THE OHIO STATE UNIVERSITY - EASTERN AFRICA PARTNERSHIP

ONE HEALTH SUMMER INSTITUTE

May 15 - August 31, 2018
TABLE OF CONTENTS

MESSAGE // 2

GLOBAL ONE HEALTH INITIATIVE // 4
Overview
Ongoing Projects

TRAININGS AT A GLANCE // 6

TRAINING MODULES // 8

IMPACT STATISTICS // 16

FACULTY // 18

TESTIMONIALS // 24

STUDENTS SPOTLIGHT // 26
Nursing Students in Addis Ababa
MBA GAP Students

CDT AFRICA // 28

FACULTY ACCOMPLISHMENTS // 29

PARTNERS // 30
DEAR GLOBAL PARTNERS AND COLLEAGUES,

It is our great pleasure to convene the seventh annual One Health Summer Institute supported by The Ohio State University, Global One Health initiative (GOHi) and our eastern African partners. The One Health Summer Institute has grown exponentially since its inception in 2012, and this year will engage six additional North American universities including, Cornell University, University of Georgia, Texas Tech University, University of California, Davis, University of North Carolina, Charlotte and Universidad Nacional Autónoma de México as well as 40 academic faculty and staff instructors from close to 30 disciplines to lead 26 trainings. In addition, Ohio State students from multiple disciplines including, nursing, business, public health, veterinary medicine and agricultural economics, will participate in education abroad and service learning projects.

2018 marks a unique trajectory for our Global One Health partnership for many reasons: 1) This is the first Summer Institute since we inaugurated our Global One Health regional office in Addis Ababa last November, 2) An expanded number of academic institutes are involved; 3) It is the start of GOHi’s year-round online system in partnership with private industry (Canvas); and 4) Our African regional partnership has been strengthened with key initiatives particularly with the World Bank-funded African Center of Excellence, Center for Innovative Drug Development and Therapeutic Trials for Africa (CDT-Africa) and the University of Nairobi. This partnership expands GOHi’s reach beyond Ethiopia, Kenya and Tanzania and adds partners from Malawi, Uganda and Zambia.

A key theme of this year’s institute is building capacity for drug development and therapeutics against infectious and chronic diseases at the interface of humans, animals and the environment.

CDT-Africa was established as an African center of excellence to improve access to medical commodities (drugs, vaccines and diagnostics), including delivery mechanisms through sustainable human capacity development. CDT-Africa aims to build endogenous and sustainable capacity through education and training of scientists who will lead the next generation of medical discoveries, making it a natural fit with GOHi and its flagship activity, the Summer Institute. The center will focus on diseases with high unmet need in Africa that is underserved by current funding mechanisms and lack of global research and development interest. CDT-Africa is founded upon the rationale that poor access to medical products or commodities poses a major development and security challenge in Africa. Most countries in the continent rely heavily on aid and imports to satisfy local demands, and have not succeeded.

The partnership between CDT-Africa and GOHi is crucial in achieving the goal of CDT-Africa. Ohio State has partnered with CDT-Africa from its early inception, and we have designed this collaboration to be mutually beneficial. The trainings that are to be offered are critical for the achievement of our mutual goals. We will work together to make long-lasting impacts across Africa in the area of drugs, vaccines and diagnostics. CDT-Africa leadership would like to thank its core faculty and staff who are working tirelessly to realize the goal of the center, and GOHi for its generous commitment to partner and support CDT-Africa.

We also would like to highlight one of the key regional partners, among many excellent ones, the University of Nairobi. The University of Nairobi’s partnership with Ohio State’s Global One Health initiative is solidified through a Memorandum of Understanding initiated in November 2010 and renewed in November 2017. This partnership has provided critical capacity development at the University of Nairobi. Academic members of staff, graduate students, lab technology teams and others have all benefited from the collaborative partnership. Staff have been trained in animal molecular genetics, molecular epidemiology of infectious diseases, food safety, foodborne diseases, practical laboratory training in biomedical research, food safety, laboratory and data management. This immensely important capacity building provides sustainable, critical skills that support high quality research for the departments and colleges within the University of Nairobi.

We would like to take this opportunity to express our sincere thanks to the many wonderful sub-Saharan African region institutional partners and U.S. academic faculty, students and staff who have committed their time to make a global impact in the area of Global One Health. We look forward to a successful One Health Summer Institute. Together, we will make the planet capable of addressing complex health issues and will build healthy, enduring and thriving communities.
GLOBAL ONE HEALTH INITIATIVE

OVERVIEW

The Global One Health initiative, which began in 2009, connects The Ohio State University to Ethiopia, Kenya, Tanzania, Mexico, Brazil, Thailand, China, India and beyond in a coordinated, multidisciplinary approach to improve health, build capacity, and provide learning opportunities for students across the globe. Today, hundreds of Ohio State students, faculty and staff are involved in the initiative, building capacity within cross-cutting issues including zoonotic diseases, antimicrobial resistance, cancer, maternal and child health, medicinal plants, food safety and curriculum twinning and sharing information through innovative e-learning technology. The Global One Health initiative is the university’s largest, interdisciplinary example of institutional teamwork operating on a global scale.

The scope of Ohio State’s Global One Health initiative’s projects includes: 1) Prevention and control of (re-)emerging zoonotic infectious diseases; 2) Collaborative approaches to prevent, detect and respond to antimicrobial resistance; 3) Development and testing of rapid, point-of-care, field-deployable detection systems; 4) Evaluation of environmental risk factors that impact agricultural food systems, chronic diseases (such as cancer) and other economic and health outcomes; 5) Development of efficient digital and virtual systems for high impact translational research, training and outreach.

MISSION

Expand capacity for a One Health approach via applied education, training, research and outreach to more efficiently and effectively address causes and effects of diseases at the interface of humans, animals, plants and the environment.

VISION

Capable professionals and institutional systems that support and advance a healthy, enduring global community.

ONGOING PROJECTS

Brazilian Antimicrobial Resistance Network
Collaborative research, training, outreach and capacity building to prevent and control antimicrobial resistance in Brazil.

Bridging the Gap in Electronic Capacity in One Health
Collaboration with universities in Kenya, Tanzania and Ethiopia to narrow the gap in scientific knowledge, technology transfer and networking using digital systems.

Campylobacter Genomics and Enteric Dysfunction
The collaboration between Global One Health initiative and other U.S and Ethiopian institutions builds capacity and conducts research to tackle global hunger and food safety in Ethiopia and Burkina Faso.

Communications Across Borders
Partnership between The Ohio State University School of Communication and the Journalism and Communication Department at the University of Gondar to develop a journalism curriculum at the graduate level.

Curriculum Twinning Program in Veterinary Medicine and Nursing
Assessing, revising and updating core veterinary medicine curriculum at Ethiopian universities led by the University of Gondar and Ohio State. Supporting University of Gondar Nursing PhD students, with exchanges and training at Ohio State.

Drug Discovery and Therapeutics, Africa
Collaboration with the Center for Drug Discovery, Africa, led by Addis Ababa University, that includes multiple African countries to identify new therapeutics.

Epstein-Barr Virus Cancer Research
Collaboration with the James Cancer Hospital and Solove Research Institute and Addis Ababa Black Lion Hospital, researching the prevalence of Epstein-Barr Virus associated cancer in HIV positive individuals and setting the groundwork for vaccine research in the future.

GenomeTrkr Partnership
Formal partnership with U.S. Food and Drug Administration to extend work on whole genome sequencing of foodborne pathogens across a consortium of Global One Health partners.

Global Health Security to Prevent Priority Zoonotic Diseases and Antimicrobial Resistance in Ethiopia
Cooperative agreement with the Centers for Disease Control and Prevention and a collaboration with key Ethiopian public health institutions to prevent and control priority zoonotic diseases and antimicrobial resistance.

Global Innovation Initiative
Collaboration with Federal University of Paraiba, Brazil and University of Nottingham, UK to foster training, events and research projects on global antimicrobial resistance including transmission dynamics, intervention and prevention.

International Congress on Pathogens at the Human Animal Interface
Biannual congress with international partners and world experts in One Health to accelerate global capacity and knowledge-sharing to reduce the burden of disease, environmental hazards and their risk factors.

One Health Eastern Africa Research Training Program, National Institutes of Health
Collaboration with universities in Kenya, Tanzania and Ethiopia to conduct training and research with Eastern African doctoral fellows to advance the One Health platform among public health professionals.

One Health Summer Institute
Annually occurring One Health workshops, trainings and applied research opportunities held in Eastern Africa.

USAID Tuberculosis Prevention Trial: Challenge TB
Collaboration with KNCV and Aurum Institute in a clinical trial enrolling over 800 participants to optimize TB prevention protocols for HIV positive individuals.
The One Health Summer Institute trainings will take place May - August in Ethiopia and Kenya. Below is a summary of the trainings. Complete descriptions can be found on page 8. Please note that dates and times are subject to change. For the most up-to-date schedule and locations, and to register for a training, visit go.osu.edu/OneHealthSummerInstitute. Contact endashaw.1@osu.edu / +251-911-22 26 42 or joseph.184@osu.edu / +1-614-292-8169 with questions.

**TRAININGS AT A GLANCE**

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**ONLINE ONE HEALTH COURSES**

If you are interested in continuing your training outside of the One Health Summer Institute, there are several courses available on the Canvas platform. These courses provide professionals, globally, with key One Health courses on Environmental Science, Molecular Epidemiology, and Farm-to-Table Safety for free. To enroll, visit go.osu.edu/CanvasOneHealth.

**Training Modules**

<table>
<thead>
<tr>
<th>Training Modules</th>
<th>Location</th>
<th>Instructor</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veterinary Pathology</td>
<td>Gondar, Ethiopia</td>
<td>Hailu Kinde, Corrie Brown and Tsegaw Fentie</td>
<td>May 15 - 18</td>
</tr>
<tr>
<td>Communications Introduction and Curriculum Development</td>
<td>Gondar, Ethiopia</td>
<td>Nicole Kraft and Mustafa Worku</td>
<td>June 5 - 7</td>
</tr>
<tr>
<td>Vaccines and Impacts on Animal and Human Health</td>
<td>Addis Ababa, Ethiopia</td>
<td>Prosper Boyaska</td>
<td>June 11 - 15</td>
</tr>
<tr>
<td>Malnutrition and Chronic Diseases</td>
<td>Addis Ababa, Ethiopia</td>
<td>Ema Oppenheimer and Sarah L. McKune</td>
<td>June 11 - 15</td>
</tr>
<tr>
<td>Modeling Foodborne and Zoonotic Disease</td>
<td>Addis Ababa, Ethiopia</td>
<td>Ane Hendrik Havelsar</td>
<td>June 18</td>
</tr>
<tr>
<td>Molecular Epidemiology, Diagnostics and Genetic Engineering</td>
<td>Addis Ababa, Ethiopia</td>
<td>Wandwossen Gebreyes, Greesh Rajashakara and Eyasu Makonnen</td>
<td>June 19 - 22</td>
</tr>
<tr>
<td>Scientific Publishing</td>
<td>Addis Ababa, Ethiopia</td>
<td>God Perry and Getnet Yimer</td>
<td>June 20</td>
</tr>
<tr>
<td>Proposal Writing, Peer-Review and Grant Management</td>
<td>Addis Ababa, Ethiopia</td>
<td>Wandwossen Gebreyes, Getnet Yimer, Mesrak Nadew, Emia Oppenheimer and Tom Mack</td>
<td>June 21 - 23</td>
</tr>
<tr>
<td>One Health Leadership Workshop</td>
<td>Nairobi, Kenya</td>
<td>Michael Biesis and William Ogara</td>
<td>June 25 - 26</td>
</tr>
<tr>
<td>Good Clinical Practice and Biomedical Research Ethics</td>
<td>Haromaya, Ethiopia</td>
<td>Getnet Yimer</td>
<td>June 28 - 30</td>
</tr>
<tr>
<td>Developing Messages for Public Health Awareness</td>
<td>Addis Ababa, Ethiopia</td>
<td>Mesrak Nadew and Getnet Yimer</td>
<td>July 17</td>
</tr>
<tr>
<td>Evaluation of Public Health Programs</td>
<td>Addis Ababa, Ethiopia</td>
<td>Mesrak Nadew and Getnet Yimer</td>
<td>July 18 - 19</td>
</tr>
<tr>
<td>Participatory Epidemiology Application in Field Work</td>
<td>Gondar, Ethiopia</td>
<td>Karyn Havas and Caroline Yancey</td>
<td>July 24 - 27</td>
</tr>
<tr>
<td>Concepts of Economics and Epidemiology in Agricultural Development</td>
<td>Addis Ababa, Ethiopia</td>
<td>Karyn Havas and Caroline Yancey</td>
<td>July 30 - August 2</td>
</tr>
<tr>
<td>Vector Ecology and Disease</td>
<td>Nairobi, Kenya</td>
<td>Abhay Satoskar and Rob Skilton</td>
<td>July 30 - August 3</td>
</tr>
<tr>
<td>Infectious Diseases and Clinical Pharmacy Workshops</td>
<td>Addis Ababa, Ethiopia</td>
<td>Chelsea Bley and Kurt Stevenson</td>
<td>July 30 - August 4</td>
</tr>
<tr>
<td>One Health Epidemiology of Foodborne and Zoonotic Diseases</td>
<td>Gondar, Ethiopia</td>
<td>Chris Premandan, Barbara Kowalczy and Tsegaw Fentie</td>
<td>August 6 - 10</td>
</tr>
<tr>
<td>Bioactive Natural Products</td>
<td>Addis Ababa, Ethiopia</td>
<td>Livn Rakotondraibe and Abebaw Fekadu</td>
<td>August 6 - 10</td>
</tr>
<tr>
<td>Bioinformatics for Epidemiology</td>
<td>Addis Ababa, Ethiopia</td>
<td>Enrique Delgado Suarez, Dan Janies and Abebaw Fekadu</td>
<td>August 6 - 10</td>
</tr>
<tr>
<td>Research Ethics</td>
<td>Addis Ababa, Ethiopia</td>
<td>Donal O’Mathúna</td>
<td>August 6 - 10</td>
</tr>
<tr>
<td>Robes Project Activities and Animal Handling</td>
<td>Gondar, Ethiopia</td>
<td>Jeanette O’Quin and Maria Belu</td>
<td>August 6 - 10</td>
</tr>
<tr>
<td>Oncology/Lymphoma</td>
<td>Addis Ababa, Ethiopia</td>
<td>Robert Baisocci</td>
<td>August 8 - 10</td>
</tr>
<tr>
<td>The Microbe in Health and Disease</td>
<td>Addis Ababa, Ethiopia</td>
<td>Vanessa Hail</td>
<td>August 14 - 15</td>
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</tbody>
</table>

For updated information and the complete schedule, visit go.osu.edu/OneHealthSummerInstitute. You will also find more information about registration online.
SUMMER TRAINING MODULES

VETERINARY PATHOLOGY

**Instructor:** Hailu Kinde, Corrie Brown and Tsegaw Fentie
**Date:** May 15 - 18
**Location:** Gondar, Ethiopia

Pathology is a central and foundational discipline which bridges many other disciplines of veterinary medicine. By appreciating the basic mechanisms of disease, and how they function in each organ system, professionals can better know the clinical disease and can more effectively use gross findings to render a diagnosis, and/or select relevant tissues and the tests to perform. This workshop will focus on the pathogenesis of disease in various body systems and animal species, and illustrate through case-based examples and activities. All sessions will be interactive and participatory and use adult learning principles. This workshop is supported by the Davis-Thompson Foundation (www.cldavis.org).

VACCINES AND IMPACTS ON ANIMAL AND HUMAN HEALTH

**Instructor:** Prosper Boyaka
**Date:** June 11 - 15
**Location:** Addis Ababa, Ethiopia

The goal of this workshop is to give graduate students, postdoctoral trainees and non-immunologist professionals basic terminology and immunological perspective on the impact of vaccines for animal and human health. The training will include lectures and group case studies to facilitate application of the gained knowledge in their respective activities. It will explore basic principles of vaccines (live vs. subunit vaccines, routes of delivery, adjuvants and delivery systems); factors affecting efficacy of vaccines (pathogen, environmental, and host factors); and impacts of animal vaccines for human health (zoonoses, safety and efficiency data).

MALNUTRITION AND CHRONIC DISEASES

**Instructor:** Emia Oppenheim and Sarah L. McKune
**Date:** June 11 - 15
**Location:** Addis Ababa, Ethiopia

This training will provide an overview of nutrition and the role of different micronutrients in the body and their impact on health. Moreover, suboptimal nutrition and how that affects human health will also be discussed, with particular attention given to the causes of malnutrition. Participants will review key studies in malnutrition, familiarize themselves with this type of nutrition research and how to interpret the study results.

MODELLING FOODBORNE AND ZOOONOTIC DISEASE

**Instructor:** Are Hendrik Hevelaar
**Date:** June 18
**Location:** Addis Ababa, Ethiopia

This training will provide an overview lecture on risk assessment of infectious diseases and food safety. The instructor’s research covers the broad field of public health aspects of pathogens in food and the environment, and the effectiveness of preventive measures and includes microbiological risk assessment and the burden of foodborne illness.

COMMUNICATIONS INTRODUCTION AND CURRICULUM DEVELOPMENT

**Instructor:** Nicole Kraft and Mustofa Worku
**Date:** June 5 - 7
**Location:** Gondar, Ethiopia

This workshop will serve as an introduction to reporting and journalistic writing, exploring news and feature styles. The focus will be on research, reporting, interviewing, writing, paraphrasing vs. quoting and attribution, as well as working with sources. Additionally, the training will outline communications science and building a curriculum.

SCIENTIFIC PUBLISHING

**Instructor:** Gad Perry and Getnet Yimer
**Date:** June 20
**Location:** Addis Ababa, Ethiopia

Publishing scientific research in the peer-reviewed literature is an essential but complex process. In this two-hour training, participants will be introduced to the publishing process (preparation, submission and eventual publication stages) from the perspectives of the researcher, journal editor and reviewers.

MODELING FOODBORNE AND ZOOONOTIC DISEASE

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**Date:** June 18
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This training will provide an overview lecture on risk assessment of infectious diseases and food safety. The instructor’s research covers the broad field of public health aspects of pathogens in food and the environment, and the effectiveness of preventive measures and includes microbiological risk assessment and the burden of foodborne illness.

MOLECULAR EPIDEMIOLOGY, DIAGNOSTICS AND GENETIC ENGINEERING

**Instructor:** Wondwossen Gebreyes, Gireesh Rajashekara and Eyasu Makonnen
**Date:** June 18 - 22
**Location:** Addis Ababa, Ethiopia

This training will include an overview and discussion of core molecular approaches; introduction and core methods: gene amplification, restriction, hybridization, genotyping, genomics and gene cloning procedures; analysis and interpretation of genotypic data; and practical applications in public health. There also will be an overview of methods selection criteria and validation, and attendees will study the application of genotyping, data interpretation and troubleshooting.

Visit oia.osu.edu for more information
Visit go.osu.edu/OneHealthSummerInstitute for an updated schedule.
This workshop will familiarize participants with the basics of grants, cooperative agreements and contracts. It will outline funding opportunities for global research, training and outreach in the context of One Health. There will be discussion about proposal formats and how to write successful proposals. In addition, the workshop will include peer-review systems using examples of NIH, USDA, proposals. In addition, the workshop will include about proposal formats and how to write successful context of One Health. There will be discussion for global research, training and outreach in the context of One Health. There will be discussion about proposal formats and how to write successful proposals. In addition, the workshop will include peer-review systems using examples of NIH, USDA, CDC and other U.S. federal review panel systems.

**ONE HEALTH LEADERSHIP WORKSHOP**

**Instructor:** Michael Bisesi and William Ogara  
**Date:** June 25 - 26  
**Location:** Nairobi, Kenya

This training is designed to provide an introduction to One Health leadership and communication using a “One Health” model for professionals in relevant health fields, in both academia and government positions. The course will review fundamental concepts in leadership and communication. Included in the course will be applied modules focused on single and unified command leadership for emerging and/or full-scale incidents/emergencies.

**GOOD CLINICAL PRACTICE AND BIOMEDICAL RESEARCH ETHICS**

**Instructor:** Getnet Yimer  
**Date:** June 28 - 30  
**Location:** Haramaya, Ethiopia

This training will provide an overview of principles of Good Clinical Practice (GCP) focusing on safety, integrity and quality of clinical trials. GCP training describes local and international regulations, the responsibilities of investigators, sponsors, monitors, regulatory bodies, research participants, and IRBs in the conduct of clinical trials. Specific areas of focus will also include the rights, safety, and well-being of participants, and conducting clinical trials in accordance with approved plans with reliability and integrity.

**WORKING WITH GENERALIZED LINEAR MODELS**

**Instructor:** Ann A. O’Connell  
**Date:** June 25 - 28  
**Location:** Addis Ababa, Ethiopia

This training will provide an overview of logistic regression, count models and models for ordinal outcomes within the framework of generalized linear models. Examples from the literature will be discussed, and training content and demonstrations will focus on fundamental concepts and practical applications, with lesser emphasis on statistical theory. Participants will learn the challenges and limitations of different designs for discrete data and recognize how to match design to research questions. The training will equip participants with the knowledge and skills necessary to successfully fit and interpret these models in their own research. Extensions to generalized linear mixed models will also be presented.

**DEVELOPING MESSAGES FOR PUBLIC HEALTH AWARENESS**

**Instructor:** Mesnák Nadew and Getnet Yimer  
**Date:** July 17  
**Location:** Addis Ababa, Ethiopia

Today we live in an era of information and communication. The advancement of technology has enabled humanity to access information instantaneously from anywhere around the globe. The core concept of this course focuses on the type, amount and relevance of the information one accesses in light of public health. Participants will actively engage in the steps undertaken when designing public health messages across varying public health priorities and across different socio demographic groups. In addition, participants will be taught how to develop a communication strategy to raise public health awareness.

**EVALUATION OF PUBLIC HEALTH PROGRAMS**

**Instructor:** Mesnák Nadew and Getnet Yimer  
**Date:** July 18 - 19  
**Location:** Addis Ababa, Ethiopia

What gets measured, gets done! The value added through public health interventions can only be appreciated when measured and disseminated. Public health interventions that can be measured get public support and therefore are geared towards impacting at scale. Immunization programs, disease epidemic, mass drug administration programs are some of the programs with well-defined and replicable designs for measurement. However, programs such as behavioral change communication, health promotion, disease prevention, capacity strengthening require multiple approaches to demonstrate progress as well as account for improvement due to intervention. This course is designed to equip public health professionals with the skills necessary to design a monitoring and evaluation framework, plan and a concept note.

**CONCEPTS OF ECONOMICS AND EPIDEMIOLOGY IN AGRICULTURAL DEVELOPMENT**

**Instructor:** Karyn Havas and Caroline Yancey  
**Date:** July 30 - August 2  
**Location:** Addis Ababa, Ethiopia

Epidemiology principles can be used to assess disease status, distribution and the impact of interventions. Economic principles allow one to understand markets and how they function to either cause prosperity or poverty as well as to assist one in detecting what brings markets to fail or fail to thrive. The latter allows for identification of points of intervention, and when health and productivity interventions are needed, leading to synergy between epidemiology and economics. This course will review commonly used epidemiology study designs, concepts of sampling and bias, and simple analytics to evaluate results. It will also review economic principles related to price-setting, factors affecting price setting, theory people apply to investing in the future, and identification of potential market failures.

**PARTICIPATORY EPIDEMIOLOGY APPLICATION IN FIELD WORK**

**Instructor:** Karyn Havas and Caroline Yancey  
**Date:** July 24 - 27  
**Location:** Gondar, Ethiopia

This will be taught using adult learning principles to enhance learning outcomes. It will include interactive discussions and many activities to reinforce didactic teaching. Participatory epidemiology is a technique used to collect epidemiologic and production data in a low-literacy region. It acknowledges the inherent knowledge producers have of their production systems and that researchers are co-learners in the process of evaluation. This program will review the evolution of rapid rural assessments, their application, and participatory data collection methods and their strengths and weaknesses.

**RURAL ASSESSMENTS METHODS IN AGRICULTURAL DEVELOPMENT**

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**Vector-borne diseases** are caused by pathogens but transmitted by an intermediate species, primarily arthropods. Over 7 percent of human mortality due to infectious disease can be attributed to vector-borne diseases, including malaria, dengue and neglected tropical diseases. This workshop will provide an overview of vector-borne disease, parasite-vector interactions, and the ecology and prevention of these diseases using a model system. The training will focus on mosquitoes, sand flies, tsetse flies and tick-borne diseases as prime examples of disease vectors.

**Infectious Diseases and Clinical Pharmacy Workshops**

**Bioactive Natural Products**

**Instructor:** Liva Rakotondraibe and Abebaw Fekadu  
**Date:** August 6 - 10  
**Location:** Addis Ababa, Ethiopia

Natural products such as plants (medicinal plants, food and lichen) and microorganisms have been known to contribute to the discovery of Food and Drug Administration approved drugs. Many of them have been proven to be sources of biologically active compounds that can be used in many areas from insecticides to cancer treatment and chemoprevention. Since many of bioactive plant and microbial secondary metabolites have been already identified, it is becoming more challenging to isolate new biologically active natural products. The training will focus on new and efficient natural product isolation techniques, nuclear Magnetic Resonance (NMR)-based dereplication, bioassay guided isolation and structure elucidation of bioactive natural products.

**Bioinformatics for Epidemiology**

**Instructor:** Enrique Delgado Suarez, Dan Janies and Abebaw Fekadu  
**Date:** August 6 - 10  
**Location:** Gondar, Ethiopia

The purpose of the workshop is to provide participants with the basic principles underlying the analysis of bacterial whole genome sequencing data, as well as to provide hands-on training on the procedures of bioinformatics analyses required to obtain information for food safety and/or epidemiological applications.

**Research Ethics**

**Instructor:** Donal O’Mathúna  
**Date:** August 6 - 10  
**Location:** Addis Ababa, Ethiopia

This course will take a broad approach to research ethics, including issues of ethics and integrity throughout the research process, not only during the procedures for Institutional Review Board (IRB) approval. The course will review the historical origins of modern research ethics within public health research and clinical research, and examine how different health research methodologies raise different ethical issues. A research ethics tool, which Dr. O’Mathúna helped to develop, will be used in practical sessions to explore a variety of ethical issues that can arise during the planning, conducting and dissemination of research. The course will also provide an opportunity to explore the preliminary findings from a funded research project, Post-Research Ethics Analysis, for which Dr. O’Mathúna is the Principal Investigator and which has been conducted in Ethiopia and three other countries.

**One Health Epidemiology of Foodborne and Zoonotic Diseases**

**Instructor:** Chris Premondan, Barbara Kowalczyk and Tsegaw Fentie  
**Date:** August 6 - 10  
**Location:** Gondar, Ethiopia

This workshop is an introduction to the epidemiology of foodborne and zoonotic diseases from a One Health perspective. Topics will include epidemiologic principles, disease burden, surveillance, field epidemiology and outbreak investigations, surveys and sampling, and basic statistical analysis. Lectures, case studies and small group exercises will be used to explore these topics. At the conclusion of this course, students will have an understanding of the application of epidemiologic methods to investigating outbreaks and informing decision-making around foodborne and zoonotic diseases.

**Infectious Diseases and Clinical Pharmacy Workshops**

**Instructor:** Chelsea Pekny and Kurt Stevenson  
**Date:** July 30 - August 4  
**Location:** Addis Ababa, Ethiopia

This training will include a review of key clinical infectious diseases in the healthcare setting and in the context of chronic diseases including clinical presentation, antimicrobial resistance patterns, antimicrobial stewardship, and principles of clinical pharmacy and antimicrobial use. Focused presentations will be available and directed for each of these participant groups. One workshop may also include the appropriate use of the clinical microbiology laboratory and proper collection of clinical specimens.

**Rabies Project Activities and Animal Handling**

**Instructor:** Jeanette O’Quin and Maria Belu  
**Date:** August 6 - 10  
**Location:** Gondar, Ethiopia

A safe animal handling and rabies mass vaccination campaign training will be offered for veterinarians, faculty and veterinary students. Attendees will develop proficiency in these skills by progressing from classroom lectures to hands-on experience with equipment and culminating with mentored field work. Rabies vaccination of dogs is the cornerstone for human rabies prevention.
WILDLIFE CONSERVATION AND PANDEMIC PREPAREDNESS (WILDLIFE HANDLING AND CAPTURE)

Instructor: Jack Mortenson and Tsegaw Fentie
Date: August 29 - 31
Location: Gondar, Ethiopia

This three-day intensive short training will provide participants with training needed to confidently capture and handle wildlife species. We emphasize professional and humane animal capture and handling. Lecture and laboratory time will provide a general background on chemical restraint of wildlife and specific physical capture examples of a limited number of traps and nets. Emphasis is placed on the capture event, darting equipment, animal and human safety, drug pharmacology, dose calculations, and species specific recommendations. The course is practical with laboratory or field sessions to apply the information gained through concise lecture material. All participants will be provided with the equipment needed to conduct the various lab and field activities, and course notes including copies of lecture slides. There is a focus on basic principles and ethical approaches for physical capture and chemical immobilization. In addition, several examples of North American wildlife conservation will be highlighted to demonstrate wildlife handling principles.

THE MICROBIOME IN HEALTH AND DISEASE

Instructor: Vanessa Hale
Date: August 14 - 15
Location: Addis Ababa, Ethiopia

The microbes living within and on us and the genes they encode are collectively known as the microbiome. A growing body of research has revealed how critical our native microbial communities are to human and animal health, immune development, pathogen resistance, and even behavior. This course will provide a broad introduction to the microbiome, its role in health and disease and the methods used to study host-associated microbial communities.

CLINICAL SPECIMEN COLLECTION: TRAINING OF TRAINERS

The Ohio State University faculty in conjunction with Ethiopian Public Health Institute (EPHI) will provide a Master training on clinical specimen collection. Attendees will include participants from EPHI, Medical Services Directorate, and local academia in Ethiopia. Techniques on proper collection of clinical specimens for microbiological cultures will be demonstrated and practiced. These master trainers will then train other key personnel, using these techniques and materials developed by Ohio State and the CDC, under the direction of EPHI. The overall aim is the improvement of specimen collection for diagnostics and improving patient care. This session is not open for general registration.

KEEP UP WITH GOHI

One Health Summer Institute Contacts
Laura Joseph, Center for African Studies
Assistant Director
joseph.184@osu.edu
+1-614-292-8969

Emia Oppenheim, GOHi Director of Operations
oppenheim.17@osu.edu
+1-614-688-1419

Regional Office in Ethiopia
Getnet Yimer, GOHi Regional Director
ali.578@osu.edu
+251-911-40 53 87

Tigist Endashaw, GOHi Regional Program Manager
endashaw.1@osu.edu
+251-911-22 26 42

Facebook
@InternationalAffairsatOhioState

Twitter
@OSUglobal

Website
globalonehealth@osu.edu

Online Newsletter
go.osu.edu/GlobalOneHealthNews

Visit go.osu.edu/OneHealthSummerInstitute for an updated schedule.
<table>
<thead>
<tr>
<th>IMPACT STATISTICS</th>
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<tbody>
<tr>
<td><strong>875+</strong> Participants to date</td>
</tr>
<tr>
<td><strong>64</strong> Unique courses offered</td>
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<tr>
<td><strong>96</strong> Faculty involved in the trainings to date</td>
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<tr>
<td><strong>50</strong> Institutions involved to date</td>
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<tr>
<td><strong>12,000</strong> dogs and cats vaccinated against rabies</td>
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<tr>
<td><strong>30,200+</strong> iTunes U subscribers from over 90 countries</td>
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<tr>
<td><strong>91</strong> Ethiopian staff trained for rabies control</td>
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<tr>
<td><strong>11</strong> International agreements</td>
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<tr>
<td><strong>90</strong> Ohio State students involved in Global One Health initiative projects to date</td>
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<tr>
<td><strong>119</strong> Trainings and workshops offered to date</td>
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To learn more about Global One Health initiative’s impacts around the world, visit [globalonehealth.osu.edu](http://globalonehealth.osu.edu).
Visit globalonehealth.osu.edu for more information.
FACULTY

ADMASU TENNA, MD
Assistant Professor, Addis Ababa University, College of Health Sciences
dmasen@gmail.com

SHU-HUA WANG, MD, MPH-TM, PHARMD
Associate Professor and Physician, The Ohio State University, College of Medicine
wang.1055@osu.edu

MUSTOFA WORKU, MA
Head of Communications and Journalism, University of Gondar, College of Social Sciences and Humanities
goldenzazid@gmail.com

CAROLINE YANCEY, DVM, MPH
Lecturer, Cornell University, College of Veterinary Medicine
cby6@cornell.edu

GETNET YIMER, MD, PHD
Eastern Africa Regional Director, The Ohio State University, Global One Health Initiative
ali.578@osu.edu
"The One Health Summer Institute training has had such a positive impact on my life. I attended Summer Institute courses including Molecular Epidemiology of Infectious Diseases, Biomedical Informatics, Food Safety and Foodborne Diseases, International Trade and Risk Analysis, Creating an Online Learning Course, Understanding One Health Communication, Viral Oncology/Immunology, Environmental Hygiene, Clinical Specimen Collection, and Study Design and Sample Size Estimation for Population Studies. I gained a lot of knowledge through the courses. Thank you for helping me to be a better instructor and researcher."

AKILU FELEKE HAILE
Associate Professor, Aklilu Lemma Institute of Pathobiology, Addis Ababa University, Ethiopia

"I was part of the 2017 One Health Summer Institute training on International Trade and Risk Analysis as well as Animal Welfare, which was conducted at University of Gondar. The Summer Institute courses I attended helped me develop the skills on how to handle animals without harming myself and helped advance my day-to-day work and sample collection for my research. Besides, it helped me to update my awareness regarding identification of risk, risk assessment, risk management and risk communication, which has greatly helped me with conducting my current work of animal disease surveillance and monitoring."

MEKIDES MESFINE MELAKU
Animal Disease Surveillance and Monitoring Expert in North Gondar, Ethiopia

"I would like to express my utmost thanks to the eLearning team at the 2017 One Health Summer Institute training program. I started the program with minimal previous experience in the development of modules with Canvas. The e-learning team put an incredible amount of effort into helping me sharpen my skills on how to develop a student-trainer friendly material online. We built an incredible framework to deliver an excellent course to provide a great learning experience. What I thought as a challenging experience came out as a wonderful learning opportunity, which I am also passing on to fellow team members in my institution. Thank you, One Health Summer Institute Training on e-learning."

TOM SYUKI MAKAU
Senior ICT Officer, University of Nairobi, Kenya

"During the One Health Summer Institute, I had the opportunity to attend the e-Learning courses, which gave me immense knowledge to express myself more scientifically as well as while preparing and making presentations. The AMR workshop was a great eye-opener especially because I got to appreciate efforts from various countries in the One Health approach in attempting to curb AMR and MDR at large. I also learned more about the various national action plans for countries that were represented in the training."

SUSAN KAVAI
Assistant Research Officer, Centre for Microbiology Research, Kenya Medical Research Institute, Kenya

"The One Health Summer Institute training has had such a positive impact on my life. I attended Summer Institute courses including Molecular Epidemiology of Infectious Diseases, Biomedical Informatics, Food Safety and Foodborne Diseases, International Trade and Risk Analysis, Creating an Online Learning Course, Understanding One Health Communication, Viral Oncology/Immunology, Environmental Hygiene, Clinical Specimen Collection, and Study Design and Sample Size Estimation for Population Studies. I gained a lot of knowledge through the courses. Thank you for helping me to be a better instructor and researcher."
In mid-March, eight undergraduate and graduate Ohio State College of Nursing students visited several local hospitals and clinics including Zewditu, Alert and Black Lion Hospitals, and the Hamlin Fistula Center in Addis Ababa, Ethiopia. At Zewditu and Alert Hospitals, students shadowed nurses and physicians as they cared for HIV/TB patients. In addition to shadowing, Ohio State nursing students shared their leadership project on topics including hypertension prevention, basic electrocardiogram procedures and interpretation, and cancer basics with Addis Ababa University midwifery and nursing students.

College of Nursing Ethiopia education abroad course objectives:
• Prepare students for travel outside of the United States
• Learn the culture and history of Ethiopia
• Assess the health care needs of those living outside of the United States
• Differentiate between the U.S. health care system and Ethiopia’s health care system
• Identify barriers and facilitators to knowledge sharing through direct interaction and experience with people of the host country (cultural communication, knowledge sharing)

The Ohio State Fisher College of Business sends students around the world every semester as part of the Global Applied Projects (GAP), which is an experiential learning course that prepares students for international business through an immersive, hands-on business experience in a location outside of the United States. A group of seven students were in Ethiopia and Kenya from May 4 – 22 to complete their project with Ohio State’s Global One Health initiative (GOHi), where they conducted extensive research on NGOs in the area that are similar to GOHi and provided key recommendations for GOHi to incorporate into its existing structure.

Competencies developed include:
• Gaining project management, industry and cultural expertise
• Practicing leadership, management, communication and teamwork skills
• Honing data collection and analytic skills
• Synthesizing information to draw relevant conclusions and make actionable recommendations
• Crafting compelling presentations

NURSING STUDENTS IN ADDIS ABABA

MBA GAP STUDENTS

NURSING STUDENTS IN ADDIS ABABA

MBA GAP STUDENTS
The Center for Innovative Drug Development and Therapeutic Trials for Africa (CDT-Africa) is a semi-autonomous, World Bank supported regional center of excellence for education and research that exists to support access to essential therapeutics, in order to alleviate a major development and security threat for Africa. CDT-Africa is a key sponsor of the 2018 One Health Summer Institute.

**VISION**

Africa-based, world-class center that provides ground-breaking discoveries and inventions of drugs, vaccines, diagnostics and other interventions.

**OBJECTIVE**

Support equitable access to interventions (medicines, vaccines, diagnostics and other interventions) and bring about sustainable development in Africa through high quality capacity development for novel therapeutic discoveries supported by clinical trials.

Trainings and workshops hosted by CDT-Africa in this year’s One Health Summer Institute*

- Molecular Epidemiology, Diagnostics and Genetic Engineering
- Vaccines and Impacts on Animal and Human Health
- Proposal Writing, Peer-Review and Grant Management
- Developing Messages for Public Health Awareness
- Evaluation of Public Health Programs
- Bioactive Natural Products

*Subject to confirmation by instructors

Learn more at cdt-africa.org.

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**FACULTY ACCOMPLISHMENTS**

**SHU-HUA WANG AND GETNET YIMER**

Drs. Shu-Hua Wang and Getnet Yimer (Ohio State) along with Belay Tessema and Agumas Shibabaw (University of Gondar) are the recipients of the Coca-Cola Critical Difference for Women Grant, which will fund tuberculosis (TB) studies in women and children in Gondar, Ethiopia.

The one-year project, "Improving diagnosis of TB in pregnant and lactating women in Gondar, Northern Ethiopia" begins on July 1, 2018. Globally, TB is a significant human pathogen and the top infectious disease killer. Fatality rates are higher in women than men.

This difference might indicate gender inequity due to barriers in healthcare access, socio-economic disparities or cultural stigmatization especially in developing countries. Even though TB is associated with increased mortality during pregnancy and postpartum, the prevalence of other associated risk factors are not well known.

The goal of this project is to improve screening and diagnosis of TB in pregnant and lactating women and to improve knowledge of TB associated risk factors in Ethiopia.

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**TOM MACK**

College of Veterinary Medicine alumnus, Tom Mack, DVM, has been recognized with a 2018 Distinguished Alumnus award from the college for his dedication and service to his local community and the profession.

Mack earned his BS (1957) and DVM (1961) from The Ohio State University. Following graduation, he entered private practice where he owned and operated Bayshore Animal Hospital in San Mateo, California for over 35 years. He has been honored by the American Animal Hospital Association and named “Outstanding Practitioner of the Year” in 1998.

Moreover, Mack is being honored not only for the value his large and highly regarded animal practice provides to the extended community of the San Mateo area, but also for demonstrating dedication and service to his professional and local communities in extensive selfless ways for more than 30 years, including his continued support of Ohio State’s Global One Health initiative.