

# TROPICAL MEDICINE, PHD

## Overview

The PhD program in Tropical Medicine is an advanced degree that prepares students to pursue careers in tropical medicine. The PhD graduate is expected to have knowledge across a wide range tropical diseases as well as sustained experience in the conduct of research in one or more content areas. Graduates of the PhD program pursue careers in basic and applied research in academic institutions, governmental agencies, industry, and nonprofit organizations.

### Program Competencies

- Critique scientific literature for validity and relevance to tropical pathogens and vectors.
- Design relevant research approaches that address problems of management, diagnosis, or biology of tropical diseases.
- Evaluate the factors that affect pathogen transmission of infectious diseases commonly found in the tropics.
- Produce communication of original research methods and results for peer groups, students, practitioners/industry, and the general public.
- Design research using the relevant methods for planning and evaluating tropical disease control and prevention.
- Design teaching and learning experiences grounded in pedagogical best practices in a chosen area of expertise.
- Develop a grant proposal for a public health research study with a compelling scientific narrative, description of investigator capacity, timeline, and budget.

### Requirements

Students must complete at least 48 credit hours of coursework and doctoral studies beyond the baccalaureate, with a minimum of 30 didactic hours at Tulane in the doctoral program. Up to 18 credits may be applied from a prior master's degree. The advisor works with the students in identifying which courses may be applied toward the 48 credits for the PhD.

As part of the PhD training, students in Tropical Medicine are required to take advanced courses required of all doctoral students in SPHTM as well as specialty courses focusing on infectious diseases of the tropics. Students should work with their advisor to choose the courses that would be relevant to the knowledge required for successful completion of the dissertation research project.

## Requirements

| Course ID                                     | Title   | Credits |
|---|---|---------|
| <b>PhD Foundational Requirements</b>          |   |         |
| SPHL 6020                                     | Foundations in Public Health                    | 3       |
| SPHL 6050                                     | Biostatistics for Public Health                 | 3       |
| SPHL 6060                                     | Epidemiology for Public Health                  | 3       |
| TRMD 6050                                     | Medical Helminthology                           | 3       |
| TRMD 6060                                     | Medical Entomology                              | 3       |
| TRMD 6070                                     | Medical Protozoology and Malaria                | 3       |
| <b>PhD Core Course Requirements</b>           |   |         |
| EPID 7120                                     | Epidemiologic Methods II                        | 3       |
| BIOS 6040                                     | Intermediate Biostatistics                      | 3       |
| SPHL 8080                                     | Public Health Pedagogy                          | 3       |
| SPHL 8400                                     | Public Health Grant Writing                     | 3       |
| <b>Tropical Medicine PhD Required Courses</b> |   |         |
| TRMD 7020                                     | Infectious Disease Seminar                      | 1       |
| TRMD 7020                                     | Infectious Disease Seminar                      | 0       |
| TRMD 7180                                     | Immunoparasitology                              | 3       |
| or TRMD 7800                                  | Advanced Medical Entomology                     |         |
| TRMD 6200                                     | Impact Evaluation in Global Health              | 3       |
| or TRMD 7420                                  | Population-Based Malaria Prevention and Control |         |
| TRMD 8080                                     | Large Dataset Management and Sequencing: Part 1 | 3       |
| TRMD 8100                                     | Laboratory Rotation                             | 2       |

**PhD Elective Courses – 6 credits**

Students are encouraged to take courses covering a broad array of the disciplines involved in the field of Tropical Medicine, including coursework offered by other academic departments (e.g., Epidemiology, Biochemistry, Microbiology, Pharmacology, etc.) relevant to their area of concentration. Students should take advanced elective courses that complement their research area and are consistent with the PhD program objectives. Courses taken outside of the SPHTM need approval from the advisor to confirm such an elective course would be relevant to knowledge required for successful completion of the dissertation research project.

**Infectious Disease Seminar**

Students must enroll twice in TRMD 7020 Infectious Disease Seminar (0 to 1 c.h.). In the first term of enrollment, students take this course as a 1-credit-hour course. In the second term of enrollment, students take this course as a 0-credit-hour course. After fulfilling the 2 semesters of seminar, students must enroll in 0-credit versions of either TRMD 7020 Infectious Disease Seminar or TRMD 7000 Tropical Medicine Seminar each semester until the comprehensive examination is completed.

**Research Rotations**

Doctoral students are required to enroll in TRMD 8100 Laboratory Rotation (2 c.h.) as part of their research training at least once. They may enroll up to two more times with different faculty as an elective course. The rotations will acquaint the student with different research programs available in the department and assist the student in choosing a permanent dissertation advisor. In addition, by rotating with other faculty members the student will obtain research experience and training in different specialized areas.

**Research Ethics**

Students are required to take online research ethics training via CITI or another equivalent training program in research ethics. PhD students in Tropical Medicine fulfill this requirement with INTD 6010 Responsible Conduct of Research (0 c.h.)(RCR). This seminar series satisfies the responsible conduct of research training requirements of the National Institutes of Health (NIH) and the National Science Foundation (NSF). This certification must remain current throughout the program duration and at a frequency of no less than once every four years.

**Teaching Assistant Experience**

All PhD students at SPHTM are required to serve as a teaching assistant (TA) for two SPHTM graduate courses while enrolled in the PhD program. Students should register for Teaching Assistantship Educational Experience (0 credits) during the terms they complete each TA requirement. The courses for which the student will serve as a TA must be approved by the faculty advisor.

**SPHL 9970 – Dissertation Research**

Doctoral students who have completed required doctoral course work but have not defended their prospectus are required to register for (SPHL 9970) Dissertation Research each semester to maintain continuous registration in the PhD program.

**SPHL 9990 – Dissertation**

Doctoral candidates who have defended their prospectus and are engaged in research are required to register for (SPHL 9990) Dissertation each semester until the degree is awarded.

**Comprehensive Exam**

Upon completion of required coursework, students are expected to develop a research question outside of the focus of their dissertation work and write and defend their work orally before a faculty committee chosen in consultation with the PhD Program Director. The purpose of the comprehensive examination is to ensure that candidates for the PhD degree can organize a clear plan of research around a problem different from their proposed thesis.

**Prospectus**

After passing the comprehensive exam the student along with their advisor will choose a prospectus dissertation committee and prepare and defend a prospectus of proposed research, ideally within 6 months after successful completion of the comprehensive examination. The committee must include a minimum of three members with at least two faculty from the Department of Tropical Medicine and one external to SPHTM. The research prospectus must be presented and defended at least one semester before the dissertation defense. Following the successful defense of the prospectus, students are admitted to PhD candidacy and proceed with dissertation research.

**Dissertation**

Students must conduct original public health research and defend a dissertation based on that research. The dissertation research demonstrates scholarly work and is the basis for the dissertation. The dissertation committee and SPHTM Executive Faculty approve the dissertation. In addition to SPHTM dissertation requirements for the PhD, the dissertation must meet the requirements for a PhD dissertation in Tropical Medicine.

### Model Schedule for Fall Entry

The model schedule represents an overall plan for completing degree requirements. Students should consult an advisor to plan their actual schedule in terms of total credits per semester and course sequencing.

| <b>Year 1</b>             |  | <b>Credit Hours</b> |
|---------------------------|--|---------------------|
| <b>Fall</b>               |  |                     |
| SPHL 6020                 | Foundations in Public Health   | 3                   |
| SPHL 6050                 | Biostatistics for Public Health  | 3                   |
| TRMD 6050                 | Medical Helminthology  | 3                   |
| TRMD 6200<br>or TRMD 7420 | Impact Evaluation in Global Health<br>or Population-Based Malaria Prevention and Control | 3                   |
| TRMD 7020                 | Infectious Disease Seminar   | 1                   |
| <b>Credit Hours</b>       |  | <b>13</b>           |
| <b>Spring</b>             |  |                     |
| SPHL 6060                 | Epidemiology for Public Health   | 3                   |
| TRMD 6060                 | Medical Entomology   | 3                   |
| TRMD 6070                 | Medical Protozoology and Malaria   | 3                   |
| TRMD 7180<br>or TRMD 7800 | Immunoparasitology<br>or Advanced Medical Entomology                                     | 3                   |
| TRMD 7020                 | Infectious Disease Seminar   | 0                   |
| <b>Credit Hours</b>       |  | <b>12</b>           |
| <b>Summer Session</b>     |  |                     |
| TRMD 8100                 | Laboratory Rotation  | 2                   |
| <b>Credit Hours</b>       |  | <b>2</b>            |
| <b>Year 2</b>             |  |                     |
| <b>Fall</b>               |  |                     |
| BIOS 6040                 | Intermediate Biostatistics   | 3                   |
| TRMD 8080                 | Large Dataset Management and Sequencing: Part 1  | 3                   |
| SPHL 7500                 | Public Health Grant Writing  | 3                   |
| SPHL 8080                 | Public Health Pedagogy   | 3                   |
| TRMD 7020                 | Infectious Disease Seminar   | 0                   |
| <b>Credit Hours</b>       |  | <b>12</b>           |
| <b>Spring</b>             |  |                     |
| EPID 7120                 | Epidemiologic Methods II   | 3                   |
| TRMD 7020                 | Infectious Disease Seminar   | 0                   |
| Electives                 |  | 6                   |
| <b>Credit Hours</b>       |  | <b>9</b>            |
| <b>Year 3</b>             |  |                     |
| <b>Fall</b>               |  |                     |
| SPHL 9990                 | Dissertation   | 0                   |
| <b>Credit Hours</b>       |  | <b>0</b>            |
| <b>Spring</b>             |  |                     |
| SPHL 9990                 | Dissertation   | 0                   |
| <b>Credit Hours</b>       |  | <b>0</b>            |
| <b>Summer Session</b>     |  |                     |
| SPHL 9990                 | Dissertation   | 0                   |
| <b>Credit Hours</b>       |  | <b>0</b>            |

**Year 4**
**Fall**

|                     |              |          |
|---------------------|--------------|----------|
| SPHL 9990           | Dissertation | 0        |
| <b>Credit Hours</b> |              | <b>0</b> |

**Spring**

|                           |              |           |
|---------------------------|--------------|-----------|
| SPHL 9990                 | Dissertation | 0         |
| <b>Credit Hours</b>       |              | <b>0</b>  |
| <b>Total Credit Hours</b> |              | <b>48</b> |

## Contact

To learn more about the department, visit <https://sph.tulane.edu/trmd/home> (<https://sph.tulane.edu/trmd/home/>).