



# TROPICAL MEDICINE

The Department of Tropical Medicine has a long and proud history of contributions to the fields of parasitology and tropical medicine. The department is one of the oldest of its kind in the world and has established a strong international reputation for research in vector-borne and other tropical infectious diseases. Although its origins are based in classical parasitology, tropical medicine coursework and research programs span the breadth of public health and infectious disease problems across the globe.

Students benefit from the opportunity to learn from faculty members doing cutting-edge research in a number of bacterial, viral, and parasitic diseases. Students have the opportunity to work in the field and/or labs in areas as diverse as Colombia, India, Kenya, Malaysia, Mali, Peru, and Zambia. This is an exciting time for faculty, staff, and students in the Department of Tropical Medicine as they continue their research on emerging and re-emerging pathogens, novel approaches for control of vector-borne diseases such as dengue, diagnostics, new anti-malarial drugs, malaria vaccine, and new tools for vector control.

**FAST FACTS**

Degrees: MSPH, MPH&TM, PhD  
 Chair: Nirbhay Kumar, PhD, MSc  
 Contact: The project manager:  
 504-988-3588, tropmed@tulane.edu  
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Paula Burch-Celantano

Nirbhay Kumar, chair of the Department of Tropical Medicine, is working on a novel transmission-blocking vaccine that could help eliminate malaria.

## MASTER'S PROGRAMS

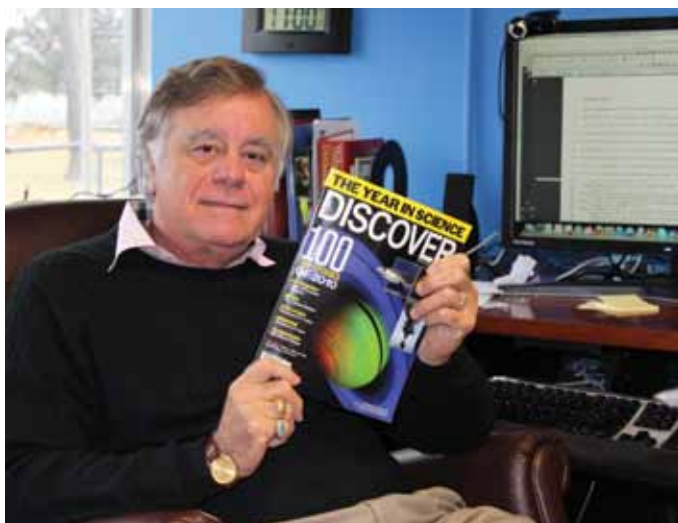
### ADMISSION REQUIREMENTS

Prospective students for either the MSPH and MPH&TM degrees must meet all requirements for admission into the School of Public Health and Tropical Medicine.

### Master of Science in Public Health (MSPH)

Many students who enter the MSPH program in tropical medicine and parasitology do so with the intention of working toward an advanced degree (MD, PhD, etc.) at a later time. This program provides a sound background for students who would like to work for advanced degrees in parasitology or other public health-related programs in infectious diseases. The degree requires a minimum of 42 credits of coursework (45 credits for those without a biological background). Because of scheduling and sequencing of courses, entry in the summer or fall semester is strongly encouraged.

Paula Burch-Celentano



PRESTON MARX, professor of tropical medicine, was recognized by *Discover* magazine in their 2010 Year in Science issue for his study suggesting that simian immunodeficiency virus (SIV) is thousands of years older than previously thought. SIV is the ancestor of the human immunodeficiency virus (HIV).

His findings were dramatic, and raised questions about the origin of HIV. In essence, if humans have been exposed to SIV-infected monkeys for thousands of years, why did the HIV epidemic only begin in the 20th century? Research continues to seek the elusive flashpoint for that development.

Degree requirements include: a minimum of 42 credits consisting of core courses, specialty courses, course electives/independent study, and practicum/culminating experiences.

### COURSE REQUIREMENTS

#### School Core Requirements (Page 19)

##### Specialty Requirements

TRMD 6050 Medical Helminthology	3	2
TRMD 6060 Medical Entomology		3
TRMD 6070 Medical Protozoology		2
TRMD 6090 Parasitology Laboratory		1
TRMD 6170 Immunology		3
TRMD 6240 Molecular Biology Methods for Public Health Students OR		3
TRMD 6340 Diagnostic Microbiology Laboratory OR		2
TRMD 7800 Advanced Medical Entomology		2
TRMD 7020 Parasitology Seminar (each semester)	1+1	

##### Recommended Electives

BIOS 6040 Intermediate Biostatistics		3
BIOS 6220 Database Management in the Health Sciences		3
BIOS 7080 Design of Experiments		3
EPID 7090 Epidemiology of Infectious Diseases		3
TRMD 6320 Preventative Tropical Medicine		2
TRMD 6420 Tropical Virology		3
TRMD 6450 Tuberculosis: Global Issues and Interaction with the HIV Epidemic		2
TRMD 7180 Immunoparasitology		2
TRMD 7820 Malaria		2

### Master of Public Health and Tropical Medicine (MPH&TM)

The MPH&TM program prepares health professionals with clinical backgrounds to deal with the important public health problems of tropical developing countries. By combining a core public health curriculum with coursework on the clinical, epidemiological, and control aspects of tropical diseases, this program prepares physicians

to understand tropical medicine from various perspectives; it also prepares the participants to evaluate and plan disease prevention and control programs.

Classroom and clinical settings in New Orleans provide clinical training, although work experience abroad can be arranged at the option of the student. The MPH&TM curriculum includes all components of the Diploma Course in Clinical Tropical Medicine and Traveler's Health, and since 1998 the MPH&TM degree has been recognized as an approved training program for students seeking certification in Clinical Tropical Medicine and Traveler's Health through the American Society of Tropical Medicine and Hygiene.

### COURSE REQUIREMENTS

#### School Core Requirements (Page 19)

##### Specialty Requirements

TRMD 6050 Medical Helminthology	2
TRMD 6070 Medical Protozoology	2
TRMD 6090 Parasitology Lab	1
TRMD 6310 Clinical Tropical Medicine	2
TRMD 6320 Preventive Tropical Medicine OR	2
TRMD 6350 Disease Control in Developing Countries	2
TRMD 6330 Microbial Diseases of the Tropics	2
TRMD 6340 Diagnostic Methods in Microbiology	2
TRMD 6360 Clinical Tropical Medicine Case Presentations	1
TRMD 7000 Tropical Medicine Seminar (two semesters)	1+1

##### Suggested Electives

TRMD 6060 Medical Entomology	3
TRMD 6170 Immunology	3
TRMD 6230 Methods in Cell Biology	3
TRMD 6420 Tropical Virology	3
TRMD 6450 Tuberculosis: Global Issues and Interactions with HIV	2
TRMD 6800 Emerging Pathogens	2
TRMD 7180 Immunoparasitology	2
TRMD 7820 Malaria	2
BIOS 6230 Computer Packages for Statistical Analysis: SAS	1
BIOS 6240 Computer Packages for Statistical Analysis: SPSS	1

BIOS 7080	Design of Experiments	3
EPID 6260	Survey Methodology	3
INHL 6040	Health and Economic Development	3

## COMBINED DEGREES AND SPECIAL PROGRAMS

### Diploma Course in Clinical Tropical Medicine and Traveler's Health

The Diploma Course program prepares health professionals with clinical backgrounds to deal with the important public health problems of tropical developing countries. Physician participants will become prepared to define the epidemiologic, biologic and social aspects of tropical diseases; it also prepares the participants to evaluate and plan disease prevention and control programs. The Diploma Course is a four-month program for healthcare professionals intended to prepare them for the certification exam in Clinical Tropical Medicine and Traveler's Health offered every other year by the American Society of Tropical Medicine and Hygiene (ASTMH).

The program provides a structured curriculum with practical instruction in tropical medicine, including the pathophysiology, clinical features, diagnosis, treatment, and control of diseases prevalent in the tropics. All of the courses required for this program are also required for students in the master of public health and tropical medicine (MPH&TM) program.

#### PROGRAM REQUIREMENTS

The program requires the equivalent of 15 credits of coursework, which can be completed in a single fall semester. Because the Diploma Course does not award a master's degree in public health, there is no requirement for core courses, practicum, or culminating experience. However, students may arrange to apply credit hours from the Diploma Course toward a MPH&TM degree or another MPH degree. (Students must then complete the remaining requirements for the MPH or MPH&TM in order to receive those degrees.) Courses leading to the Diploma in Clinical Tropical Medicine and Traveler's Health are not offered in the spring or summer semesters.

### Bachelor of Science in Public Health/Master of Public Health and Tropical Medicine (BSPH/MSPH)

See page 17.

### Doctor of Medicine/Master of Public Health and Tropical Medicine (MD/MPH&TM)

See more information about combined degree programs beginning on page 9.

## DOCTORAL PROGRAMS

### Doctor of Philosophy in Parasitology (PhD)

The PhD program offers research training on various aspects of parasitology and tropical diseases. The program prepares graduates seeking careers in diagnostic and research laboratories and in various academic and research institutions.

Graduates of the PhD degree program will be able to:

- Plan and carry out research projects on various aspects of tropical diseases;

- Plan, implement, and monitor programs for the control of tropical diseases in endemic areas;
- Analyze the results of their own research, as well as the research of others as reported in the literature;
- Direct an infectious disease diagnostic laboratory in a hospital, clinic, or local, regional, or national governmental health agency;
- Train laboratory personnel in the detection and identification of parasites in clinical specimens, the diagnosis of other tropical infectious diseases and the methodology employed;
- And train field workers in the techniques used for research projects and control programs

#### DEGREE REQUIREMENTS

Degree requirements for the PhD in tropical medicine include

- residency for one year or longer,
- completion of at least 72 didactic credit hours (inclusive of credits transferred into the program)
- successful completion of the comprehensive written and oral examinations
- approval of the dissertation prospectus
- and approval by the candidate's doctoral studies committee of the PhD dissertation for the award of the PhD degree.

### Post-Doctoral Research Training

Opportunities are available for more advanced research training, preparing recent PhD and MD graduates for independent careers in academic and government institutions.

## RESEARCH

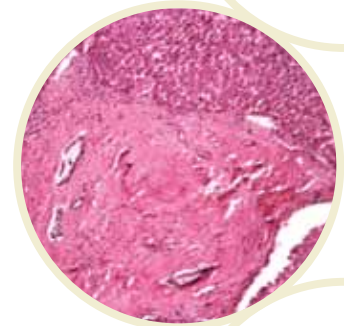
Research interests in the Department of Tropical Medicine include clinical tropical medicine, diarrheal disease, entomology, HIV infection and AIDS, immunology, dengue, West Nile, and malaria.

The faculty of the department actively interacts with the Center for Infectious Diseases established by Tulane in 1998 through the School of Public Health and Tropical Medicine. The mission of the center is to promote research interactions among faculty across various departments engaged in cutting-edge research on emerging and re-emerging infectious diseases.

## CAREER OPPORTUNITIES

Graduates of the MPH&TM program are prepared to work for the U.S. government, in private practice, or for non-governmental organizations. Graduates of the MSPH program are prepared to work in disease control programs or parasitology diagnostic laboratories. Many graduates enter medical school or doctor of philosophy programs.

The doctor of philosophy program trains professionals in field, epidemiological, and laboratory studies of tropical diseases in order to assume responsibilities for tropical disease research and control programs.





“Tulane is where dreams come true. I arrived at Tulane armed with only a dream of studying public health without scholarship or financial assistance. Being a self-sponsoring student, I was faced with great challenges; however, each time I was ready to give up, I remembered the great mentors and friends whose genuine interest in my progress was apparent. Today as a graduate of the MPH&TM program, I continue to draw upon the

guidance, experience, support, and leadership I found at Tulane. The school has equipped me with skills and tenacity, and I know I have been mentored by some of the brightest brains in the U.S.A. I will forever be indebted to the Tulane School of Public Health and Tropical Medicine family for helping me make my dream come true!”

—REFILWE SELLO, MPH&TM, TROPICAL MEDICINE

## Faculty and Research Interests

### Geetha Bansal, PhD

vaccine immunology  
monoclonal antibody and Bcell  
immunity  
immunopathogenesis of HIV/  
AIDS  
and other infectious diseases

### Daniel Bausch, MD, MPH&TM

epidemiology and control of  
viral hemorrhagic fevers and  
emerging pathogens  
building research capacity  
in developing countries  
health and human rights

### Elizabeth Didier, PhD, MS

nonhuman primate models to  
study immunology and patho-  
genesis of microsporidiosis

### Peter Didier, DVM, PhD

TB diagnostics, vaccines, and  
pathogenesis  
West Nile virus pathogenesis  
microsporidiosis drug testing  
model

### Young Hong, PhD, MS

molecular entomology  
gene expression in mosquitoes  
mosquito/parasite interactions

### Frederique Jacquerioz, MD, MPH, DTMH

epidemiology of Chagas disease  
Cochrane systematic review on  
issues relevant  
for tropical and travel medicine  
building training capacity in  
developing countries

### Donald Krogstad, MD

molecular and genetic basis of  
resistance to chloroquine and  
quinine  
techniques for the characterization  
of individual clones of malaria  
parasites  
development of methods to study  
pathogenicity

### Nirbhay Kumar, PhD

immunobiology of malaria  
transmission  
transmission blocking vaccine  
immune memory in malaria  
recombination mechanisms in  
*Plasmodium*  
helminth – *Plasmodium*  
co-infections  
animal models for human malaria  
vaccines  
parasite-vector interactions

### Preston Marx, PhD

simian models for AIDS  
pathogenesis  
HIV vaccines  
strategies for preventing HIV  
transmission to women

### Susan L.F. McLellan, MD, MPH&TM

development of digitized images  
for clinical and laboratory  
courses  
Travel and Tropical Medicine  
Clinic at Tulane University  
Hospital and Clinic  
surveillance for diseases in  
travelers

### Richard A. Oberhelman, MD

probiotic strategies for treatment  
and control of pediatric  
diarrhea in developing countries  
pediatric tuberculosis in  
developing countries

### Latha Rajan, MD, MPH&TM

HIV epidemiology  
social aspects of disease  
tuberculosis  
international collaborations  
medical education

### Margarita A. Silio, MD, MPH&TM

pediatric HIV/AIDS  
pediatric tuberculosis

### Dawn M. Wesson, PhD, MS

ecology of arbovirus transmission  
host-pathogen coevolution  
medical entomology  
novel vector control methods

### Mark F. Wiser, PhD

molecular and cellular biology of  
protozoan parasites and their  
interactions with host cells  
host-parasite interactions