
Mentor: Scott Weaver, Ph.D.
Ph.D. Graduated 2007

Shannan Rossi – Nyack, New York
Education: Cornell University
Degree: B.S.
Research: Arboviruses
Mentor: Peter Mason, Ph.D.
Ph.D. Graduated 2008

Elena Sbrana – Pisa, Italy
Education: University of Pisa
Degree: M.S.
Research: Antivirals
Mentor: Robert Tesh, M.D.
Ph.D. Graduated 2006
Bradley Schneider – Newport Beach, California

Education: University of Colorado at Boulder
Degree: B.S.
Research: Arbovirology, Immunology, Pathogenesis
Vector-host-virus interactions
Mentor: Stephen Higgs, Ph.D.

Ph.D. Graduated 2007

Darci Smith – Amarillo, Texas

Education: Colorado State University
Degree: B.S.
Research: Arbovirology
Mentor: Scott Weaver, Ph.D.

Ph.D. Graduated 2006

Heather Stevenson – Chula Vista, California

Education: Colorado State University
Degree: B.S.
Research: Ehrlichia Intracellular Bacteria
Mentor: David H. Walker, M.D.

M.D/Ph.D. Graduated 2009

Nikolaos Vasilakis – Nürenberg, Germany

Education: Hofstra University
Degree: B.A.
Research: Molecular Epidemiology of Flaviviruses
Mentor: Scott Weaver, Ph.D.

Ph.D. Graduated 2008

Michael Woods – Bryan, Texas

Education: Texas A&M – College Station
Degree: B.S.
Research: Rickettsial Pathogenesis
Mentor: Juan Olano, M.D.

Ph.D. Graduated 2008

STARTED SEPTEMBER 2004
Eleanor Deardorff – Santa Fe, New Mexico

Education: Reed College
Degree: B.A.
Research: Viral Outbreaks
Mentor: Scott Weaver, Ph.D.

Gregory Gromowski – Sheboygan, Wisconsin

Education: University of Wisconsin
Degree: B.S.
Research: Virology
Mentor: Alan Barrett, Ph.D.

Dan Hochman – Springfield, Virginia

Education: James Madison University
Degree: B.S.
Research: Toxicology
Mentor: Edward Brooks, Ph.D.

Nicole Arrigo – Los Angeles, California

Education: Brandeis University/Univ. of Hawaii-Manoa
Degree: B.S. /MPH
Research: Transmission of North and South American Eastern Equine Encephalitis Virus (EEEV)
Mentor: Scott Weaver, Ph.D./Douglas Watts, Ph.D.

STARTED SEPTEMBER 2005

Brian Friedrich – Kingwood, Texas

Education: Baylor University
Degree: B.S.
Research: HIV pathogenesis and virus-host interactions
Mentor: William O’Brien, M.D.
Charles McGee – Bridgeport, Connecticut

Education:  Sacred Heart University  
Degree:  B.S.  
Research:  Arbovirus transmission dynamics  
Mentor:  Stephen Higgs, Ph.D.

Chris McGowin – Dallas, Texas

Education:  Southwest Texas State University  
Degree:  B.S.  
Research:  Development of novel microbicides for sexually-transmitted pathogens  
Mentor:  Richard Pyles, Ph.D.

Konstantin Tsetsarkin – Krasnoyarsk, Russia

Education:  Novosibirsk State University  
Degree:  M.S.  
Research:  Identification of molecular determinants of vector infectivity for alpha and flaviviruses  
Mentor:  Stephen Higgs, Ph.D.

STARTED SEPTEMBER 2006

Joan Kenney – Leawood, KS

Education:  Tulane University/Yale University  
Degree:  B.S. /MPH  
Research:  Arbovirology  
Mentor:  Scott Weaver, Ph.D.

Jeeba Kuriakose – Sugarland, Texas

Education:  University of Houston  
Degree:  B.S.  
Research:  Ehrlichia  
Mentor:  Jere McBride, Ph.D.
Ph.D. Graduated 2011

Sara Woodson – Eagle Rock, VA

Education: Salem College
Degree: B.S.
Research: Pathogenesis
Mentor: Michael Holbrook, Ph.D.

Ph.D. Graduated 2011

STARTED SEPTEMBER 2007

Justin Darwin – San Antonio, TX

Education: Angelo State University
Degree: B.S.
Research: Alphaviruses
Mentor: Scott Weaver, Ph.D.

M.S. Graduated 2011

Tiffany Ethridge – Lubbock, TX

Education: Texas A&M University College Station
Degree: B.S.
Research: HIV
Mentor: Miles Cloyd, Ph.D.

M.S. Graduated 2009

Allison Mayo – Atlanta, GA

Education: Tulane University/Georgia State Univ.
Degree: B.S./M.S.
Research: Flavivirology
Mentor: Alan Barrett, Ph.D.

Ph.D. Graduated 2012

Trevor Pitcher – Porterville, CA

Education: Point Loma Nazarene University
Degree: B.S.
Research: Virology
Mentor: Alan Barrett, Ph.D.

Ph.D. Graduate 2012
Amy Schuh – Hayesville, NC
Education: Univ. NC Chapel Hill/ Univ. of Alabama
Degree: B.S. /MPH
Research: Flavivirology
Mentor: Alan Barrett, Ph.D.
Ph.D. Graduated 2012

Thomas Shelite – Andover, KS
Education: Wichita State University
Degree: B.S. /M.S.
Research: Rickettsiology
Mentor: David Walker, Ph.D.
Ph.D. Graduated 2014

Linda Sousse – Corpus Christi, TX
Education: Texas A&M – Corpus Christi
Degree: B.S. /MBA
Research: Pulmonary Pathophysiology
Mentor: Daniel Traber, Ph.D.
Ph.D. Graduated 2011

Sarah Ziegler – Las Vegas, NV
Education: University of Nevada Las Vegas
Degree: B.S. /M.S.
Research: Chikungunya virus
Mentor: Robert Tesh, Ph.D.
Ph.D. Graduated 2011

STARTED SEPTEMBER 2008

Ashley Grant – Arroyo, CA
Education: California Institute of Technology
Degree: B.S.
Research: Viral Hemorrhagic Fevers
Mentor: C.J. Peters, Ph.D.
Ph.D. Graduated 2012
Jessica Lewis Plante – Livermore, CA

**Education:** University of California – Davis  
**Degree:** B.S.  
**Research:** Flavivirus  
**Mentor:** David Beasley, Ph.D.

Kenneth Plante – Chelmsford, MA

**Education:** University of Massachusetts  
**Degree:** B.S.  
**Research:** Vaccine development/alphavirology  
**Mentor:** Scott Weaver, Ph.D.

Katie Taylor – College Station, TX

**Education:** Texas A&M University  
**Degree:** B.S.  
**Research:** Immunopathology of VEEV  
**Mentor:** Mark Estes, Ph.D.

Frances Valencia – San Antonio, TX

**Education:** St. Mary’s University  
**Degree:** B.S.  
**Research:** Herpes Simplex Virus I/II  
**Mentor:** Nigel Bourne, Ph.D.

**STARTED SEPTEMBER 2009**

Veronica Calderon – El Paso, TX

**Education:** University of Texas – El Paso  
**Degree:** B.S.  
**Research:** HIV/M.tb Co-infection  
**Mentor:** Mark Estes, Ph.D.
Erika Caro Gomez – Medellin, Colombia

Education: Universidad de Antioquia
Degree: B.S. / M.S.
Research: Identify cross-protective rickettsial antigens recognized by T lymphocytes
Mentor: Gustavo Valbuena, M.D., Ph.D.

Ph.D. Graduated 2014

Dar Heinze – Houston, TX

Education: Wheaton College
Degree: B.M.
Research: Host immune response to tick feeding
Mentor: Stephen Wikel, Ph.D.

MD/Ph.D. Graduated 2013

Farooq Nasar – Albany, NY

Education: State University of New York at Albany
Degree: B.S. / M.P.H.
Research: Characterizing new alphaviruses viruses
Mentor: Scott Weaver, Ph.D.

Ph.D. Graduated 2014

John Nuckols – Corpus Christi, TX

Education: Texas A&M – Corpus Christi
Degree: B.S. / M.S.
Research: Molecular Arbovirology
Mentor: Stephen Higgs, Ph.D.

Ph.D. Graduated 2012

Michael Patterson – Rocklin, CA

Education: Whitman College
Degree: B.A.
Research: Arenavirus and Alphavirus neuroinvasion and pathogenesis
Mentor: Slobodan Paessler, D.V.M., Ph.D.

Ph.D. Graduated 2014
**STARTED JANUARY 2010**

*Sandra Mayer – Santa Maria, Brazil*

Education: Fed U Santa Maria  
Degree: D.V.M. / M.S.  
Research: The role of host genetics in the pathogenesis of Dengue  
Mentor: Nikos Vasilakis, Ph.D.  

Ph.D. Graduated 2016

*Evandro Winkelmann – Santa Maria, Brazil*

Education: Fed U Santa Maria  
Degree: D.V.M. / M.S.  
Research: Viral Immunology  
Mentor: Gregg Milligan, Ph.D.  

Ph.D. Graduated 2014

**STARTED MAY 2010**

*Alexey Seregin – Omsk, Russia*

Education: Novosibirsk State University  
Degree: B.S. / M.S.  
Research: Molecular characterization of the mechanisms of pathogenesis during arenavirus infection  
Mentor: Slobodan Paessler, D.V.M., Ph.D.  

Ph.D. Graduated 2014

**STARTED AUGUST 2010**

*Andrew Beck – Baltimore, Maryland*

Education: Loyola College, Maryland  
Degree: B.S.  
Research: Virulence determinants of the yellow fever virus  
Mentor: Alan Barrett, Ph.D.  

Ph.D. Graduated 2016
Olga Kolokoltsova – Berdsk, Novosibirsk, Russian Federation

Education: Novosibirsk State University
Degree: M.S.
Research: Induction of apoptosis in response to Junin Virus and its significance for virus attenuation
Mentor: Slobodan Paessler, DVM, Ph.D.

Ph.D. Graduated 2014

Sydney (Chun) Ramirez – Sacramento, California

Education: California State University-Sacramento
Degree: B.S.
Research: Rift Valley Fever Virus
Mentor: Shinji Makino, DVM, Ph.D.

STARTED AUGUST 2011

Ph.D. Graduated 2015

Nicholas Bergren – Sunnyvale, Texas

Education: LeTourneau University
Degree: B.S.
Research: Vaccine Development
Mentor: Scott Weaver, Ph.D.

Ph.D. Graduated 2016

Brian Mann – Swanton, Ohio

Education: Wittenberg University, Springfield, OH
Degree: B.S.
Research: Viral pathogenesis with a focus on West Nile Virus
Mentor: Alan Barrett, Ph.D.

Ph.D. Graduated 2014
**Inaia Phoenix** – Albuquerque, New Mexico

**Education:** Southeastern Oklahoma State Univ.
**Degree:** B.S.
**Research:** Rift Valley Fever Virus Vaccine Development
**Mentor:** Tetsuro Ikegami, D.V.M., Ph.D.

Ph.D. Graduated 2016

**Stephan Willias** – Corpus Christi, Texas

**Education:** Texas A&M Univ. Corpus Christi
**Degree:** B.S.
**Research:** Assessing metabolic virulence factors of plague
**Mentor:** Vladimir Motin, Ph.D.

Ph.D. Graduated 2015

**Guang Xu** – Shanghai, China

**Education:** Shanghai Jiao Tong Univ.
**Degree:** M.S.
**Research:** Rickettsia and Orientia
**Mentor:** David H. Walker, M.D.

Ph.D. Graduated 2017

**STARTED AUGUST 2012**

**Meghan Elizabeth Hermance** – Houston, Texas

**Education:** Texas A&M, College Station, TX
**Degree:** B.S.
**Research:** Host response to the tick-borne flaviviruses
**Mentor:** Saravanan Thangamani, Ph.D.

Ph.D. Graduated 2016
John Tyler Manning – Brownwood, Texas

Education: Hardin-Simmons Univ., Abilene, TX
Degree: B.S.
Research: Genetic determinants of pathogenesis for hemorrhagic arenaviruses, with a focus on live attenuated vaccine development
Mentor: Slobodan Paessler, DVM, Ph.D.

Ph. D. Graduated 2016

Casey Schroeder – Des Moines, Iowa

Education: U. of Nebraska - Kearney
Degree: M.S.
Research: Rickettsia and cell signaling
Mentor: Sanjeev Sahni, Ph.D.

Ph.D. Graduated 2016

Jesus Alberto Silvas – Chihuahua, Mexico

Education: Texas A&M University-Kingsville
Degree: M.S.
Research: Molecular pathogenesis of emerging viral infections
Mentor: Patricia Aguilar, Ph.D.

Ph.D. Graduated 2017

STARTED AUGUST 2013

Jeremy Bechelli – Portville, New York

Education: University of Rochester–New York
Degree: M.S.
Research: Rickettsial immunology
Mentor: David H. Walker, M.D.

Ph.D. Graduated 2016
Sue-Jie Koo – Christchurch, New Zealand

Education: Oregon State University  
Degree: B.S.  
Research: Chagas cardiomyopathy  
Mentor: Nisha J. Garg, Ph.D.

Ph.D. Graduated 2017

Shannon Ronca – Royersford, Pennsylvania

Education: Cedar Crest College  
Degree: B.S.  
Research: Arenaviruses  
Mentor: Slobodan Paessler, DVM, Ph.D.

Ph.D. Graduated 2016

STARTED AUGUST 2014

Maria (Lola) Alcorn – Sugarland, Texas

Education: University of Texas at San Antonio  
Degree: B.S.  
Research: West Nile Virus  
Mentor: David Beasley, PhD

Feidi Chen – Guangzhou, China

Education: Guangzhou Medical University  
Degree: M.D.  
Research: Inflammatory bowel disease  
Mentor: Yingzi Cong, Ph.D.

Ph.D. Graduated 2018
Sarah Schmidt Milligan – Corsicana, Texas

Education: Texas A&M University
Degree: B.S.
Research: *Ehrlichia* nucleomodulins
Mentor: Jere McBride, Ph.D.

M.S. Graduated 2015

Claire Smalley – Redding, California

Education: Univ of California, Davis/Univ of Nevada-Reno
Degree: B.S. Microbiology/M.S. Cell & Molecular Biology
Research: Rickettsia/Immunology
Mentor: David H. Walker, M.D., Ph.D.

Ph.D. Graduated 2017

**STARTED January 2015**

Hoai J. (Jaclyn) Ly – Brenham, Texas

Education: The University of Texas, Austin, TX, Texas A&M University, College Station, TX
Degree: B.S., MPH
Research: Rift valley fever virus MP-12 vaccine with silent mutation markers for reassortment and recombination analyses between RVFV atrains and other bunyaviruses
Mentor: Tetsuro Ikegami, DVM, Ph.D.

**STARTED August 2015**

Steven Hallam – Rexburg, Idaho

Education: Brigham Young University, Provo, UT
Degree: B.S.
Research: Genetic determinants of pathogenesis for hemorrhagic arenaviruses, with a focus on live attenuated vaccine development
Mentor: Slobodan Paessler, DVM, Ph.D.
Courtney Parker – Sikes, Louisiana

Education: Louisiana State University – Shreveport, LA
Degree: B.S.
Research: Genetic analysis and vaccine development for flaviviruses
Mentor: Alan Barrett, D.T., Ph.D.

Adam Ronk – Paw Paw, Michigan

Education: Albion College, Albion, MI
Degree: B.A.
Research: Filovirus replication and transcription; effects of the innate immune response and viral interferon antagonism on filovirus polymerase function.
Mentor: Alexander Bukreyev, Ph.D.

Brandon Trent – Colorado Springs, Colorado

Education: Brigham Young University, Provo, UT
Degree: B.S.
Research: Immune responses to Orientia tsutsugamushi
Mentor: Lynn Soong, M.D., Ph.D.

STARTED August 2016

Nathen E. Bopp – Mansfield, Massachusetts

Education: Univ. of Massachusetts Amherst, Amherst, MA
Degree: M.S.
Research: Applications of exosomes in infectious disease research
Mentor: Patricia Aguilar, Ph.D.
Emily Davis – Elkhorn, NE

Education: Univ. of Nebraska – Lincoln
Degree: B.S.
Research: Viral diversity, pathogenesis and vaccine development for flaviviruses
Mentor: Alan Barrett, D.T., Ph.D.

Jacob T. Nelson – Las Cruces, NM

Education: New Mexico State Univ., Las Cruces/B.S.
Degree: University of Hawaii, Honolulu/M.S.
Research: Neuropathogenesis of viral encephalitis
Mentor: Alexander Freiberg, Ph.D.

Madison Rogan – Carrollton, TX

Education: Texas Christian Univ. – Fort Worth
Degree: B.S.
Research: Host-pathogen interaction during *Ehrlichia chaffeensis* infection
Mentor: Jere McBride, Ph.D.

STARTED August 2017

Elizabeth J. Mateer – Dallas, TX

Education: Nicholls State University, Thibodaux, LA
Drexel University, Philadelphia, PA
Degree: B.S., M.S.
Research: Pathogenesis of pathogenic arenavirus infections
Mentor: Slobodan Paessler, D.V.M., Ph.D.
Kubra Naqvi – Ashburn, VA
Education: Rochester Institute of Technology
            Rochester, NY
Degree: B.S.
Research: Cell mediated immunity to *M. tuberculosis*
         and *M. tuberculosis/HIV* co-infection
Mentor: Janice Endsley, Ph.D.

Ashley Strother – Graniteville, SC
Education: University of South Carolina Aiken, Aiken, SC
Degree: B.S.
Research: Role of the non-structural genes in attenuation
         of yellow fever vaccine strain 17D
Mentor: Alan Barrett, D.T., Ph.D.

K. Lane Warmbrod – Oak Ridge, TN
Education: University of Kentucky, Lexington, KY
Degree: B.S.
Research: Viral Evolution
Mentor: Saravanan Thangamani, Ph.D.

**STARTED August 2018**

Allen Esterly – Fremont, CA
Education: California State University, East Bay,
            Hayward, CA
Degree: B.S.
Research: Mosquito determinants of Alphavirus and
         Flavivirus transmission and dissemination
Mentor: Saravanan Thangamani, Ph.D

Megan Mears – Citra, FL
Education: Georgia Southern University
Degree: B.S.
Research: Dennis Bente, DVM, Ph.D
Rachel Sattler – Trenton, MI

Education: University of Notre Dame
Degree: B.S.
Research:
Mentor: Slobodan Paessler, DVM, Ph.D

Rebecca Supan – Milford, CT

Education: University of New Haven, West Haven, CT
Degree: B.S.
Research:
Mentor: Tian Wang, Ph.D
FINANCIAL POLICIES AND BENEFITS

Effective Fall of 2017, students selected for graduate assistantships receive an initial stipend of $29,000 plus paid tuition and fees and health insurance coverage. Graduate assistantships are only available to U.S. citizens and permanent residents (green card holders). Dental insurance is available for a small charge. An assistantship permits out-of-state students to pay in-state tuition.

Pursuing a Ph.D. degree is considered a full-time endeavor. Students who receive an assistantship are not eligible to work in other units at UTMB. Employment outside UTMB is strongly discouraged.

Additional Benefit of Holding a Research Assistantship

If you are a non-resident for tuition purposes and appointed to a Research Assistantship at least half-time which relates to your degree program, under the rules and regulations established by UTMB, you are eligible for a waiver of non-resident fees. You are permitted to pay resident fees.

This benefit extends to your spouse and your children if they enroll in any state institution of higher education.

GENERAL INFORMATION

1. For e-mail set-up or problems see The Pathology Department Administrator, Keiller Building, Room 1.116; ext. 70604 or call IS Help Desk at ext. 25200.

2. Student Room: Phone Number 72436; Located in the Keiller Building, Room 4.104

3. Campus Security: Phone Number 22691; (We do not want you to walk alone if you are here after dark). Escort services are available, please call: ext. 22691. Campus Security is located in the Rebecca Sealy Building Room 2.712.

4. Bookstore: Phone Number 21939; Located in the Moody Medical Library, 1st Floor.

5. Field House: Phone Number 21304; Located at 4th & Mechanic. Some of the amenities available at the Field House are a swimming pool, tennis courts, large workout room as well as organized activities such as yoga and aerobics.

6. Student Health and Counseling: Phone Number 79508; Located in the Jamail Student Center on the 3rd Floor; After hours, weekends, and holidays, call the Access Center @ 1-800-917-8906.

7. Please keep your UTMB identification with you at all times.
**Class Attendance/Illness**
As a general policy, Experimental Pathology graduate students are expected to attend all scheduled classes and seminars. Attendance is of particular importance since class discussions are an important part of every graduate course taught within the Experimental Pathology program and most other courses developed for graduate students at UTMB.

*Students are expected to arrive on time to all classes, seminars, etc.) and to be prepared. Attendance and late arrival can affect the final grades in any course.*

**Exp Path Student Room**
Room 4.114 in the Keiller Building is for graduate students to use for breaks and for individual or group study. There are a total of 3 Dell Pentium IV computers and 2 printers for your use as well as 2 scanners. The printers are a Laser Jet 5N and an Epson Color Printer. Some of the software programs are Microsoft Office XP; SigmaPlot; Netscape; Corel Draw8; Adobe Photoshop; e-mail and others. Please store all personal files on diskettes; the hard disk will be periodically purged of personal files. You will each be assigned a log on for these computers. **Please keep your password secure.** Please report any computer, printer or scanner problems to Ashley Rhame in Pathology Education @ ext. 22521 immediately.

**Access to Keiller Building**
Access to the Keiller Building is restricted to authorized personnel only. You must carry your UTMB ID Card at all times and you will not be permitted to enter the Keiller Building without it. You must either retrieve your ID card or purchase a new one prior to entry. All guests to Keiller must have a UTMB ID or driver's license and must register with the security personnel upon entry. They must be escorted throughout the building during their visit (you do not have to follow them into the bathroom) and when leaving Keiller. You are responsible for any guests admitted to Keiller.

**Foreign Language**
No language other than English will be required. The Program reserves the right to require students to take courses or tutoring in English, writing and grammar should deficiencies become apparent.

**Stipends/Paychecks**
A limited number of stipends will be awarded at the time of admission based on the priority recommendations of the Admissions and Recruitment Committee. Decisions about continuation of stipends will be made by the Student Evaluation and Advisory Committee.

Students receiving stipends will be paid every two weeks under the job classification of **graduate assistant.** This job title does not allow students to accrue vacation or holiday but does allow 4 hours per month sick leave to be accrued. Paychecks for the stipends are generated every other Friday and are generally made by direct deposit. Under certain circumstances, paper checks can be issued. Please see Laura Lozano in the Pathology Administration Office, Keiller Building 1.116.

**Part-time/Full-time Status**
The program will not normally allow students to apply for admission part-time. Exceptions will be made only in exceptional circumstances and at the discretion of the Admissions and Recruitment Committee in conjunction with the Program Director. Students wishing to change their status from full-time to part-time must have the approval of the Experimental Pathology Graduate Program Executive Committee, the Program Director and their mentor (if applicable). Any student who is approved to undertake his/her studies part-time will have a work plan, including milestones, approved by the Student Evaluation and Advisory Committee. Failure to comply with the work plan and meet milestones each semester will result in dismissal from the program.
Federal Income Tax
Graduate assistantships are considered taxable income for purposes of the Internal Revenue Service. It is referred to as OASDI on the paycheck. A W-4 form must be on file. Tax information can be found at http://www.irs.gov/.

Parking
All full-time UTMB students may purchase a Student Parking permit for $80, which is valid from September 1 through August 31 of each year. These permits may be purchased Monday through Friday, 8 a.m. – 5 p.m. from the Parking Office located in room 2.756 in the Rebecca Sealy Building (Phone 409-772-1581). Pre-tax parking can be deducted from employees’ paychecks. This deduction will not be subjected to Federal Withholding or Social Security/Medicare taxes. If interested in signing up for payroll-parking deduction, the form is located on-line at http://www.utmb.edu/finance/payrollservices/forms/default.asp. Complete it and mail to the Parking Office, Route 0118, or walk it to their office. The original must be submitted, as faxes are not acceptable. Payment of registration and badge fees is required before students can make any parking arrangements.

Funding Opportunities/Scholarships
There are a variety of scholarships available to graduate students, both competitive and restricted. The following website provides detailed information about these scholarships: https://www.utmb.edu/enrollmentservices/currentstudents/scholarships/scholarships-by-school

Another excellent source of funding opportunities can be located at: https://gsbs.utmb.edu/current-students/scholarships-and-awards/specific-scholarship-awards

As part of the Office of Research Education, the Research Development office provides help in identifying funding sources and other information useful in the grant development process and distributes this information to the UTMB community through workshops, listserv alerts, and the weekly Yellow Sheet among other means. The Research Services Development is located on the fourth floor of the Rebecca Sealy Hospital, suite 4.500. (Phone: x69400)

Bookstore Purchases
The UTMB bookstore is located in the Moody Medical Library, phone number: (409) 772-1939. The bookstore offers a rewards card that will allow you 3% of your total sales. You have to sign up for the rewards card at the bookstore.

Badges
Students who receive a graduate assistantship are also considered employees of UTMB with the employment title of Graduate Assistant. Although one badge is issued, the “Smart Card” recognizes student and employee status. This badge will be needed to access buildings located on campus, checking out books from the library, parking, field-house privileges, and other identification purposes. All badges must be returned when a student departs from the university. Your employee badge can also be used around the island. Ask about discounts for UTMB employees. It can be used for free transportation for the island bus and trolley system any day or time of the week.

Building Access
Security measures are taken on campus limiting access certain buildings. Numerous buildings on campus are locked after certain hours, and some remain locked (e.g., the Keiller Building, Medical Research Building, etc.) with monitored entrance. The security entrance system requires encoded employee badges for entry.

The building access locking system for these buildings is activated as follows: Monday through Friday, the building is automatically unlocked at 6:00 a.m. and automatically locked at 6:00 p.m.; the building remains locked on Saturday and Sunday. Badge readers are installed on the first floor.
Weather Emergency Policy
Galveston Island is a geographical area subject to hurricane threats. UTMB has developed Disaster Plans to implement appropriate procedures in the event of a hurricane. If the need for emergency transportation occurs, it is the student’s obligation to obtain such transportation. UTMB is unable to provide shelter for students as all non-hospital buildings are closed in the hurricane preparation phase. The Academic Executive Council will formally dismiss students from all schools in the event of a hurricane threat – normally when a hurricane “warning” is announced. Please refer to the information posted on the web at [http://www.utmb.edu/emergency_plan/](http://www.utmb.edu/emergency_plan/). Students are appointed with an employee title of Graduate Assistant which is classified as a non-essential employee. This is defined as “employees whose presence is not essential during a declared emergency status, but cannot leave until released by supervisor and must return to work as usual under routine operations after emergency status has ended.” In the event of an evacuation, students are responsible for making transportation arrangements off the island. Decal re-entry stickers are issued to residents of Galveston only, which can be picked up from the BBSC office. These stickers are to be placed in the upper left-hand corner of the driver’s side windshield. Weather-related services are available by dialing 409-74STORM (409-747-8676) or tuning campus television to channel 37. Reports are also provided on radio stations, KGBC 1504 AM and KTRH 740 AM, and on area television stations.

Grades
For continuation in good standing from one semester to the next, the standards imposed by Experimental Pathology must be met. These are as follows: 1) achieving in each term a 3.0 average or above for all letter-graded courses and 2) satisfactory performance in all other courses each term. If these conditions are not met, students are placed on probation for the next semester.

Probation
If during the term in which the student is on probation he/she achieves a 3.0 average or above for all letter-graded courses and satisfactory performance in all other courses, the dean will remove the student from academic probation. Only with permission of the dean will a student be permitted to drop a course during any term that he/she is on probation.

Dismissal
Conditions for academic dismissal from the graduate school exist when a student (a) on probation fails to achieve a 3.0 GPA or above for all letter-graded courses and satisfactory performance in research, thesis and dissertation courses; (b) receives a second F, WF, or U grade; (c) receives a second grading symbol of "W" for the same course or more than two grades of "W" overall; or (d) fails to meet all requirements for admission to candidacy for a degree in a timely fashion as specified in Section 4.731 of the GSBS Academic Policies. The dean informs students in writing when they are dismissed from the graduate school. Students dismissed from the graduate school are not eligible for readmission. However, a student may formally appeal the dismissal decision.
4.6113 Time Limits

There are three time limits for the doctor of philosophy degree:

1. After successful completion of the written portion of the Qualifying Examination (Section 4.732) students will be allowed to register for Research (6097) a maximum of three (3) terms. Failure to be admitted to candidacy by the end of the third term after successfully completing the Qualifying Examination is grounds for dismissal from the graduate school (Section 4.5713, Academic Policies);

2. A final, approved copy of the dissertation and all related forms must be submitted to the graduate dean within 90 days of successful completion to the defense of the dissertation; and

3. All requirements for the doctoral degree must be completed within five years after admission to candidacy. Any student who fails to complete the requirements within this specified time must reapply for admission to candidacy.

4.6133 Ph.D. Supervisory Committee Selection

Prior to admission to candidacy, the student shall select a supervisory professor who, with the approval of the dean, will be in charge of the candidate's doctoral dissertation. The student, in consultation with the selected supervisory professor, will recommend to the dean the other members of the supervisory committee. The selected supervisory professor and the recommended other members of the supervisory committee are appointed by the dean. The chair of the supervisory committee will be appointed by the dean on recommendation of the program director in consultation with the supervisory professor. The dissertation supervisory committee will normally consist of at least five members including four UTMB graduate faculty members, associate members or special members, and one special member or appointee (see Section 2.3) from another institution. Of the UTMB members, at least three will be from the student's program (one being the supervisory professor), and one whose primary area of scientific expertise is different from that of the supervisory professor. In general, this person will be from a graduate program other than that of the student, but in some cases a faculty member who holds an appointment within the student's program may qualify. Approval by the Program Director and the GSBS Dean is required to ensure the appropriate scientific qualifications and diversity of the committee.

The supervisory committees for MD-PhD Combined Degree students have additional specifications. The committee must include a) an MD-degreed faculty member with a primary appointment in a clinical department and b) a member of the MD-PhD Combined Degree Program Advisory Committee. These specifications may be satisfied by the appointees to the 5 positions required by the graduate school for a Doctor of Philosophy supervisory committee or by the appointment of additional members. The Director of the MD-PhD Combined Degree Program must approve these supervisory committees before the dean considers the proposed members.

The dean will write the members of the approved committee and ask if they agree to serve. An affirmative response from a full committee as defined in this section is a prerequisite to admission to candidacy.

4.6134 Requirements for Admission to Candidacy

Admission to candidacy for the degree of Doctor of Philosophy requires:

1. A report from the program director that the student has passed the qualifying examination;
2. submission of an application for candidacy and an approved research proposal;
3. conversion of all incomplete (I) or not reported (NR) grades to regular grades,
4. resolving any failing grades (F, WF or U) on the transcript as prescribed in 4.5711 Academic Performance;
5. an overall grade point average of 3.0 or better;
6. good academic standing; except that a student on continuing probation as defined in Section 4.5712 may advance to candidacy if all other provisions of this section (4.6134) are fulfilled;
7. written agreement to serve from a full supervisory committee as defined in 4.6133;
8. fulfillment of all program requirements; and
9. approval by the dean of the graduate school.

After successful completion of the written portion of the Qualifying Examination (Section 4.732) students will be allowed to register for Research (6097) a maximum of three (3) terms. Failure to be admitted to candidacy by the end of the third term after successfully completing the Qualifying Examination is grounds for dismissal from the graduate school (Section 4.5713, Academic Policies).

4.6232 Masters Supervisory Committee Selection

Prior to admission to candidacy, the student shall nominate a supervisory professor who, with the approval of the dean, will be in charge of the candidate's master's thesis. The student, in consultation with the nominated supervisory professor, will recommend the other members of a supervisory committee to be appointed by the dean. The supervisory professor will serve as chair of the supervisory committee unless the program director recommends to the dean that someone other than the supervisory professor serve as the chair. The supervisory committee shall ensure that the student satisfies all the requirements of the master's degree and must recommend that the graduate faculty certify the student has fulfilled all the requirements for the Master of Arts, Master of Public Health, Master of Science or Master of Medical Science degree before the graduate faculty may grant the certification.

The supervisory committee for Master of Arts, Master of Public Health and Master of Science students will normally consist of at least three regular, associate or special members of the graduate faculty, two of whom are from the student's program (one being the supervisory professor), and one whose primary area of scientific expertise is different from that of the supervisory professor. In general, this person will be from a graduate program other than that of the student, but in some cases a faculty member who holds an appointment within the student's program may qualify. Approval by the Program Director and the GSBS Dean is required to ensure the appropriate scientific qualifications and diversity of the committee. For the Master of Medical Science degree, the supervisory committee is composed of five members, one of whom is the supervisory professor. At least two members of the committee shall be from basic sciences departments and two shall be from clinical departments. Not more than two members shall be from the department of the student. The dean will write the members of the approved committee and ask if they agree to serve. An affirmative response from a full committee as defined in this section 4.6232 is a prerequisite to admission to candidacy.

POLICY: Extensions

To receive an extension on the three term limit a student must submit in a timely fashion:
   1) A (scientific) justification for the request;
   2) A letter from the mentor endorsing the request; and
   3) Endorsement of the Program Director.

Remember that a student does not advance to candidacy until all NINE requirements have been fulfilled. That means turning in papers to the GSBS on the deadline means you are already late, since written agreement from committee members is needed.