Registration for new graduate students opens on **May 29th, 2015**

*For the most updated version of the MSGH course offerings, please visit Class Search on InsideND.*

**Total credits required for degree = 32 credits**

- **Required classes = 23 credits**
- **Elective classes = 9 credits**

### Required Courses

**FALL SEMESTER (required credits = 11)**

**Global Health Challenges**
GH 60591-01 (CRN: 20808) – 2 credits
Professor Katherine Taylor

This is the foundational course for Master of Science in Global Health students. It is intended to give students an overview of the key topics, activities, goals and challenges that comprise the global health enterprise. The course will be very forward-looking with respect to understanding the goals of the global health community in the context of: global partnerships, governance and leadership; health equity and social justice; approaches to problem-solving; ethical reasoning; systems thinking; and personal, social, economic and environmental determinants of health. On completion of the course, students will understand the major goals and challenges related achieving health with a focus on the poorest and most marginalized in the context of the complex determinants of health. Students will have the skills to analyze and think critically in tackling problems in global health.

**Topics in Global Health: Modern Infectious Disease Epidemiology**
BIOS 60590-01 (CRN: 16015) – 3 credits
Professor Edwin Michael

This course is to introduce students to the field of modern infectious disease epidemiology. The emphasis will be on the important need to take an inter-disciplinary approach in the study of the transmission ecology and control of infectious diseases. Students will be introduced to a range of topics and modern methods relevant to understanding and investigating the population biology, epidemiology, and control of diseases, ranging from transmission modeling to spatial ecology, host immunity and parasite genetics, socio-epidemiology of infection, intervention modeling, and health economics and management.

**Quantitative Research Methods in Global Health I**
GH 60610-01 (CRN: 20912) – 3 credits
Professor Roya Ghiasseden

The goal of this course is to provide students with a working knowledge of study design, questionnaire development, survey research and a variety of the most commonly used statistical methods and tools in epidemiology. Students will learn how to design research projects and analyze data in health related problem situations using various statistical methods, allowing them to arrive at better conclusions that are supported by sound statistical methodologies. Students will learn to apply analytic methods such as hypothesis testing, analysis of variance, regression analysis, survival analysis and other statistical methods. Ultimately, students will develop a more discerning approach to the consumption of statistical reports, particularly in health science.

**Qualitative Research Methods in Global Health**
GH 60611-01 (CRN: 20985) – 1 credit
Professor Naomi Penney
The goal of this course is to provide students with a working knowledge of study design, questionnaire development, survey research and a variety of the most commonly used qualitative and participatory research tools for public health practice. Students will learn how to design research projects and analyze data in health related problem situations using various qualitative and participatory methods, allowing them to arrive at better conclusions that are supported by sound research methodologies. Ultimately, students will develop a more discerning approach to the consumption of qualitative reports, particularly in health science.

**Global Health Project Management**
GH 60592-01 (CRN: 20807) – 1 credit
Professor Shannon Senefeld
This course provides an introduction and overview into global health project management including outlining the project cycle of a global health intervention. The course content will include project development, proposal writing, program management, monitoring and evaluation, capacity strengthening, and collaborating with local institutions and partners. This course prepares students for fieldwork by emphasizing project management, study design, practicalities of fieldwork and cultural sensitivity.

**Capstone Seminar**
GH 68550-01 (CRN: 20970) – 1 credit
Professor Lacey Haussamen
The Capstone Seminar is required for all MS in Global Health students. The capstone courses span the entire year and are designed to support students as they prepare for and complete their Capstone Project as required in the MS in Global Health program. This semester’s course lays the foundation for the Capstone Project and guides students as they develop their project focus. We will discuss program requirements and deadlines with regard to your Capstone Project, including the field research component. There is a focus on scientific writing and students will submit a project proposal to an evaluation committee at the end of the semester. Students are responsible for working with an identified faculty supervisor on their projects during the semester to advance the project and meet all deadlines.

**SPRING SEMESTER (required credits = 7)**

**Quantitative Research Methods in Global Health II**
GH 60610-02 – 2 credits
Professor Roya Ghiasseden
Picking up where the first semester left off, this course continues to provide students with a working knowledge of study design, questionnaire development, survey research and a variety of the most commonly used statistical methods and tools in epidemiology. Students will learn how to design research projects and analyze data in health related problem situations using various statistical methods, allowing them to arrive at better conclusions that are supported by sound statistical methodologies. Students will learn to apply analytical methods such as survival analysis, methods of calculation of appropriate sample size and other statistical methods. Ultimately, students will develop a more discerning approach to the consumption of statistical reports, particularly in health science.

**Bioethics**
GH 60545 – 2 credits
Professor Celia Deane-Drummond and Professor Joseph Bock
This course will focus on bioethical issues from a global perspective in the context of health needs of the global community. We will address the particular practical ethical dilemmas faced by humanitarian workers. We will then cover some examples of ethical quandaries that are most relevant in a global health
context, some of which are controversial from a religious perspective, including corruption and weak governance, HIV/AIDS; end of life, mental health and drug resistant tuberculosis. We will also discuss evolving theoretical frameworks for global health ethics, including values in global health, and more specifically social justice, solidarity and sustainability, drawing on named philosophical and theological traditions, including liberation theology.

**Global Health Colloquium**
GH 60601 – 1 credit
Professor Katherine Taylor
The Global Health Colloquium Spring semester will include a variety of timely topics in global health that will be presented by invited speakers and class participants. This is a required course for the Master of Science in Global Health students that is open to all graduate students with an interest in global health. The course has two main objectives: 1) Provide a venue for graduate students to present their research and receive feedback, as well as become familiar with the research of other graduate students, working on global health related projects; and 2) Learn from seminar speakers about areas that will impact their future careers in global health related fields: leaders in global health research, information on funding agencies, information on protection of intellectual property, speakers from government, NGO's and industry. Grade will be based on attendance, participation, completion of small assignments that will be requested during the semester, and a required presentation.

**Capstone Research**
GH 68551-01 – 2 credits
Professor Lacey Haussamen
The Capstone Seminar is required for all MS in Global Health students. The capstone courses span the entire year and are designed to support students as they prepare for and complete their Capstone Project as required in the MS in Global Health program. This semester, the class will meet periodically throughout the semester to continue supporting logistics of the Capstone Project and Field Research. Much of the capstone writing and research is done during this semester, before students go to the field. Students are expected to work on their research primarily with their faculty supervisor throughout the semester. Students will work according to the timeline and expected deliverables determined by the program and the Faculty Supervisor. Students are responsible for working with their faculty supervisor on their projects during the semester to advance the project and meet all deadlines.

**SUMMER SEMESTER (required credits = 5)**

**Capstone Field Research**
GH 68552-01 – 5 Credits
Professor Lacey Haussamen
Students will spend 6-8 weeks in a low resource setting conducting research for their Capstone Project. Students will work according to the timeline and expected deliverables determined by the program and the Faculty Supervisor. There will be four class sessions held in June/July upon return from the field experience that all students are required to attend.
Elective Courses

This list contains recommended electives (for both spring and fall) but is not exhaustive. Students may search across the university for other appropriate electives they want to take (this requires approval from the program). Please visit Class Search on InsideND for the most updated information.

Medical Microbiology
GH 60455-01 (CRN: 14864) – Fall 2015 – 3 Credits
Professor Shaun Lee
This course provides an overview of basic principles in infectious disease caused by major microbial pathogens. Through lectures and discussion of assigned reading material, the course examines current and classical topics in the field of host-pathogen relationships with an emphasis on the interplay between pathogen strategies and the host response. Students will be expected to give group presentations on topics relevant to Medical Microbiology and participate in regular class discussions.

Using Social Marketing to Influence Health-related Behaviors and Policies
GH 60593-01 (CRN: 20907) – Fall 2015 – 1 Credit
Professor Karen Gutierrez
This course will focus on how practitioners around the world are applying commercial marketing techniques to address important public health issues. Using recent examples from global efforts to reduce the harms caused by tobacco use and obesity, students will engage in interactive exercises, presentations, and discussions related to health policy and management, communications strategies, and other ways to affect individual behaviors and social norms.

International Development in Practice: What Works in Development
GH 60595-01 (CRN: 16020) – Fall 2015 – 3 Credits
Professor Stephen Reifenberg
This course on international development has three major purposes: I) to examine diverse approaches to thinking about international development and processes that bring about individual and societal change, II) to explore the role and constraints of development projects in areas such as poverty reduction, social development, health, education, the environment, and emergency relief, and III) to develop practical skills related to project planning and management, negotiations, communications, and the evaluation of international development projects. This class aspires to develop relevant knowledge and practical skill for students interested in engaging in bringing about positive change in a complex world. The class is particularly relevant for students planning international summer service internships, studying abroad, or for those considering careers in areas related to social and economic development. The course will make use of specific case studies from Haiti, Peru, Uganda, Mexico, Bangladesh, Pakistan, and Chile, among others, drawing lessons from instructive stories of failure and inspirational stories of change.

Improving Maternal and Child Health Services: Maternal and Infant Matrix Storyboard Methodology
GH 60594-03 (CRN: 20963) – Fall 2015 – 1 Credit
Professor Brian McCarthy
In this course participants will develop Maternal and Child Health (MCH) epidemiologic skills by using the rates, ratios, and proportions derived from the MIM matrix and focus on quality improvement of MCH services, particularly that of comprehensive emergency obstetrical and newborn care (CEmONC) services in low resource settings.
Arthropods and Human Disease
GH 60408-01 – Spring 2016 – 3 Credits
Professor Frank Collins and Professor Nicole Achee
Class emphasis is on physiology, genetics, and relationships of arthropods as agents and vectors of disease. Includes a laboratory section.

Water, Disease and Global Health
BIOS 60610-01 (CRN: 17740) – Fall 2015 – 3 Credits
Professor Joshua Shrout and Professor David Severson
The main emphasis of the course will be to study the diseases important to both the developed and developing world. Basic principles of public health, epidemiology, infectious disease microbiology, immunology, and engineering application will be learned utilizing both local and global examples. Particular emphasis will be given to diseases transmitted by water. As a complement to environmental engineering design classes, this class will focus upon the disease agents removed in properly designed municipal water and waste systems.

Topics in Parasitology & Vector Biology
BIOS 60579-01 (CRN: 15858) – Fall 2015 – 5 Credits
Professor Frank Collins and Professor Gregory Madey
The course will introduce the tools of modern molecular biology and explore their applications at the frontiers of biological research. Advanced topics may include molecular medicine, biotechnology, development, evolution, and neurobiology.

Topics in Parasitology and Vector Biology: Medical and Veterinary Parasitology
BIOS 60579 – Spring 2016 – 3 Credits
Professor Jennifer Robichaud
Subject matter changes depending on students’ needs. Prospective topics include specific diseases (e.g. Malaria, Dengue), molecular genetics of vectors, bioinformatics, and others.

Topics in Genetics and Molecular Biology
BIOS 60577 – Fall 2015 – 5 Credits
(various sections/professors)
The course will introduce the tools of modern molecular biology and explore their applications at the frontiers of biological research. Advanced topics may include molecular medicine, biotechnology, development, evolution, and neurobiology.

Topics in Rare and Neglected Disease
BIOS 60565-01 (CRN: 14850) – Fall 2015 – 3 Credits
Professor Kasturi Haldar
A main purpose of this course is to engage upper level undergraduate and graduate students in clinical research in rare and neglected diseases. The focus for each semester is on neglected/infectious diseases with emphasis on worldwide eradication strategies. A major goal is to have Notre Dame students work on a clinical research project in class on some rare and/or neglected disease of major importance. A second important goal of this course is to develop an analogous model(s) for other neglected/infectious diseases. We hope this class will also help the students become advocates for these diseases. The course is also tied to a clinical-translational seminar series to enable students to meet with leading international experts who work in neglected diseases. The class is intended for juniors and seniors.
Medical Molecular Parasitology  
BIOS 40420-01 (CRN: 15675) – Fall 2015 – 3 Credits  
Professor Miguel Morales  
Roughly 90% of the world’s health care resources are spent on diseases that affect only 10% of the world’s population. Neglected Tropical Diseases (NTDs) are a group of diseases that cause substantial illness for more than one billion people globally. This course will explore the molecular biology and mechanisms of virulence of eukaryotic protozoan parasites that are major causes of human disease and misery in most countries of the tropics. The entry of molecular biology with its elucidation of the genetics, genomics and proteomics of these organisms has provided increasingly sophisticated explanations of their capacities to persist under intense ecological and physiological pressures. The students: (i) will gain a detailed understanding of the molecular biology of these organisms; (ii) will increase their ability to read scientific papers and (iii) will be able to analyze and discuss some of the molecular laboratory techniques presented during the course.

Topics in Pathobiology  
BIOS 60550-01 (CRN: 16422) – Fall 2015 – 5 Credits  
Professor Shaun Lee, Professor Kasturi Haldar, and Professor Rizk Shahir  
Topics relating to all areas of pathobiology, including pathogen biology, pathogenesis and clinical outcomes, disease cycles in nature, tissue tropisms, pathogen-host cell interactions and other areas of interest to the class participants will be covered depending on what is selected by the instructor. Not all topics will be covered every semester this course is offered. Some semesters a single topic may constitute the entire discussion. Offered on demand.

GLOBES Module  
BIOS 60521 – Fall 2015 – 1 credit  
Modules may include policy training at Notre Dame and/or Washington, D.C., or elsewhere. Other modules may include GIS training, or training in other advanced techniques as demand dictates. This course is offered on demand and may have multiple sections in some semesters.

Global Health, Mobile Phones, and Appropriate Technologies  
BIOS 60204 – Spring 2016 – 3 Credits  
Professor Joseph Bock  
This course prepares students to implement Information, Communications, and Technology (ICT) applications for global health. These applications typically involve using mobile phones in conjunction with computer-based platforms. Such platforms are used to capture data from volunteers or paid staff members in the field, analyze those data, depict visually the results of those analyses, and, often, send back actionable information that is generated by the analyses to the volunteers or staff members in the field. The course is designed to accomplish increased understanding and skill development in these primary areas: (1) A knowledge of some of the major concepts related to mobile and ICT applications for global health; (2) A capability to identify applicable mobile and ICT applications for multiple kinds of global health challenges; (3) An in-depth knowledge of at least one ICT platform, to the point of being prepared to deploy it in the field; (4) An ability to train others in how to use a specific ICT platform; and (5) A capacity to stay informed of emerging technological and methodological improvements over time.

Agriculture, Food Security, Nutrition, and Resilience  
BIOS 60203 – Spring 2016 – 1 Credit  
Professor David Lege  
This course will give students a solid understanding of the inter-relationships between agriculture, food security, nutrition, climate change, and resilience. The course will cover both conceptual/theoretical...
materials, as well as case studies from the practitioner world. By the end of the course, students should be able to design an integrated project that addresses food security, climate change and resilience.

**Topics in Infectious Diseases**
BIOS 60569 – Spring 2016 – 5 Credits
(various sections/professors)
Subject matter changes depending on students’ needs. Prospective topics include specific infectious diseases (e.g. AIDS, Influenza, MRSA, TB), molecular genetics of pathogens, disease processes, and other relevant topics.

**Immunobiology of Infectious Diseases**
BIOS 60530 – Spring 2016 – 3 Credits
Professor Jeffrey Schorey and Professor Mary Ann McDowell
This course provides a critical overview of various infectious organisms and how they interact with their host. Examples will include intracellular and extracellular pathogens, generation of toxins, molecular mechanisms of invasion, and immune activation and protection. Students will be expected to give oral presentations based on critical review of primary literature as well as written reports.

**Anthropology of Reproduction**
ANTH 45826 – Spring 2016 – 3 Credits
Professor Vania Smith
In this course we will examine a variety of issues related to reproduction. We will concentrate on anthropological studies related primarily to reproductive health throughout the life cycle, such as sexuality, pregnancy and childbirth, midwifery, reproductive freedom, and the politics of the nation-state as they affect women's (and men's) reproductive lives. We will use ethnographic readings and examples from around the world to illustrate our discussions and gain an understanding of the complex intertwining of local and global politics regarding reproductive experiences and choices. An integral part of the course will be an ethnographic research project wherein you will apply anthropological theories and methods.

**Anthropology of Poverty**
ANTH 45875 – Spring 2016 – 3 Credits
Professor Rahul Oka
What is poverty? What does it mean to be poor, destitute and powerless? Does poverty in the developed world refer to the same conditions and factors that determine poverty in developing and undeveloped countries? What does genteel poverty mean? Does the ability to possess material goods and to consume indicate lack of poverty? What is the cycle of poverty? Can one break out of it? This course will address these and other questions on poverty through anthropological analysis. The course is divided into two parts: a) poverty in the pre-industrial era, and b) poverty in contemporary societies. Topics covered in the first part include the beginnings of poverty and social inequality in the earliest complex urban societies of the Middle East, Africa and South Asia, urbanism, production, distribution and poverty in various time periods including classical Greece and Rome, the Middle Ages and the Early Modern Era, and slavery, colonialism and poverty. The second part will address issues such as the relationship between industrialism, colonialism and poverty in 19th and 20th centuries, instituted poverty in post-colonial and post-industrial societies, and global manifestations of poverty in the 21st century. The course materials include readings from anthropology (archaeology, cultural anthropology, and biological anthropology), history, economics, theology, political science, as well as documentaries and films.

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