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Dear global partners, summer institute participants and sponsors,

On behalf of the Ohio State Global One Health community, I wish you, your family and institute all the best, and I hope you have a productive, healthy and peaceful season.

The past few years have been challenging to our planet. We all faced several complex issues that necessitated partnership and collaboration more than ever before. In addition to the COVID-19 pandemic, our planet continues to face social justice, peace and security issues, climate change and many other global risks that require all of us to work in synergy and using trans-disciplinary convergence approaches. These complex challenges have had devastating impact to humanity both in terms of lives lost and also an economic burden to already-stretched systems, mainly in low- to middle-income countries.

With its vision of saving lives and enduring livelihoods through capacity strengthening, our Global One Health initiative (GOHi) has been working with global partners over the past 11 years strengthening health systems; building workforce capacity that addresses issues at the interface of human health, animal health, plants and the environment; conducting knowledge-sharing outreach programs and coordinating research, training and outreach programs that benefited strategic global (local to international) partners. Among many of our projects and programs, our food safety program in Amish communities that expanded to include COVID-19 outreach in eastern Ohio and our rabies prevention and control One Health model project in Ethiopia that resulted in the vaccination of more than 140,000 dogs are exemplary.

Through the Global One Health Summer Institute, we have trained more than 4,100 trainees between 2012 and 2021. This year, the 11th annual Summer Institute is preparing to involve more than 80 trainers from five countries including the United States (50), Ethiopia (11), United Kingdom (6), Kenya (20) and Chile (2). These experts will present modular training and workshops to a wide variety of audiences across the world including the U.S., Africa, Asia, Latin America and beyond using our virtual platform.

We are fortunate to be able to contribute in meaningful ways through the One Health approach and Ohio State is very supportive of our interdisciplinary work across the globe. “GOHi’s One Health Summer Institute is a shining example of the power of partnership, knowledge and the ability to share expertise on a wide variety of topics critical to addressing the spread of disease,” said Gil Latz, vice provost for global strategies and international affairs. “It's impact on building One Health capacity is immeasurable.”

Let’s make this planet healthier by strengthening our institutional systems towards capability and resilience.

Wondwossen A. Gebreyes, DVM, PhD
Executive Director and President
Global One Health initiative
Ebba Abate Waktola was appointed country director of Ohio State Global One Health, LLC (GOH, LLC) on June 1, 2022. For the past year, he has served GOH, LLC as technical director.

Prior to joining GOH, LLC, Ebba was director general at the Ethiopian Public Health Institute (EPHI), where he played a significant role in the national response to COVID-19, becoming one of the most recognizable public health communication figures in Ethiopia. Beyond COVID-19, Ebba oversaw a broader public health portfolio, which included national disease surveillance, emergency response and national laboratory capacity building as well as strengthening activities where he demonstrated outstanding leadership and improved EPHI’s stature and operational efficiency. Before joining EPHI, he was an assistant professor and head of the Tropical and Infectious Diseases Research Center at the University of Gondar.

Ebba has won multiple public service and research excellence awards and served as project director and co-director for many competitive and cooperative projects sponsored by global partners such as the U.S. Centers for Disease Control and Prevention, African Union Centers for Disease Control and Prevention, the World Health Organization, the Carter Center and the Bill and Melinda Gates Foundation.

Ebba also has served as an executive board member for the International Association for National Public Health Institutes since 2018. He holds a PhD in microbiology and immunology from Linköping University, Sweden.
Global One Health initiative

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.

About Global One Health initiative

The Global One Health initiative (GOHi) is pioneered through efforts of The Ohio State University community and global consortium partners from Brazil, Ethiopia, Kenya, Mexico, Ohio, Tanzania, Thailand and Uganda. GOHi brings together two concepts: One Health and Global Health.

A One Health approach brings together multiple disciplines working globally (local, national and international) to address the spread of disease, promote health and emphasize the connection among humans, animals and the environment. Over 70 percent of emerging infectious diseases are zoonotic. Zoonotic diseases originate in animals but can mutate and spillover into the human population, such as Ebola and COVID-19.

Global Health draws from the disciplines and frameworks of public health and international health and is the collaborative cross-national research and action for promoting health for all. It focuses on the following characteristics:

- Priority on a population-based and preventive focus
- Concentration on poorer, vulnerable and underserved populations
- Multidisciplinary and interdisciplinary approaches
- Emphasis on health as a public good and the importance of systems and structures
- Participation of diverse stakeholders
GOHi actively works to build 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.

GOHi is the university’s largest, interdisciplinary example of institutional teamwork operating on a global scale and is a prime example of Ohio State’s commitment as a global institution to engage in meaningful and beneficial partnerships to gain and share knowledge, and find innovative solutions to the world’s most compelling issues. GOHi activities are anchored on three core and two supportive strategic goals:

- **Core Goal I** – Training and educational capacity
- **Core Goal II** – Research and implementation science capacity
- **Core Goal III** – Outreach and extension capacity
- **Supportive Goal IV** – Resource stewardship
- **Supportive Goal V** – Financial sustainability

Visit [globalonehealth.osu.edu](http://globalonehealth.osu.edu)
GOHi Projects and Programs

Advancing Ethiopia’s Capacity for Laboratory, Workforce Development, Surveillance and Emergency Management to Meet International Health Regulations Requirement

Funded by the U.S. Centers for Disease Control and Prevention, this project aims to expand Ethiopia's Influenza Surveillance Program, Public Health Emergency Management and laboratory capacity by deploying trained workforce, establishing molecular laboratories, capacity building and providing key tools and supplies.

Adverse Events Following Immunization (AEFI) Surveillance

The project aims to enhance the technical capacity for adverse events following immunization (AEFI) surveillance, investigation and management in Ethiopia.

Assessment and Risk Management of Foodborne Illnesses (TARTARE)

The project aims to implement a risk-based, decision-making roadmap for food safety practices with raw beef and dairy products in collaboration with the University of Florida and the International Livestock Research Institute. Partners include the Ethiopian Public Health Institute, University of Gondar, Haramaya University and Yekatit 12 Hospital.

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 GOHi and other U.S. and Ethiopian institutions builds capacity and conducts research to tackle global hunger and food safety in Ethiopia and Burkina Faso.

Curriculum Twinning Program in Veterinary Medicine

Assessing, revising and updating core veterinary medicine curriculum at Ethiopian universities led by the University of Gondar and Ohio State.

Drug Discovery and Therapeutics, Africa

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

Enhancing Detection and Response to Antimicrobial Resistance and Healthcare-associated Infections towards Prevention and Containment Strategies in Ethiopia

A cooperative agreement with the Centers for Disease Control and Prevention and a collaboration with key Ethiopian public health institutions to enhance antimicrobial resistance (AMR) detection and reporting capacity and, infections, prevention and containment programs in hospitals, and National Reference Lab (EPIHI) capacity on molecular detection and characterization of AMR pathogens in Ethiopia.

Epstein-Barr Virus Cancer Research

A collaboration between the James Cancer Hospital and Solove Research Institute and Addis Ababa Black Lion Hospital, to research 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 the 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 One Health Day Conference**

One Health Day, celebrated annually on November 3, is an international campaign co-coordinated by the One Health Commission, the One Health Initiative and the One Health Platform Foundation. The goal of One Health Day is to bring attention around the world to the need for One Health interactions and for the world to ‘see them in action.’

**Global One Health Summer Institute**

An annual series of One Health workshops, trainings and applied research opportunities held in Eastern Africa. In 2021, GOHi celebrated its 10th anniversary of coordinating the Global One Health Summer Institute.

**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.

**Leadership, Management and Governance in Ethiopian Higher Education**

The program will target 50 trainees divided into two cohorts of 25 each who will participate for a maximum of 24 months in interactive theoretical and practical training through higher education governance models. The total project period will be three years. The trainees are university presidents and vice presidents selected from Ethiopian public universities.

**Measles 5-Dose Survey Project**

Cluster randomized controlled trial designed to assess the effect of two interventions that may help increase measles vaccine administration and coverage.

**One Health Eastern Africa Research Training Program (OHEART), 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.

**Tracking SARS-CoV-2 IgG/IgM Sero-prevalence in Ethiopia**

A multi-partner project that aims to determine SARS-CoV-2 antibody prevalence in Ethiopia to understand the disease burden and follow the trend to inform response and policy.

**Vaccine Preventable Disease Costing Study**

To produce country level estimates of the economic and financial costs of the Vaccine Preventable Disease surveillance system.
Environmental Health Science

July 11
7-10 a.m. EDT

MICHAEL BISESI, PhD

Environmental Health is the science and practice of preventing human injury and illness and promoting well-being by (1) identifying and evaluating sources and hazardous agents; and (2) limiting exposures to hazardous physical, chemical and biological agents in air, water, soil, food and other environmental media or settings that may adversely affect human health, as well as animal health.

Module 1: Exposure and Toxicological Characteristics of Chemical Agents (90 minutes)

Module 2: Direct and Indirect Toxic Chemical Exposure Pathways (90 minutes)

Chemical Risk Assessment

July 12
7-10 a.m. EDT

OLORUNFEMI ADETONA, PhD

Risk assessment is a framework for evaluating scientific information to assess the nature and probability of adverse effects of exposures to toxic biological, chemical and physical agents in human and ecological receptors. Risk assessment is used to inform policy decisions and is a scientific basis for environmental regulations.

The following two modules will be presented to discuss the principles and application of risk assessment with a focus on human exposure to waterborne toxic chemicals:

Purpose of and Exposure Assessment for Chemical Risk Assessment (90 minutes)

Toxicity Assessment and Risk Characterization for Chemical Exposures (90 minutes)
Microbial Risk Assessment in the Context of Water Safety Plans

July 13
7-10 a.m. EDT

MARK WEIR, PhD

Exposures to microbial hazards takes many forms through all the environmental matrices that we attempt to control and must interact with daily. Among the most prolific exposure matrices is drinking water, where water can either bring life and community, or can become a significant source of hazards that affect our health and lives adversely. To understand how we address drinking water exposures relative to microbial hazards, we need to understand how public health frameworks are developed via water safety plans (WSP) and the risk assessment methodology with which they are developed.

This module will focus on why WSPs exist, the limitations of epidemiological and environmental health methods that lead to the needed convergent methods employed and how these are enacted in nations at both ends of the income spectrum. Specific examples will focus on Australia for wastewater reclamation considerations, Netherlands for field leadership in this space, the United States for mixing WSPs with reactive regulatory regimes and Argentina for SDG and LMIC contexts.

Module 1 (90 minutes)
- Describe the concept of water quality control for public health protection
- Explain the rationale and need for WSPs
- Explain the use of risk assessment in the needed development of WSP

Module 2 (90 minutes)
- Describe the similarities of WSP with Hazard Assessment of Critical Control Points (HACCP)
- Describe the quantitative microbial risk assessment (QMRA) methodology
- Explain the challenges with implementing and maintaining WSPs
Emergency management focuses on the phases of preparedness/planning, recognition and response, recovery and prevention and mitigation relative to both natural and anthropogenic incidents that may be declared as public health emergencies. A description of these phases with reference to applicable guidelines as well as the components and approaches for an effective and efficient incident command system are presented.

Learners completing the module will be able to:

- Distinguish between natural and anthropogenic emergencies and disasters.
- Summarize the principles associated with the foundational phases of emergency management.
- Explain the structures and functions of single and unified incident command systems.
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<thead>
<tr>
<th>Module</th>
<th>Instructor</th>
<th>Description</th>
<th>Date / Time (EDT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure and Toxicological Characteristics of Chemical Agents</td>
<td>Michael Bisesi</td>
<td>Environmental Health is the science and practice of preventing human injury and illness and promoting well-being by (1) identifying and evaluating sources and hazardous agents; and (2) limiting exposures to hazardous physical, chemical, and biological agents in air, water, soil, food and other environmental media or settings that may adversely affect human and animal health. These modules focus on toxic chemicals and related exposure pathways.</td>
<td>July 11 7-8:30 a.m.</td>
</tr>
<tr>
<td>Direct and Indirect Toxic Chemical Exposure Pathways</td>
<td></td>
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<td>July 11 8:45-10:15 a.m.</td>
</tr>
<tr>
<td>Purpose of and Exposure Assessment for Chemical Risk Assessment</td>
<td>Femi Adetona</td>
<td>Risk assessment is a framework for evaluating scientific information to assess the nature and probability of adverse effects of exposures to toxic biological, chemical and physical agents in human and ecological receptors. Risk assessment is used to inform policy decisions and is a scientific basis for environmental regulations. These modules will discuss the principles and application of risk assessment with focus on human exposure to waterborne toxic chemicals.</td>
<td>July 12 7-8:30 a.m.</td>
</tr>
<tr>
<td>Toxicity Assessment and Risk Characterization for Chemical Exposures</td>
<td></td>
<td></td>
<td>July 12 8:45-10:15 a.m.</td>
</tr>
<tr>
<td>Microbial Risk Assessment in the Context of Water Safety Plans - Part 1</td>
<td>Mark Weir</td>
<td>Exposures to microbial hazards takes many forms through all the environmental matrices that we attempt to control and must interact with daily. Among the most prolific exposure matrices is drinking water, where water can either bring life and community or can become a significant source of hazards to affect our health and lives adversely.</td>
<td>July 13 7-8:30 a.m.</td>
</tr>
<tr>
<td>Microbial Risk Assessment in the Context of Water Safety Plans - Part 2</td>
<td></td>
<td>To understand how we address drinking water exposures relative to microbial hazards we need to understand how public health frameworks are developed via water safety plans (WSP) and the risk assessment methodology they are developed with. This module will focus on why WSPs exist, the limitations of epidemiological and environmental health methods that lead to the needed convergent methods employed and how these are enacted in nations at both ends of the income spectrum. Specific examples will focus on Australia for wastewater reclamation considerations, Netherlands for field leadership in this space, the United States for mixing WSPs with reactive regulatory regimes and Argentina for SDG and LMIC contexts.</td>
<td>July 13 8:45-10:15 a.m.</td>
</tr>
<tr>
<td>Public Health Emergency Management and Incident Command Systems</td>
<td>Michael Bisesi</td>
<td>Emergency management focuses on the phases of preparedness/planning, recognition and response, recovery and prevention and mitigation relative to both natural and anthropogenic incidents that may be declared as public health emergencies. This course will include a description of these phases with reference to applicable guidelines as well as the components and approaches for an effective and efficient incident command system.</td>
<td>July 14 7-8:30 a.m.</td>
</tr>
</tbody>
</table>
Training on Influenza Like Illness (ILI) and Severe Acute Respiratory Infection (SARS) RT-PCR testing

July 11-16
9 a.m.-5 p.m. EAT

TRAINING LEAD: Zelalem Mekuria

INSTRUCTORS: Zelalem Mekuria, Eyasu Tigabu

Intended audience

Laboratory professionals from the four regional laboratories in Ethiopia and EPHI

Description

This is a hands on-training on RT-PCR techniques for lab professionals selected from four regional laboratories in Ethiopia and EPHI. This training will help laboratory technologists get an in-depth understanding of molecular testing. It will also create an opportunity for networking between regional laboratories and EPHI.
Next Generation Sequencing (NGS)

July 18-22
9 a.m.-5 p.m. EAT

TRAINING LEAD: Zelalem Mekuria

INSTRUCTORS: Zelalem Mekuria, Eyasu Tigabu

Intended audience

EPHI pathogen genome sequence team

Description

The EPHI established a Genomic Core Facility operated by a team of 12 experts from different divisions that aims to fill in the gaps in genomic workflows and strengthen the capacity for genomic data analysis. This training will provide theoretical and hands-on training on metagenomics protocols and bioinformatics data analysis.

CDC award to combat antimicrobial resistance

The Global One Health initiative (GOHi) was awarded funding from the U.S. Centers for Disease Control and Prevention to enhance detection, response and prevention of antimicrobial resistance and associated health threats in hospitals in Ethiopia.

GOHi and several Ohio State partners are collaborating with the Government of Ethiopia to strengthen workforce capacity within a network of hospitals and a central laboratory as well as processes and systems with the goal to provide rapid detection, response and prevention of infectious disease threats.

As part of a five-year cooperative agreement through 2026, the grant provides $800,000 in funding for the first year, and allows GOHi to continue its One Health-related work to bolster infection prevention and control measures, implement laboratory quality assurance to maintain high levels of accuracy and proficiency and build capacity through training, mentoring and evaluation.
Molecular Methods, Genomic and Bioinformatic for Infectious Diseases Epidemiology

July 18-29
8-9 a.m. EDT

COURSE LEAD: Zelalem Mekuria, PhD

INSTRUCTORS: Andrew Bowman, Seth Faith, Wondwossen Gebreyes, Mostafa Ghanem, Zelalem Mekuria, Michael Sovic, Thomas Wittum

Description

Highlights the principles and the use of core molecular methods including advances in genomics sequencing and bioinformatics approaches for infectious disease genomic epidemiology.

Objectives

After completing the module, students will be able to:

• Gain introductory guidance on the application of molecular detection methods, genotyping methods, sequence data interpretation and troubleshooting
• Understand the basic principles of different whole genome sequencing technologies and platforms
• Understand the key principles of next-generation sequencing library preparation and relevant considerations for nucleic acid preparation
• Understand the laboratory and computational workflows from sequencing to genome assembly and phylogenetics
• Familiarize with genomic sequence analysis tool and be able to perform sequence analysis on sample data sets
<table>
<thead>
<tr>
<th>Lecture Topics</th>
<th>Instructor</th>
<th>Dates/Time (EDT)</th>
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</thead>
<tbody>
<tr>
<td>CONCEPT</td>
<td></td>
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</tr>
<tr>
<td>Introduction to molecular methods and application in epidemiology: Overview</td>
<td>Wondwossen Gebreyes</td>
<td>July 18 7-8 a.m.</td>
</tr>
<tr>
<td>and concepts</td>
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<tr>
<td>METHODS</td>
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<tr>
<td>Gene amplification and PCR approaches</td>
<td>Zelalem Mekuria</td>
<td>July 18 8-9 a.m.</td>
</tr>
<tr>
<td>Nucleic-acid sequencing: 1st, 2nd and 3rd generation sequencing technologies</td>
<td>Zelalem Mekuria</td>
<td>July 19 8-9 a.m.</td>
</tr>
<tr>
<td>and approaches</td>
<td></td>
<td></td>
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<tr>
<td>NGS preparation: Nucleic acid extraction, preparation for human and animal</td>
<td>Seth Faith</td>
<td>July 20 8-9 a.m.</td>
</tr>
<tr>
<td>specimens</td>
<td></td>
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<tr>
<td>Bioinformatic analysis of clinical specimens using Illumina DRAGEN</td>
<td>Seth Faith</td>
<td>July 21 8-9 a.m.</td>
</tr>
<tr>
<td>Bioinformatic analysis of mixed variant environmental samples using the Ohio</td>
<td>Michael Sovic</td>
<td>July 22 8-9 a.m.</td>
</tr>
<tr>
<td>State MixviR tool</td>
<td></td>
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</tr>
<tr>
<td>Whole genome-based bacterial typing approaches (rMLST- cgMLST- wgMLST)</td>
<td>Mostafa Ghanem</td>
<td>July 25 8-9 a.m.</td>
</tr>
<tr>
<td>APPLICATION</td>
<td></td>
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</tr>
<tr>
<td>Long read sequencing and metagenomic applications</td>
<td>Zelalem Mekuria</td>
<td>July 27 8-9 a.m.</td>
</tr>
<tr>
<td>NGS food safety applications: Association of bacterial phenotype and genotype</td>
<td>Thomas Wittum</td>
<td>July 28 8-9 a.m.</td>
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<tr>
<td>in antimicrobial resistance genes investigations</td>
<td></td>
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<tr>
<td>NGS for viral surveillance in the wild</td>
<td>Andy Bowman</td>
<td>July 29 8-9 a.m.</td>
</tr>
</tbody>
</table>
Practical Uses of Neural Networks for Data Analytics and Machine Learning

August 1-4
6-7:30 a.m. EDT

DAWIT MULUGETA, PhD

Neural Networks (NNT) are at the forefront of cutting-edge analytics tools for decision-making processes. They are intuitive and mimic how the human brain and biological neuron’s function. They handle many features and solve complex problems. There are diverse NNT architectures tasked to solve myriads of problems, including spam email identification, prediction of customer attrition, fraud detection, product recommendation, visual search engines, chatbots, virtual assistants and more. Their uses are well entrenched in robotics, telecommunications, transportation, manufacturing, medical fields and others.

This week-long class is designed to cover the what, the why and the how aspects of NNT. Each lecture will be 90 minutes. The focus will be on the applications and the practical uses of NNT using some structured and unstructured data. Each lecture will last one and half hours. Python is the medium of instruction, and students are expected to have access to a computer and the internet. Students are expected to use Python codes to do basic analytics tasks. Previous knowledge of Python is not a requirement. The instructor will demonstrate diverse NNT topics covered in class using Python and provide the corresponding scripts.

Vaccines and Impacts on Animal and Human Health

August 4
7-10 a.m. EDT

PROSPER N. BOYAKA, PhD

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 on animal and human health. The training will include lectures and group case studies to facilitate the application of the knowledge gained in their respective activities. It will explore basic principles of vaccines (live vs. subunit vaccines, routes of delivery, adjuvants and delivery systems); factors affecting the efficacy of vaccines (pathogen, environmental and host factors); and impacts of animal vaccines on human health (zoonoses, safety and efficiency data).
Proposal Writing, Review Process and Grant Management Workshop

August 8-11
7-10 a.m. EDT

WORKSHOP LEAD INSTRUCTOR: Wondwessen Gebreyes

INSTRUCTORS: Henry Blumberg, Desalegne Degefa, Kathleen Hayes-Ozello, Catherine Hunt, Samuel Kariuki, Amy Mihalakas, Reagan Ribordy, Shu-Hua Wang

PROGRAM LOGISTICS MANAGEMENT: Abinet Kebede, Desalegne Degefa

Intended Audience

Early to mid-career academic staff, research institute staff, senior PhD candidate faulty and post-doctoral research scholars.

Objectives

The overarching goal of this workshop is to strengthen the capacity of faculty and staff in higher education and research institutes to be able to identify financial resources to support their research and training activities; enable them to write competitive grants; navigate the peer-review process; and highlight post-award grant management.

- Identify sources of funding for research, training and outreach projects and programs
- Understand key ingredients of successful proposal writing using various formats
- Navigate the peer-review process, scoring systems and funding decisions
- Learn how to do participate in review panel and providing peer-review critical comments/feedback
- Highlight basic principles of ethical compliance, budget and grant management
**PROPOSAL WRITING, REVIEW PROCESS AND GRANT MANAGEMENT WORKSHOP**

<table>
<thead>
<tr>
<th>Lecture Topic</th>
<th>Instructor</th>
<th>Time (EDT)</th>
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<tbody>
<tr>
<td><strong>Day 1 (Monday, August 8)</strong></td>
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</tr>
<tr>
<td>Overview of grants, cooperative agreement and contracts; types of funding and sources of funding for research and training projects</td>
<td>Wondwossen Gebreyes</td>
<td>7-8 a.m.</td>
</tr>
<tr>
<td>Technical proposal writing and presenting to foundations (LOI, white paper, concept note, pre-proposal and full proposals)</td>
<td>Catherine Hunt</td>
<td>8-9 a.m.</td>
</tr>
<tr>
<td>How to document responsible conduct of research on proposals, CITI PubMed, medicine and other resources</td>
<td>Kathleen Hayes-Ozello</td>
<td>9-10 a.m.</td>
</tr>
<tr>
<td><strong>Assignment</strong> - Review website, types and RFPs from sponsor - NIH</td>
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<tr>
<td><strong>Day 2 (Tuesday, August 9)</strong></td>
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<tr>
<td>Proposal writing, mechanisms of funds and review samples: NIH</td>
<td>Henry Blumberg</td>
<td>7-8 a.m.</td>
</tr>
<tr>
<td>Proposal review process and peer-review systems (LOI, white paper, concept note, pre-proposal and full proposals)</td>
<td>Wondwossen Gebreyes</td>
<td>8-9 a.m.</td>
</tr>
<tr>
<td>Technical proposal writing and presenting proposals: CDC (LOI, white paper, concept note, pre-proposal and full proposals)</td>
<td>Shu Hua-Wang</td>
<td>9-10 a.m.</td>
</tr>
<tr>
<td><strong>Assignment</strong> - Review RFPs from sample sponsors (CDC/USAID/Gates Foundation/NIH)</td>
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### PROPOSAL WRITING, REVIEW PROCESS AND GRANT MANAGEMENT WORKSHOP

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<thead>
<tr>
<th>Lecture Topic</th>
<th>Instructor</th>
<th>Time (EDT)</th>
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<tbody>
<tr>
<td><strong>Day 3 (Wednesday, August 10)</strong></td>
<td></td>
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</tr>
<tr>
<td>Technical proposal writing and presenting proposals: Welcome Trust (LOI, white paper, concept note, pre-proposal and full proposals)</td>
<td>Samuel Kariuki</td>
<td>7-8 a.m.</td>
</tr>
<tr>
<td>Grant management/Beyond proposal funding – cooperative agreements</td>
<td>Amy Mihalakas</td>
<td>8-9 a.m.</td>
</tr>
<tr>
<td>Grant management/Beyond proposal funding – Grants (LOI, white paper, concept note, pre-proposal and Full proposals)</td>
<td>Reagan Ribordy</td>
<td>9-10 a.m.</td>
</tr>
<tr>
<td><strong>Assignment</strong> - Share sample proposals to trainee groups to review (CDC/USAID/Gates Foundation/NIH). NIH scoring template and impact score sheet shared</td>
<td></td>
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<tr>
<td><em>Instructors assigned as primary to tertiary reviewers</em></td>
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| **Day 4 (Thursday, August 11)**                                               |                   |             |
| **Breakout:** Mock proposal peer-review session using NIH system (all instructors assigned to six breakout teams). Proposals scored and final impact scores determined |                   | 7:30-9 a.m. |
| Report breakout findings of peer-review outcomes                             |                   | 9-10:30 a.m.|
| Final discussion, survey and adjournment (all instructors)                   |                   |             |
Equine Medicine Training Program

August 15-18

**COURSE LEAD:** Francesca Compostela

**TRAINERS:** Joao Rodrigues, Jorge Lohse, Gemma Tyner, Henry Tremaine, Loni Loftus, Marta Ferrari, Paula Soza, Francesca Compostela

**Description**

This course builds on the core equine ambulatory skills (delivered in the 2020 equine course), aimed at helping the equine practitioner tackle general health issues encountered in the field. Conventional first opinion techniques will be covered while introducing a One Health approach to field work, providing a better understanding of the aetiology, transmission and control of infectious diseases important to veterinary medicine and public health.

Theoretical and practical aspects of equine field medicine and surgery will be discussed in the context of working equines used in the developing sector with a particular focus on the Ethiopian context.

**Intended Audience**

Veterinary students and professionals, as well as veterinary paraprofessionals (community health workers) with interest in equine medicine and surgery.

**Objectives**

This course aims to address common clinical scenarios encountered by the equine ambulatory practitioner working in the field. After taking this class, participants are expected to be fluent in performing system-focused clinical exams and addressing common medical and surgical concerns affecting working equines.

**Requirements**

Students taking this course are expected to have a veterinary background and some exposure to equine caseload.
<table>
<thead>
<tr>
<th>Lecture Topics</th>
<th>Instructor</th>
<th>Dates/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day care of the working equid – Monitoring your equine and husbandry measures to ensure adequate welfare</td>
<td>Marta Ferrari</td>
<td>August 15 8-9 a.m.</td>
</tr>
<tr>
<td>Behavior – Do you know the lingo?</td>
<td>Loni Loftus</td>
<td>August 15 9-10 a.m.</td>
</tr>
<tr>
<td>Wound management - Common injuries and what can, can’t and is best done</td>
<td>Henry Tremaine</td>
<td>August 16 8-9 a.m.</td>
</tr>
<tr>
<td>Orthopaedics – Common injuries as you accrue the miles</td>
<td>Jorge Lohse</td>
<td>August 16 9-10 a.m.</td>
</tr>
<tr>
<td>Debilitating infectious diseases in low-income countries and diseases of zoonotic concern</td>
<td>Gemma Tyner</td>
<td>August 17 8-9 a.m.</td>
</tr>
<tr>
<td>Reproduction – Herd management techniques</td>
<td>Fran Compostella</td>
<td>August 17 9-10 a.m.</td>
</tr>
<tr>
<td>Dentistry – Basic care of the oral cavity</td>
<td>Joao Rodrigues</td>
<td>August 18 8-9 a.m.</td>
</tr>
<tr>
<td>Gastro-intestinal diseases and diagnosis</td>
<td>Paula Soza</td>
<td>August 18 9-10 a.m.</td>
</tr>
</tbody>
</table>
Internal Medicine Residency Training Program  
The Ohio State University  
Wexner Medical Center  
In collaboration with GOHi and Tikur Anbessa Hospital, Addis Ababa University (AAU), Ethiopia  
August 22-26

**Description**

The Ohio State University Wexner Medical Center’s Department of Internal Medicine is the largest department in one of the nation's leading academic medical centers and is comprised of 15 specialty divisions. The Internal Medicine Residency Training Program is one of 21 institutions recognized for innovation in training the next generation of internists.

Its designation as an Educational Innovation Project places the Department of Internal Medicine in the top five percent of training programs in internal medicine. The focus of its educational innovation effort includes verifying competency, emphasizing teamwork in mastering skills, transition of care, linking educational and clinical quality improvement.

This lecture series features the following modules: Long COVID, General Hospital Medicine, Infectious Diseases and Hematology/Oncology. Several topics will be covered in each of the modules. This residency program is open to residents, physicians and health professionals from other institutes internationally as well.
## GENERAL SCHEDULE

<table>
<thead>
<tr>
<th>Topics</th>
<th>Date</th>
<th>Moderator from the Ohio State Wexner Medical Center</th>
<th>Co-moderator from Tikur Anbessa Hospital/AAU</th>
</tr>
</thead>
</table>
| **Infectious Diseases**     | August 22  | Shu-Hua Wang, MD, MPH&TM, PharmD, FIDSA  
Professor of Internal Medicine, Division of Infectious Diseases, Department of Internal Medicine, The Ohio State University Wexner Medical Center, Director, GOHi Research and Implementation Science | Eyob Beyene, MD  
Internist, Infectious Diseases Fellow, Assistant Professor of Medicine AAU, College of Health Sciences |
| **General Internal Medicine** | August 23-24 | Sharon Clark, MD  
Clinical Assistant Professor of Internal Medicine, Division of Hospital Medicine, Department of Internal Medicine, The Ohio State University Wexner Medical Center | Melaku Taye, MD  
Assistant Professor of Internal Medicine, College of Health Sciences, Addis Ababa University |
| **Hematology/Oncology**     | August 25  | Robert Baiocchi, MD, PhD  
Professor of Internal Medicine, Division of Hematology, Department of Internal Medicine, The Ohio State University Wexner Medical Center, Medical Oncologist, PI and Co-Investigator Executive Committee Member | Seifu Kebede, MD  
Assistant Professor of Medicine, Internist and Hematologist AAU, Department of Internal Medicine, Division of Hematology |
| **Long COVID**              | August 26  | Sharon Clark, MD  
Clinical Assistant Professor of Internal Medicine, Division of Hospital Medicine, Department of Internal Medicine, The Ohio State University Wexner Medical Center | Andargew Yohannes, MD  
Assistant Professor of Internal Medicine, Pulmonary and Critical Care Fellow |

**GOHi helps establish influenza molecular labs in Ethiopia**

The Global One Health initiative established four regional influenza molecular laboratories in Adama, Bahir Dar, Addis Ababa and Arbaminch in Ethiopia through the U.S. Centers for Disease Control Coronavirus Aid, Relief and Economic Security (CARES) Act. These laboratories will help expand the testing capacity of the national influenza surveillance program from one reference laboratory to five and increase Ethiopia’s health system preparedness and pathogen detection capacity for health security.
## Detailed Schedule

### August 22: Infectious Diseases

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
<th>Time (EDT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approaches to Post-transplant Viral Infections</td>
<td><strong>Sajed Sarwar, MD</strong>&lt;br&gt;Clinical Assistant Professor of Internal Medicine, Division of Infectious Disease, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td>7-8 a.m.</td>
</tr>
<tr>
<td>Antimicrobial Stewardship</td>
<td><strong>Debbie Goff, PharmD, FIDSA, FCCP</strong>&lt;br&gt;Infectious Diseases Specialist&lt;br&gt;The Ohio State University Wexner Medical Center, Professor of Pharmacy Practice and Science, The Ohio State University College of Pharmacy</td>
<td>8-9 a.m.</td>
</tr>
<tr>
<td>COVID-19 Therapeutic Options</td>
<td><strong>Carlos Malvestutto, MD, MPH</strong>&lt;br&gt;Clinical Associate Professor of Internal Medicine, Division of Infectious Diseases, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td>9-10 a.m.</td>
</tr>
</tbody>
</table>
### August 23: General Hospital Medicine I

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
<th>Time (EDT)</th>
</tr>
</thead>
</table>
| Clinical Reasoning            | Kashif Khan, MBBS  
Clinical Assistant Professor of Internal Medicine, Division of Hospital Medicine, Department of Internal Medicine, The Ohio State University Wexner Medical Center | 7-7:45 a.m.  |
| Sepsis                        | Matthew Exline, MD  
Clinical Professor of Internal Medicine  
The Ohio State University Wexner Medical Center | 7:45-8:30 a.m. |
| Congestive Heart Failure      | Devicka Ojha, MD  
Clinical Assistant Professor of Internal Medicine, Division of Hospital Medicine, Department of Internal Medicine, The Ohio State University Wexner Medical Center | 8:30-9:15 a.m. |
| Cirrhosis                     | Abdulla Nasser, MD  
Clinical Assistant Professor of Internal Medicine, Division of Hospital Medicine, Department of Internal Medicine, The Ohio State University Wexner Medical Center | 9:15-10 a.m.  |

### August 24: General Hospital Medicine II

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
<th>Time (EDT)</th>
</tr>
</thead>
</table>
| Slowing Down CKD Progression  | Rima Kang, MD  
Clinical Assistant Professor of Internal Medicine, Division of Nephrology, Department of Internal Medicine, The Ohio State University Wexner Medical Center | 7-7:45 a.m.  |
| Inpatient Hyperglycemia/ Diabetes Management | Hala Mualla, MD  
Clinical Assistant Professor of Internal Medicine, Division of Endocrinology and Metabolism, Department of Internal Medicine, The Ohio State University Wexner Medical Center | 7:45-8:30 a.m. |
| Primary Cardiovascular Prevention | Mark Troyer, MD, MPH  
Clinical Assistant Professor of Internal Medicine, Division of General Internal Medicine and Geriatrics, Department of Internal Medicine, The Ohio State University Wexner Medical Center | 8:30-9:15 a.m. |
| Venous Thromboembolism        | Jason Cottrell, DO  
Clinical Assistant Professor of Internal Medicine, Division of Hospital Medicine, Department of Internal Medicine, The Ohio State University Wexner Medical Center | 9:15-10 a.m.  |
August 25: Hematology/Oncology

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
<th>Time (EDT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management of Aggressive Lymphomas</td>
<td>Yazeed Sawalha, MD Clinical Assistant Professor of Internal Medicine, Division of Hematology, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td>7-7:45 a.m.</td>
</tr>
<tr>
<td>Plasma Cell Dyscrasias/ Multiple Myeloma</td>
<td>Srinivas Devarakonda, MD Clinical Associate Professor of Internal Medicine, Division of Hematology, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td>7:45-8:30 a.m.</td>
</tr>
<tr>
<td>GI Cancers: Colon Cancer Updates</td>
<td>Arjun Mittra, MD Clinical Assistant Professor of Internal Medicine, Division of Medical Oncology, Department of Internal Medicine, Ohio State University Wexner Medical Center</td>
<td>8:30-9:15 a.m.</td>
</tr>
<tr>
<td>Updates on Management of Head and Neck Cancer</td>
<td>Priyanka Bhateja, MD Clinical Assistant Professor of Internal Medicine, Division of Medical Oncology, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td>9:15-10 a.m.</td>
</tr>
</tbody>
</table>
## August 26: Long COVID

<table>
<thead>
<tr>
<th>Topic</th>
<th>Speaker</th>
<th>Time (EDT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-COVID-19 Gastrointestinal</td>
<td>Subhankar Chakraborty, MD, PhD</td>
<td>7-7:35 a.m.</td>
</tr>
<tr>
<td></td>
<td>Clinical Assistant Professor of Internal Medicine, Division of Gastroenterology, Hepatology and Nutrition, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td></td>
</tr>
<tr>
<td>Post-COVID-19 Cardiology</td>
<td>Saurabh Rajpal, MBBS</td>
<td>7:35-8:10 a.m.</td>
</tr>
<tr>
<td></td>
<td>Clinical Associate Professor of Internal Medicine, Division of Cardiovascular Medicine, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td></td>
</tr>
<tr>
<td>Post-COVID-19 Rheumatology</td>
<td>Alexa Simon Meara, MD, MS</td>
<td>8:10-8:45 a.m.</td>
</tr>
<tr>
<td></td>
<td>Clinical Associate Professor of Internal Medicine, Division of Rheumatology -Immunology, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td></td>
</tr>
<tr>
<td>Post-COVID-19 Pulmonology</td>
<td>Derrick Herman, MD</td>
<td>8:45-9:20 a.m.</td>
</tr>
<tr>
<td></td>
<td>Clinical Assistant Professor of Internal Medicine, Division of Pulmonary, Allergy, Critical Care and Sleep Medicine, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td></td>
</tr>
<tr>
<td>Post-COVID-19 General/Neurocognitive</td>
<td>Aaron Friedberg, MD</td>
<td>9:20-9:55 a.m.</td>
</tr>
<tr>
<td></td>
<td>Clinical Assistant Professor of Internal Medicine, Division of General Internal Medicine and Geriatrics, Department of Internal Medicine, The Ohio State University Wexner Medical Center</td>
<td></td>
</tr>
</tbody>
</table>

### Celebrating 10 years

2021 marked the anniversary of the extraordinary impact that the Global One Health initiative (GOHi) has had over the last 10 years. Since its inception, GOHi has experienced explosive growth, becoming one of Ohio State’s largest interdisciplinary examples of institutional teamwork.

GOHi actively works to build 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.
Antimicrobial Resistance (AMR) Training Workshops (Closed Session)

TRAINING LEAD FACILITATOR: Tadesse Eguale

Description

GOHi in collaboration with Ethiopian institutions is implementing a CDC-funded AMR project as part of the Global Action in Health Care Network (GAIHN). The aim is to enhance detection and response to antimicrobial resistance and healthcare-associated infections towards prevention and containment in Ethiopia. Among the activities of this project is providing training for healthcare workers in the detection and containment of AMR in healthcare facilities. The workshops include:

Module 1 - Training on rapid use of free web-based bioinformatics for identification of antimicrobial resistance markers

Objective: To enable trainees to identify molecular basis of antimicrobial resistance in bacterial isolates

Intended Audience: Microbiologists from EPHI and selected hospitals

Dates: July 25-28

Instructors: Zelalem Mekuria, Tadesse Eguale

Module 2 - Phenotypic and Genotypic Detection of Carbapenemase Producing Carbapenem Resistance Enterobacteriaceae (CP-CRE)

Objective: To enable trainees to have basic knowledge and skill on how to detect CP-CRE organisms using phenotypic and molecular methods

Intended Audience: Microbiologists from EPHI and selected hospitals

Dates: August 8-12

Instructors: Andres Espinosa, Elizabeth Soda, Shu-Hua Wang

Module 3 - Training on Basic Infection Prevention and Control

Objective: To enable trainees to acquire basic knowledge and skills on current practices and the standard of infection prevention control in health facilities

Intended Audience: IPC officers, nurses, physicians, laboratory personnel from selected hospitals

Dates: August 22-24

Instructors: Feyisa Regassa, Zerihun Shimelis, Kassu Tola, Gezashegn Denekew, Selamawit Gebreegziabher
Leadership, Management and Governance in Ethiopian Higher Education (Closed Session)

August 18-19
7-10:30 a.m. EDT


Description

Higher education leaders capacity building workshop - A joint program by Texas Tech, Oklahoma State and Ohio State in collaboration with the Ethiopian Ministry of Education and U.S. Embassy in Addis Ababa.

Workshop Participants

• Select Ethiopian public university presidents and vice presidents
• Ministry of Education senior leaders

Workshop Goals

• Understand global trends in higher education leadership
• Articulate professional development priorities of the leaders of Ethiopian higher education institutions
• Define and prioritize professional development needs and challenges of participants
• Outline applicable comparative perspectives of U.S. and Ethiopian higher education systems
• Understanding global trends in higher education leadership
• Prepare for in-country training and U.S. visiting fellowship training
One Health East Africa Research and Training (OHEART) Short-Term Training (Track II) Opportunity (Closed Session)

September 19-30
8:30 a.m.-5 p.m. EDT

INSTRUCTORS: Sam Kariuki, Zelalem Mekuria, Robert Onsare, Eyasu Tigabu, Nídia Sequeira Trovão

Description

The GOHi OHEART program aims to strengthen and sustain the international research training between The Ohio State University and institutions of higher learning in Eastern Africa. OHEART is supported by a research training grant from the U.S. National Institutes of Health John E. Fogarty International Center Global Infectious Diseases program.

This program will enroll 14 laboratory technologists from partner institutes in Eastern Africa: Kenya (12) and Ethiopia (8) and involves two modules.

**Module 1 – Didactic courses through the Global One Health Summer Institute 2022.** Select candidates will enroll and attend virtual classes from July-August. Courses anticipated to be completed by the trainees include:

- Environmental health sciences – July 11, 7-10 a.m. EDT
- Molecular methods, Genomic and bioinformatic for infectious diseases epidemiology – July 19-29, 8-9 a.m. EDT
- Proposal writing, grant management and scientific communications – August 8-11, 7-10 a.m. EDT

**Module 2 – Laboratory Training at the Kenya Medical Research Institute (KEMRI).** Selected candidates will receive practical laboratory training on molecular methods.

Upon successful completion of both modules, fellows will receive a certificate of participation from The Ohio State University and its regional partners. Completion of Module 1 virtual courses is mandatory to be eligible for the Module 2 laboratory training.
## Impact Statistics 2022

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohio State students involved in Global One Health initiative projects to date</td>
<td>111</td>
</tr>
<tr>
<td>Participants to date</td>
<td>4,133</td>
</tr>
<tr>
<td>Faculty involved in trainings since 2012</td>
<td>355</td>
</tr>
<tr>
<td>Unique courses offered since 2012</td>
<td>94</td>
</tr>
<tr>
<td>Healthcare professionals trained in antimicrobial resistance courses</td>
<td>190</td>
</tr>
<tr>
<td>Dogs and cats vaccinated against rabies</td>
<td>141,705</td>
</tr>
<tr>
<td>Doctoral and post-doctoral fellows from Eastern Africa, Brazil and Thailand</td>
<td>32</td>
</tr>
<tr>
<td>Unique courses to be offered in the 2022 summer institute</td>
<td>17</td>
</tr>
<tr>
<td>Trainers and program coordinators engaged in the 2022 Summer institute</td>
<td>79</td>
</tr>
<tr>
<td>Animals and humans serologically tested against brucellosis</td>
<td>27,000+</td>
</tr>
<tr>
<td>iTunes U subscribers from over 90 countries</td>
<td>30,200+</td>
</tr>
<tr>
<td>International agreements</td>
<td>13</td>
</tr>
<tr>
<td>Enrolled in the GOHi Canvas courses curriculum</td>
<td>26,499</td>
</tr>
</tbody>
</table>
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