UNIVERSITY of CALIFORNIA, BERKELEY
SCHOOL of PUBLIC HEALTH

DIVISION of
INFECTIOUS DISEASES and VACCINOLOGY

ORIENTATION BOOKLET
2019 - 2020

Dear Infectious Diseases and Vaccinology Incoming Class 2019,

On behalf of the faculty, students and staff of the Division of Infectious Diseases & Vaccinology (IDV) at UC Berkeley, we would like to welcome you **enthusiastically** to our program at UC Berkeley. This handbook is assembled as a resource guide for new students. Please read this in conjunction with the School of Public Health Student Handbook (available in the SPH website at sph.berkeley.edu/Student Resources) and the Resources and Services for Graduate Students at Graduate Division website at http://grad.berkeley.edu/students/

Much of the information in this guide can also be found in the School website under IDV program sections.

Our faculty and staff are here to support you and take pride in your academic success. Please feel free to contact us for assistance. Wishing you a very prosperous and rewarding year ahead!

Sincerely,

Lee Riley, MD

Professor of Epidemiology and Infectious Diseases

Chair, Division of Infectious Diseases and Vaccinology

School of Public Health

Table of Contents

IDV MPH Program Core Competencies

Students completing the MPH curriculum with a concentration in Infectious Diseases should be able to:

- Describe the viral, bacterial, fungal, and parasitological agents of infectious diseases of humans;
- Explain the manifestations of infectious diseases and the biological, molecular, cellular, and immunological mechanisms of infectious disease;
- Identify the local, state, federal, and international agencies responsible for infectious disease surveillance and control and explain their roles and missions;
- Conduct classical and molecular analyses for the detection and characterization of infectious disease agents;
- Implement advanced diagnostic and surveillance techniques used in clinical and public health laboratories;
- Identify current public health problems in communicable diseases and describe how the social, behavioral, environmental, and administrative/policy components of public health affect infectious disease distributions;
- Demonstrate use of biostatistics and epidemiology in infectious disease surveillance;
- Critically evaluate biological and experimental designs for infectious disease research;
- Organize, analyze, and present scientific data in a lucid manner through oral and written communication.

IDI PhD Program Core Competencies

Students completing the Infectious Diseases and Immunity PhD curriculum should be able to:

- Describe the viral, bacterial, fungal, and parasitological agents of infectious diseases of humans;
- Explain the manifestations of infectious diseases and the biological, molecular, cellular and immunological mechanisms of infection and disease
- Demonstrate advanced knowledge of molecular biology, microbiology, immunology, biochemistry and cell biology
- Identify the local, state, federal and international agencies responsible for infectious disease surveillance and control and explain their roles and missions
- Conduct classical and molecular laboratory methods
- Identify current public health problems in communicable diseases and describe how the social, behavioral, environmental and administrative/policy components of public health affect infectious disease distributions
- Demonstrate use of biostatistics and epidemiology in infectious disease
- Critically evaluate biological and experimental designs for infectious disease
- Organize, analyze and present scientific data in a lucid manner through oral and written communications
- Teach coursework in an area relating to infectious diseases
- Plan, conduct, and publish original research in the area of infectious diseases and immunity

Overview

The study of infectious diseases focuses on the interactions between infectious agents, their hosts, and the environment that may lead to disease in humans. Infectious Diseases and Vaccinology (IDV) is a multidisciplinary program. The curriculum is designed to emphasize the biology and molecular biology of host-pathogen interactions; host immune response to infection associated with protection or pathology; the ecology, evolution, and transmission of infectious agents, methods of laboratory-based surveillance and the epidemiology of infectious diseases.

The mission of the Infectious Diseases and Vaccinology Program is to create opportunities for students to gain new and advanced knowledge about infectious disease agents and how they interact with host cells, human populations, and the environment. Students learn how to design and implement independent investigations using interdisciplinary approaches. The goal is to promote public health through better understanding of infectious diseases and human immunology based on interaction of basic and translational research that contributes to the development of new diagnostics, treatment, prevention, and control of human infectious diseases.

The Division of Infectious Diseases & Vaccinology offers:

- The professional two-year MPH degree in Infectious Diseases & Vaccinology; and
- The five year academic degree of the Infectious Diseases and Immunity PhD program (wet lab research).

IDV Office Address:

2121, Berkeley Way West Building (BWW) #5321-15, Berkeley, CA 94720-7360

Email: idadmin@berkeley.edu

Phone: (510) 642-2613

Office hours: By appointment
Website: sph.berkeley.edu

Faculty & Staff

Faculty

Gertrude C. Buehring, Ph.D., Professor of Graduate
School, Emeritus, 61A Koshland Hall

Peter Dailey, Ph.D., Assistant Adjunct Professor
5321-13 Berkeley Way West (By appointment)
pjdailey@berkeley.edu

Eva Harris, Ph.D., Professor of Infectious Diseases and Molecular Biology,
IDI PhD program Head, 500B Li Ka Shing Center

Fenyong Liu, Ph.D., Professor of Virology
326 Barker Hall

Sangwei Lu, Ph.D., Adjunct Professor
57B Koshland Hall

Veronica Miller, Adjunct Professor.
5321-14 Berkeley Way West (By appointment)
veronicam@berkeley.edu

Lee W. Riley, M.D., Professor and Division Chair of Infectious Diseases & Vaccinology
500D Li Ka Shing Center

George F. Sensabaugh, Professor of Graduate School, Emeritus
319 Mulford Hall

Sarah Stanley, Associate Professor, School of Public Health
500C Li Ka Shing Center

Richard S. Stephens, Ph.D., Professor Emeritus

John E.Swartzberg, M.D., Clinical Professor of Medical Virology and Microbiology, Emeritus
570 University Hall

Staff

Teresa Liu, IDV Division and Program Manager
Office: 5321-15, 2121 Berkeley Way West idadmin@berkeley.edu (510) 642-2613

(CPHPL Staff)

Audrey B. Cristobal, Director of Field Education, CPHPL

Office: 2121 Berkeley Way West acristobal@berkeley.edu (510) 642-2084

IDV Faculty

Gertrude Buehring, PhD

Eva Harris, PhD

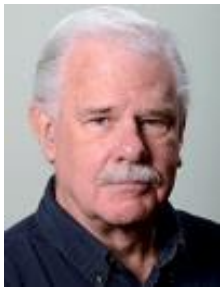
Peter J. Dailey PhD, MPH

Fenyong Liu, PhD

Sangwei Lu, PhD

Veronica Miller, PhD

Lee W. Riley, M.D.



George F. Sensabaugh, D. Crim.

Sarah Stanley, PhD

Richard S. Stephens, PhD, MSPH

John E. Swartzberg, M.D.

Gertrude Case Buehring, PhD

Professor of the Graduate School, Public Health
Office: 61-A Koshland Hall
Phone: (510) 642 – 3870
Fax: (510) 642 – 6350
Email: buehring@berkeley.edu

Education:

PhD - Genetics, University of California, Berkeley

CLS - Doctors Hospital (clinical laboratory scientist)

BA - Biology, Stanford University

Current Courses upon request of students:

PH 298,299, URAP mentoring

RESEARCH INTERESTS:

Viral etiology of human breast cancer

Bovine leukemia virus (BLV) and its possible role in causing human breast cancer

Development of early diagnostic tests for BLV infection and a vaccine against BLV

CURRENT PROJECTS:

1. How do humans become infected with BLV? Is it from cattle via bovine food products?

2. Can we reduce BLV infection of humans in California by eradicating BLV from beef and dairy herds (which currently have a high rate of infection)?

3. Can women infected with BLV pass the virus to their children transplacentally or through breast milk?

4. Are other human organs /cells besides breasts and blood cells infected by BLV and could the virus be associated with cancer in these organs?

5. Does infection of normal human breast cells with BLV in culture cause them to acquire characteristics of a malignant cell?

SELECTED PUBLICATIONS:

Buehring GC, Sans H, Primary prevention of breast cancer through eradication of bovine leukemia virus from cattle herds in California, International Journal of Environmental Research and Public Health (invited article in preparation for Nov. issue)

Buehring GC, DeLaney A, Shen HM, Chu DL, Razavian N, Schwartz DA, Demkovich CR, Bates MN. Bovine leukemia virus discovered in human blood. BMC Infectious Diseases https://doi.org/10.1186/s12879-3891-9, 2019

Baltzell KA, Shen HM, Krishnamurty S, Sison JD, Nuovo G, **Buehring GC**. Bovine leukemia virus linked to breast cancer but not co-infection with human papilloma virus: Case-control study of women in Texas. *Cancer* 124:1342-9, 2018.

Buehring GC, Shen HM, Schwartz DA, Lawson, JS. Bovine leukemia virus linked to breast cancer in Australian women and identified before breast cancer development. *PLoS One,* June 22, 2017, DOI:10.1371/journal.pone.0179367.

Buehring GC, Shen HM, Jensen HM, Jin DL, Hudes M, Block G. Exposure to bovine leukemia virus is associated with breast cancer: A case-control study. *PLoS One,* Sept. 2, 2015, DOI:10.1371/journal.pone.0134304.

Buehring GC, Shen HM, Jensen HM, Choi KY, Sun D: Bovine leukemia virus DNA in human breast tissue. *Emerging Infectious Diseases* 20 (5): 772-782, 2014.

Joshi D, **Buehring GC**: Are viruses associated with human breast cancer? Scrutinizing the molecular evidence. *Breast Cancer Research and Treatment* 135 (1): 1-15, 2012.

Buehring GC, Philpott SM, Choi KY: Humans have antibodies reactive with bovine leukemia virus. *AIDS Research and Human Retroviruses* 19(12):1105-1113, 2003.

Phillpott SM, **Buehring GC**: Defective DNA repair in cells infected with human T-cell leukemia / bovine leukemia virus group. *Journal of the National Cancer Institute* 91(11):933-942, 1999.

Other interests:

Member, Graduate group in Infectious Diseases and Immunology, UC Berkeley

Member, Graduate group in Endocrinology, UC Berkeley

Peter J. Dailey, Ph.D., MPH

Assistant Adjunct Professor of Infectious Disease & Vaccinology
Office: 5321-13, Berkeley Way West (By appointment)
Email: pjdailey@berkeley.edu

Course Taught:

- PH 266B Zoonotic Diseases

Research Interests:

- Development, evaluation, and implementation of assays for the estimation of HIV incidence
- Development, evaluation, and enabling access of infectious disease diagnostics in low-resource settings

Current Projects:

- Senior Technical Officer for the Foundation for Innovative New Diagnostics (FIND). FIND is a nonprofit organization headquartered in Geneva, Switzerland whose mission is to drive the development and early implementation of innovative diagnostic tests that have a high impact on patient care, disease control, and public health in low-resource settings.
- "HIV Incidence Assay Development Partner," grant funded through FIND. Coordination of multiple projects related to the development, evaluation, and implementation of HIV Incidence Assays. FIND: Measuring HIV Incidence
- "PanDx: A Low-cost Diagnostics Platform for Health Centers in the Developing World": discover and develop a prototype affordable, easy-to-use system for health workers to rapidly diagnose diseases in resource-limited settings. Prototype assays for tuberculosis (nucleic acid assay) and HIV (immunoassay) will be developed. This project is part of the Grand Challenges in Global Health Diagnostics initiative funded by the Bill & Melinda Gates Foundation to Stratos Product Development.

Selected Publications:

Holger Becker, Richard Klemm, William Dietze, Wallace White, Nadine Hlawatsch, Susanne Freyberg, Christian Moche, **Peter Dailey,** and Claudia Gärtner. Modular microfluidic cartridge-based universal diagnostic system for global health applications. 2016. *Proc. SPIE 9705, Microfluidics, BioMEMS, and Medical Microsystems XIV*, 970514 (March 18, 2016)

Helb D, Jones M, Story E, Boehme C, Wallace E, Ho K, Kop J, Owens MR, Rodgers R, Banada P, Safi H, Blakemore R, Lan NT, Jones-López EC, Levi M, Burday M, Ayakaka I, Mugerwa RD, McMillan B, Winn-Deen E, Christel L, **Dailey P,** Perkins MD, Persing DH, Alland D. Rapid detection of *Mycobacterium tuberculosis* and rifampin resistance by use of on-demand, near-patient technology. 2010. *J Clin Microbiol.* 48(1):229-37.

Patel SR, Weir F, **Dailey P,** Persing DH. Democratizing molecular diagnostics: the GeneXpert enterovirus assay. 2009. *Expert Opin. Med. Diagn.* 3(1): 91-7.

Eva Harris, Ph.D.

Professor of Infectious Diseases
Director, Center for Global Public Health
Infectious Diseases and Immunity PhD Program Head
Office: 500B Li Ka Shing Center
Lab: 510D Li Ka Shing Center
Phone: (510) 642-4845
Email: eharris@berkeley.edu

Courses Taught:

- PH265: Molecular Parasitology (Fall)
- PH260F: Infectious Disease Research in Developing Countries (Spring)
- PH292/3: Doctoral Research Seminar (Spring)
- PH162A: Public Health Microbiology (Fall) (Team taught with Drs. Sarah Stanley and Fenyong Liu)

Research Interests:

- Molecular virology, pathogenesis, immunology, epidemiology, clinical aspects, and control of dengue, Zika, and chikungunya
- Epidemiology of influenza in tropical countries
- Scientific capacity building in developing countries

Research Description:

Professor Harris has developed a multidisciplinary approach to study the molecular virology, pathogenesis, immunology, epidemiology, clinical aspects, and control of dengue, Zika, and chikungunya—the most prevalent mosquito-borne diseases in humans. Her work investigates viral and host factors that modulate disease severity and immune correlates of protection and pathogenesis, using in vitro approaches, animal models, and research involving human populations. One major focus is on studies of arboviral diesase in humans, including antibody and B cell responses and correlates of protection; systems immunology profiling of the innate response; and viral evolution, fitness, and intrahost diversity. Another focus is viral pathogenesis, specifically the role of NS1 protein in vascular leak and ZIKV infection of the human placenta. Her international work focuses on laboratory-based and epidemiological studies of dengue, Zika, chikungunya, and influenza in endemic Latin American countries, particularly in Nicaragua, where she has been working closely with the Ministry of Health for over 30 years. Long-term collaborations include clinical, biological, and immunological studies of severe disease through a 20-year pediatric hospital-based study; a 15-year ongoing pediatric cohort study of dengue, Zika, chikungunya, and influenza transmission in Managua; and a cluster randomized controlled trial of evidence-based community-derived interventions to prevent and control arboviral diseases.

Selected Publications:

Zambrana, J.V., Bustos, F., Burger-Calderon, R., Collado, D., Jairo, Sanchez, N., Ojeda, S., Plazaola, M., Lopez, B., Arguello, S., Elizondo, D., Aviles, W., Kuan, G., Balmaseda, A., Gordon, A., **Harris, E**. (2018) Seroprevalence, risk factor, and spatial analysis of Zika virus infection after the 2016 epidemic in Managua, Nicaragua. *Proc. Natl. Acad. Sci. USA*. [In press].

Gordon, A., Gresh, L., Ojeda, S., Chowell-Puente, G., Gonzalez, K., Sanchez, N., Saborio, S., Mercado, J.C., Kuan, G., Balmaseda, A., and **Harris, E**. (2018) Differences in transmission and disease severity between two successive waves of chikungunya. *Clin. Infect. Dis.* 2018 Apr 25. doi: 10.1093/cid/ciy356. [Epub ahead of print].

Katzelnick., L. Gresh, L, Halloran, M.E., Mercado, J.C., Kuan, G., Gordon, A., Balmaseda, A., and Harris, E. (2017) Antibody-dependent enhancement of severe dengue disease in humans. Science. 358(6365):929-932.
Montoya, M., Collins, M., Dejnirattisai, W., Katzelnick, L.C., Puerta-Guardo, H., Jadi, R., Schildhauer, S., Supasa, P., Vasanawathana, S., Malasit, P., Mongkolsapaya, J., de Silva, A.D., Tissera, H., Balmaseda, A., Screaton, G., de Silva, A.M., **Harris, E**. (2018) Longitudinal analysis of antibody cross-neutralization following Zika and dengue virus infection in Asia and the Americas. *J. Infect. Dis*. 218(4):536-545

Michlmayr, D., Andrade, P., Gonzalez, K., Balmaseda, A., and **Harris E**. (2017) CD14+ CD16+ monocytes are the main targets of Zika virus infection in peripheral blood mononuclear cells in a paediatric study in Nicaragua. *Nat Microbiol.* 2(11):1462-1470.

Glasner, D.R., Ratnasiri, K., Puerta-Guardo, H., Beatty, P.R., and **Harris, E**. (2017) Dengue virus NS1 cytokine-independent vascular leak is dependent on endothelial glycocalyx integrity. *PLoS Pathog.* 13(11):e1006673.

Andrade, D.V., Katzelnick, L.C., Widman, D.G., Balmaseda, A., de Silva A.M., Baric, R.S., and **Harris, E**. (2017) Analysis of individuals from a dengue-endemic region helps define the footprint and repertoire of antibodies targeting dengue virus 3 type-specific epitopes. *mBio.* 8(5):e01205-17

Parameswaran, P., Wang, C., Trivedi, S.B., Eswarappa, M., Montoya, M., Balmaseda, A., and **Harris, E**. (2017) Intrahost selection pressures drive rapid dengue virus microevolution in acute human infections. *Cell Host Microbe*. 22(3):400-410.e5.

Tabata, T., Petitt, M., Puerta-Guardo, H., Michlmayr, D., Wang, C., Fang-Hoover, J., **Harris, E.*** and Pereira, L.* (2016) Zika virus targets different primary human placental cells, suggesting two routes for vertical transmission. *Cell Host Microbe.* In press (Epub July 18, 2016) S1931-3128(16)30300-6. doi: 10.1016/j.chom.2016.07.002. *Co-corresponding authors.

Puerta-Guardo, H., Glasner, D.R., and **Harris, E.** (2016) Dengue virus NS1 disrupts the endothelial glycocalyx, leading to hyperpermeability. *PLoS Pathog.*12(7):e1005738.

Beatty, P.R., Puerta Guardo, H., Killingbeck, S., Glasner, D., Hopkins, K., and **Harris, E.** (2015) Dengue virus non-structural protein 1 (NS1) triggers vascular leak that can be inhibited by anti-NS1 antibodies. *Sci Transl Med.* 7:304ra141.

Andersson, N., Nava-Aguilera, E., Arostegui, J., Morales-Perez, A., Suazo-Laguna, H., Legorreta-Soberanis, J., Hernandez-Alvarez, C., Fernandez-Salas, I., Balmaseda, A., Cortés-Guzmán, A.J., Coloma, J., Ledogar, R.J., and **Harris, E.**(2015) Camino Verde (Green Way) to Dengue Prevention: a pragmatic cluster-randomised controlled trial of evidence-based community mobilisation in Nicaragua and Mexico. *BMJ.* 351:h3267.

Other interests:

- President, Sustainable Sciences Institute
- Director, Center for Global Public Health
- Infectious Diseases and Immunity Graduate Group (Chair)
- Microbial Biology Graduate Group

Fenyong Liu, Ph.D.

Professor of Virology
Office: 326 Barker Hall
Phone: (510) 643-2436
Fax: (510) 643-9955
E-mail: liu_fy@berkeley.edu

Courses Taught:

PH 162A: Public Health Microbiology (Fall, Team-Taught with Harris and Stanley)

PH 162L: Public Health Microbiology lab (Fall)

PH 264: Current Issues in Infectious Diseases (Fall)

Research Interests:

- Biology of human viruses (e.g. herpes, cytomegalovirus)
- Development of novel antiviral agents
- Biochemistry of nucleic acids and RNA enzymes

Selected Publications:

To, A., Bai, Y., Shen, A., Gong, H., Umamoto, S., and **Liu, F.** (2011). Yeast two hybrid analyses reveal novel binary interactions between human cytomegalovirus-encoded virion proteins. *PLoS ONE*. 6, e17796.

Bai, Y., Gong, H., Li, H.,Vu, G., Lu, S., and **Liu, F.** (2011). Oral delivery of RNase P ribozymes by Salmonella effectively inhibits viral infection in mice. *Proc. Natl. Acad. Sci.* USA. 108(8):3222-27.

Jiang, X., Bai, Y., Rider, P., Kim, K., Zhang, C., Lu, S., and **Liu, F.** (2011). Engineered external guide sequences effectively block viral gene expression and replication in cultured cells. *J. Biol. Chem.* 286(1):322-30.

Liu, F., and Altman, S. (2010) *Ribonuclease P*. Springer, New York.

Bai, Y., Li, H., Gong, H., Vu, G., Umamoto, S., Zhou, T., Lu, S., **Liu, F.** (2010) Salmonella-mediated delivery of RNase P ribozymes for inhibition of viral gene expression and replication in human cells. *Proc. Natl. Acad. Sci.* U.S.A. 107, 7269-7274.

Rider, P. J., Dunn, W., Yang, E., and **Liu, F.** (2009). Human cytomegalovirus microRNAs. *Curr Top Microbiol Immunol*, 325, 21-39.

Sangwei Lu, Ph. D.
Adjunct Professor
Office: 57B Koshland Hall
Phone: (510) 643-4986
Fax: (510) 643-9955
E-mail: sangwei@berkeley.edu

Education:

- PhD – Biology, Yale University
- BS – Molecular Biology, University of Science and Technology of China

Course Taught:

- PH266A: Foodborne Diseases (Spring 2019, 2021)

Research Interests:

- Pathogenesis and transmission of Salmonella
- Foodborne diseases - detection and prevention
- Child-friendly formulations of antibiotics

Research Description:

The research in our laboratory focuses on foodborne pathogens, especially Salmonella serovars. We study how Salmonella regulates its virulence characteristics and how it colonizes animal hosts. We also develop attenuated Salmonella strains for use as gene-delivery tools. More recently we have been developing child-friendly formulations of antibiotics to make life-saving medicines available to all children in need.

Selected Publications:

Mempin, R., Tran, H., Chen, C., Gong, H., Ho, K. K, and **Lu, S.** (2013) Release of extracellular ATP by bacteria during growth. *BMC Microbiol*. 13, 301. Pubmed

Liu, Y., Ho, K. K., Su, J., Gong, H., Chang, A. C., and **Lu, S.** (2013) Potassium transport of *Salmonella* is important for type III secretion and pathogenesis. *Microbiology* 159, 1705-19. Pubmed

Jiang, X., Gong, H., Chen, Y. C., Vu, G. P., Trang, P., Zhang, C. Y., **Lu, S.**, and Liu F. (2012) Effective inhibition of cytomegalovirus infection by external guide sequences in mice. *Proc. Natl. Acad. Sci.* USA. 109, 13070-5. Pubmed

Bai, Y., Gong, H., Li, H., Vu, G., **Lu, S.**, and Liu, F. (2011). Oral delivery of RNase P ribozymes by *Salmonella* effectively inhibits viral infection in mice. *Proc. Natl. Acad. Sci.* USA. 108, 3222-3227. Pubmed

Bai, Y., Li, H., Vu, G., Gong, H., Umamoto, S., Zhou, T., **Lu, S.** and Liu, F (2010) Salmonella-mediated delivery of RNase P-based ribozymes for inhibition of viral gene expression and replication in human cells. *Proc. Natl. Acad. Sci.* U. S. A. 107, 7269-7274. Pubmed

Loui, C., Chang, A. C. and **Lu, S.** (2009) Role of the ArcAB Two-Component System in the Resistance of Escherichia coli to Reactive Oxygen Stress. *BMC Microbiology* 9, 183. Pubmed

Gong, H., Su, J., Bai, Y., Miao, L., Kim, K., Yang, Y., Liu, F., and **Lu, S.** (2009) Characterization of the expression of Salmonella Type III secretion system factor PrgI, SipA, SipB, SopE2, SpaO, and SptP in cultures and in mice. *BMC Microbiology*. 9, 73. Pubmed

Su. J., Gong, H., Lai, J. T., Main, A. J. and **Lu, S.** (2009) Potassium transporter Trk and external potassium modulate Salmonella protein secretion and virulence. *Infection and Immunity* 77, 667-75. Pubmed

Veronica Miller, Ph.D.

Adjunct Professor
Executive Director, Forum for Collaborative HIV Research
Phone: (202) 974-6290
Fax: (202) 872-4316
E-mail: veronicam@berkeley.edu

Education:

Postdoctoral - Virology, University of California, Los Angeles
Postdoctoral - Cell Biology, University of New Mexico
PhD - Immunology, University of Manitoba
BSc - Microbiology, University of Manitoba

Course Taught:

PH 236: U.S. Food and Drug Administration, Drug Development, Public Health, and Health Policy

Research Interests:

- Advancing regulatory science for unmet medical/public health needs
- Collaborative frameworks for drug development
- Translating biomedical innovation to global access
- Disease areas: HIV, HCV, HBV, CMV, liver diseases

Research Description:

In 2001, Miller joined the Forum for Collaborative Research—a public/private partnership addressing cutting-edge science and policy issues through a process of stakeholder engagement and deliberation—as executive director. The Forum brings together researchers and advocates, national and international regulatory agencies, pharmaceutical and diagnostic companies, health care providers, and private foundations to compare data and debate consequences. The Forum also identifies gaps and impediments, frames issues, and helps set research strategy.

Under her leadership, the Forum for Collaborative Research extended its deliberative process to advance regulatory science (applied successfully to HIV) to drug development for hepatitis C infection, the treatment of liver diseases (NASH and fibrosis), and human cytomegalovirus disease in solid organ and stem cell transplant patients.

Prior to 2001, Miller's own research focused on randomized clinical trials and observational cohorts to determine factors associated with HIV treatment outcomes, including the impact of drug resistance, documented in more than 50 peer-reviewed articles. Her original research work contributed to FDA and EMA guidelines on assessment and reporting of drug resistance and the generation of international guidelines for drug resistance testing.

Current Projects:

- HIV Cure Project
- Overcoming Health Disparities in the Bay Area Using HIV/AIDS and HCV as Models
- HCV Drug Development Advisory Group
- Facilitating Drug Development for the Treatment of Liver Disease
- Facilitating Drug Development for the Prevention and Treatment of CMV Disease in Transplantation Settings
- Pre-Exposure Prophylaxis and Microbicide Research
- HBV Therapeutic and Curative Interventions
- Pediatric HIV Clinical Trials
- Addressing the Regulatory Challenges of Primary Sclerosing Cholangitis (PSC) to Advance Therapeutic Interventions

Selected Publications:

Natori Y, Algahamdi A, Tazari Mahmood, **Miller V**, Husain S, Komatsu T, Griffiths P, Ljungman P, Orchanian-Cheff A, Kumar D, Humar A. *Can Viral Load be used as a Surrogate Marker in Clinical Studies of Cytomegalovirus in Solid Organ Transplantation: A Systematic Review and Meta-analysis.* CMV. CID 2017. In press. DOI 10.1093/cid/cix793

Patel YA, Imperial JC, Muir A, Quentin M, Debrota DJ, Dimick-Santos L, Filozof C, Metha R, Sanyal AS, Schabel E, Neuschwander-Tetri BA, **Miller V.** *Baseline parameters in clinical trials for nonalcoholic steatohepatitis: Recommendations from the Liver Forum*. Gastroenterology 2017; In press. DOI 10.1053/j.gastro.2017.07.024

Bartlett SR, Grebely J, Eltahla AA, Reeves JD, Howe AYM, **Miller V**, Ceccherini-Silberstein F, Bull RA, Douglas MW, Dore DJ, Harrington P, Lloyd AR, Jacka B, Matthews GV, Wang GP, Pawlotsky J-M, Feld JJ, Schinkel J, Garcia F, Lennerstarnd J, Applegate TL. *Sequencing of hepatitis C virus for detection of resistance to direct-acting antiviral therapy: A systematic review*. Hepatology Communications 2017; in press. DOI 10.1002/hep4.1050

Liu J, Goicochea P, Block T, Brosgart CL, Donaldson EF, Lenz O, Lim SG, Marins EG, Mishra P, Peters MG, **Miller V.** *Advancing the regulatory path on hepatitis B virus treatment and curative research: A stakeholders' consultation.* Journal of Virus Eradication 2017; 3:1-6.

Ljungman P, Boeckh M, Hirsch HH, Josephson F, Lundgren J, Nichols G, Pikis A, Razonable RR, **Miller V**, Griffiths PD. *Definitions of Cytomegalovirus Infection and Disease in Transplant Patients for Use in Clinical Trials*. CID 2017; 64(1):87-91. DOI 10.1093/cid/ciw668

Lee W. Riley, M.D.

Professor and Head, Division of Infectious Diseases and Vaccinology
Office: 500D Li Ka Shing Center
Lab: 530E Li Ka Shing Center
Phone: (510) 642-9200
E-mail: lwriley@berkeley.edu
Lab Website:
https://sites.google.com/site/rileylabucberkeley/home

Courses Taught:

- PH 260A: Principles of Infectious Diseases, Part I (Fall) with Dr. Swartzberg
- PH 260E: Molecular Epidemiology of Infectious Diseases (Fall, even-numbered years)
- PHW 260: Principles of Infectious Diseases (with Dr. Swartzberg)

Research Interests:

- Mechanisms of drug resistance in Gram-negative bacteria
- Molecular epidemiology of tuberculosis and drug-resistant Gram-negative bacterial infections
- Rapid diagnostic test development for drug-resistant Gram-negative bacterial infections
- Tuberculosis biomarker test development and validation
- Field epidemiology and global health research focused on diseases of urban slums

Current Projects:

- Global Health Equity Scholars Fellowship Program: A NIH/Fogarty International Center-funded project to train US postdoctoral fellows and advanced PhD students to go abroad do research related to slum health.
- NIH-funded project on new diagnostic test development for drug-resistant Gram negative bacterial infections.
- CDC-funded project on molecular epidemiology of community-acquired urinary tract infections.

Selected Publications:

Adams-Sapper S, Gayoso A, **Riley LW**. Stress-Adaptive Responses Associated with High-Level Carbapenem Resistance in KPC-Producing *Klebsiella pneumoniae*. J Pathog. 2018; 19:3028290.

Yamaji R, Rubin J, Thys E, Friedman CR, **Riley LW**. Persistent Pandemic Lineages of Uropathogenic Escherichia coli in a College Community from 1999 to 2017. J Clin Microbiol. 2018;56(4).

Tarlton NJ, Satoorian TS, Panchal A, Borges CA, Geisberg M, **Riley LW**. Monoclonal antibody-mediated detection of CTX-M β-lactamases in Gram-negative bacteria. J Microbiol Methods. 2018;144:37-43.

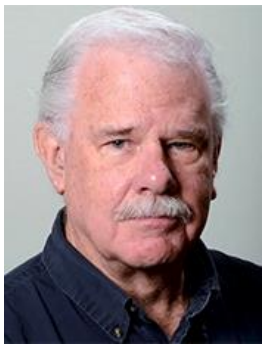
Schump MD, Fox DM, Bertozzi CR, **Riley LW**. *Subcellular Partitioning and Intramacrophage Selectivity of Antimicrobial Compounds against Mycobacterium tuberculosis*. Antimicrob Agents Chemother. 2017;61(3). pii: e01639-16.

Stephens CM, Adams-Sapper S, Sekhon M, Johnson JR, **Riley LW**. *Genomic Analysis of Factors Associated with Low Prevalence of Antibiotic Resistance in Extraintestinal Pathogenic Escherichia coli Sequence Type 95 Strains*. mSphere. 2017;2(2). pii: e00390-16.

Snyder RE, Boone CE, Cardoso CA, Aguiar-Alves F, Neves FP, **Riley LW**. *Zika: A scourge in urban slums*. PLoS Negl Trop Dis. 2017;11(3):e0005287.

Francis SS, Plucinski MM, Wallace AD, **Riley LW**. *Genotyping Oral Commensal Bacteria to Predict Social Contact and Structure*. PLoS One. 2016;11(9):e0160201.

Book: Corburn, J and **Riley LW**. *Slum health: from the cell to the street*. University of California Press, 2016: 315p.



George F. Sensabaugh Jr. D Crim

Professor of Biomedical and Forensic Sciences
Professor of Graduate School
Professor Emeritus
Office: 319 Mulford Hall
Phone: (510) 642-1271
E-mail: sensaba@berkeley.edu

Education:

- Postdoctoral Fellow - Genetics, National Institute for Medical Research, London
- Postdoctoral Fellow - Chemistry, University of California, San Diego
- D Criminology - University of California, Berkeley
- BA - Philosophy, Pre-Med, Princeton University

Research Interests:

- Microbial population genetics and evolution - molecular epidemiology
- Genetic variation in human populations - biological significance and evolutionary origins
- Forensic science - forensic genetics, science-law interactions, concepts of identification

Research Description:

Microbial Population Genetics and Epidemiology

We are interested in the genetic structure of populations of species in the genus staphylococcus and in the role of mobile elements in shaping variation within and between species.

Forensic Science

Our research interests focus on the analysis and interpretation of biological evidence, with a current emphasis on the utilization of biological evidence in the investigation and prosecution of sexual assault.

Current Projects:

- Genomic characterization, population structure, and evolution of Staphylococcus saprophyticus
- Review of evidence collection and DNA profile outcomes in sexual assault cases

Selected Publications:

Target capture enrichment of nuclear SNP markers for massively parallel sequencing of degraded and mixed samples. (2018) Bose N, Carlberg K, **Sensabaugh G**, Erlich H, Calloway C. Forensic Sci Int Genet. 34:186-196.

Forensic bitemark identification: weak foundations, exaggerated claims. (2016) Saks MJ, Albright T, Bohan TL, and 36 others. J Law Biosci. 3(3):538-575.

Staphylococcus saprophyticus Recovered from Humans, Food, and Recreational Waters in Rio de Janeiro, Brazil. (2017)
de Sousa VS, da-Silva APS, Sorenson L, and 12 others. Int J Microbiol. 2017;2017:4287547.

S. Cavness, A. Choudhury, and **G.F. Sensabaugh**. (2014) Hospital wet mount examination for the presence of sperm in sexual assault cases is of questionable value. *J. Forensic Sciences* 59(3): 729-734

B.W. Brunelle and **G.F. Sensabaugh**. (2012) Nucleotide and phylogenetic analyses of the chlamydia trachomatis ompa gene indicates it is a hotspot for mutation. *BMC Research Notes* 5:53

Kaye DH and **Sensabaugh GF**. Reference guide on DNA identification evidence. In: *Reference Manual on Scientific Evidence*, 3rd Ed., pp.129-210. Federal Judicial Center (National Academy Press, 2011)

Miragaia M, de Lencastre H, Perdreau-Remington F, Chambers HF, Higashi J, Sullam PM, Lin J, Wong KI, King KA, Otto M, **Sensabaugh GF**, Diep BA. (2009) Genetic diversity of arginine catabolic mobile element in staphylococcus epidermidis. *PLoS ONE* 4: e7722,.

Other interests:

- Affiliated Faculty - Graduate Group in Forensic Science, UC Davis

Sarah Stanley, Ph.D.

The King Sweesy and Robert Womack Endowed Chair in
Medical Research and Public Health
Associate Professor, Infectious Diseases and Vaccinology
Office: 500C Li Ka Shing Hall
Phone: (510) 666-3729
E-mail: sastanley@berkeley.edu

Courses Taught:

- PH 162A: Public Health Microbiology (Fall, Team-Taught with Drs Harris and Fenyong Liu)
- PH 263: Public Health Immunology (Fall)
- PH 293: IDI Doctoral Seminars

Research Interests:

- Mechanisms of pathogenesis and immune subversion in tuberculosis
- Protective immunity to tuberculosis
- Metabolic interactions between hosts and pathogens
- Development of novel therapeutics for tuberculosis
- Scientific capacity building

Selected Publications:

Van Dis E, Sogi KM, Rae CS, Sivick KE, Surh NH, Leong ML, Kanne DB, Metchette K, Leong JJ, Bruml JR, Chen V, Heydari K, Cadieux N, Evans T, McWhirter SM, ChenDubensky TW, Portnoy DA, **Stanley SA**. STING-activating adjuvants elicit a Th17 immune response and protect against Mycobacterium tuberculosis infection, Cell Reports. 2018 May 1; 23(5):1435-1447

Knight M, Braverman J, Asfaha K, Gronert K, **Stanley SA**. Lipid droplet formation in Mycobacterium tuberculosis infected macrophages requires IFN-γ/HIF-1α signaling and supports host defense. PLoS Pathogens, 2018 Jan 25; 14(1):e1006874.

Braverman J, **Stanley SA**. Nitric oxide modulates macrophage responses to M. tuberculosisinfection through activation of HIF-1α and repression of NF-kB. J. Immunol, 2017Sep 1; 199(5):1805-1816.

Sogi KM, Lien KA, Johnson JR, Krogan NJ, **Stanley SA**.The tyrosine kinase inhibitor gefitinib restricts Mycobacterium tuberculosis growth through increased lysosomal biogenesis and modulation of cytokine signaling. ACS Infect Dis, 2017 Aug 11; 3(8):564-574.

Braverman, J, Sogi KM, Benjamin D, Nomura DK, **Stanley SA**. HIF-1α Is an Essential Mediator of IFN-γ–Dependent Immunity to *Mycobacterium tuberculosis*. *Journal of Immunology* 2016 July, 1600266.

Stanley, SA, Barczak AK, Silvis, MR, Luo, SS, Sogi, K, Vokes, M, Bray, M, Carpenter, AE, Siddiqi, N, Rubin EJ, Hung, DTH. A chemical screen to identify host-targeted small molecules that restrict

intracellular *Mycobacterium tuberculosis* growth. *PLoS Pathog* 2014 Feb; 10(2): e1003946. doi:10.1371/journal.ppat.1003946.

Stanley, S.A., Kawate, T., Iwase, N., Shimuzu, M., Clatworthy, A., Kazyanskaya, E., Siddiqi, N., Sacchettini J.C., Ioerger T.R., Aquadro, J.A., Rubin, E.J., Hung, Diarylcoumarins inhibit mycolic acid biosynthesis and kill M. tuberculosis by targeting FadD32. *Proc Natl Acad Sci.* 2013 Jul 9;110(28):11565-70.

Stanley, SA, Cox, JS. Host-pathogen interactions during *Mycobacterium tuberculosis* infections. *Current topics in Microbiology and Immunology,* 2013 July 24.

Stanley, S.A., Kazyanskaya, E., Aquadro, J.A., Silvis, M., Gomez, J., Hung, D.T. Identification of novel inhibitors of *M. tuberculosis* growth using whole cell based high-throughput screening. *ACS Chemical Biology*, 2012 May 21.

Barczak, A.K., Gomez, J.E., Kaufmann, B.B., Hinson, E.R., Cosimi, L., Borowsky, M.L., Onderdonk, A.B., **Stanley, S.A.**, Kaur, D., Bryant, K.F., Knipe, D.M., Sloutsky, A., Hung, D.T. RNA signatures allow rapid identification of pathogens and antibiotic susceptibilities. *Proc Natl Acad Sci* USA, 2012 April 17; 109(16):6217-22.

Chindelevitch, L., **Stanley, S.**, Hung, D., Regev, A., Berger, B. MetaMerge: scaling up genome-scale metabolic reconstructions with application to *Mycobacterium tuberculosis*. *Genome Biol*. 2012 Jan 31; 13(1):R6.

Richard S. Stephens, Ph.D., MSPH

Professor Emeritus, Infectious Diseases & Vaccinology

Research Interests:

- Molecular interactions of Chlamydia and the host in the context of specific microbe-cell interaction
- The genetic basis of chlamydial developmental regulation at the level of macromolecular chromosomal
- Molecular epidemiology of chlamydial infections

John E. Swartzberg, MD, FACP

Clinical Professor,
Emeritus
Chair, Editorial Board, *UC Berkeley Wellness Letter*
Office: 570 University Hall
Phone: (510) 643-0499
Fax: (510) 643-8771
E-mail: jes@berkeley.edu

Courses Taught:

- HMS 202 D/E: Clinical Skills
- PH 260A: Principles of Infectious Diseases (co-teach with Riley)
- PH 260B: Principles of Infectious Diseases (Spring)
- PHW 260: Principles of Infectious Diseases
- PH 266C: Hospital Associated Infections (Fall)

Research Interests:

- Healthcare Associated Infections
- Infectious Diseases
- Journalism and Public Health

Selected Publications:

UC Berkeley Wellness Reports:

- Dietary Supplements, 2017
- Eating for Optimal Health, 2017
- Women's Health, 2017
- Men's Health, 2017
- Controlling Your Cholesterol, 2017
- "The Physician as a 21st Century Public Health Professional," JAMA, December 24/31, 2009.

Other interests:

- Chair, Editorial Board - *UC Berkeley Wellness Letter*

MPH Program Career Opportunities

I. Research/Education -Related

1. Health Analyst, Research analyst , research associate, research scientist in a:
   - Public health sector, biotechnology, state (CDHS) or federal (CDC, LBL, FDA, NIH, etc.) unit/laboratory;
   - county health department laboratory or division (e.g., communicable diseases, STD, TB, bioterrorism);
   - hospital-based or academic research groups/institutions;
   - forensics laboratory;
   - city sanitation department.
2. Clinical Trial Associate/Assistant, Clinical Researcher in pharmaceutical company.
3. Licensed clinical laboratory scientist in a hospital or private laboratory at a supervisory level (must complete 12-15 month training program and licensure).
4. As a stepping stone for a higher degree: Dr PH, PhD, DVM, MD. Some IDV MPH graduates continue on for more education immediately after graduation such as MD, DrPH, PhD degrees.

II. Epidemiology-Public Health Epidemiologist in private or public sector

1. Infection control officer/coordinator in a hospital/medical center or other institution.
2. Regional Epidemiologist.
3. Surveillance coordinator in a public health department.
4. Epidemiology analyst.

III. Public health microbiologist in a state or county public laboratory at a supervisory level (must complete 6-month training program and licensure).

IV. Teaching

1. Clinical laboratory scientist or public health microbiologist training programs (with appropriate licenses).
2. Instructor or faculty in a junior college.
3. Academic coordinator for microbiology lab courses, internships, etc. in a college or university.
4. Field program supervisor, public health practice.

V. Program Administrator

1. Biohazard inspector for a university, institute, or biotech company.
2. Environmental microbiologist.
3. Industrial hygienist specializing in infectious diseases.
4. Health facility evaluator.
5. Health program director
6. Program Coordinator/Program Analyst

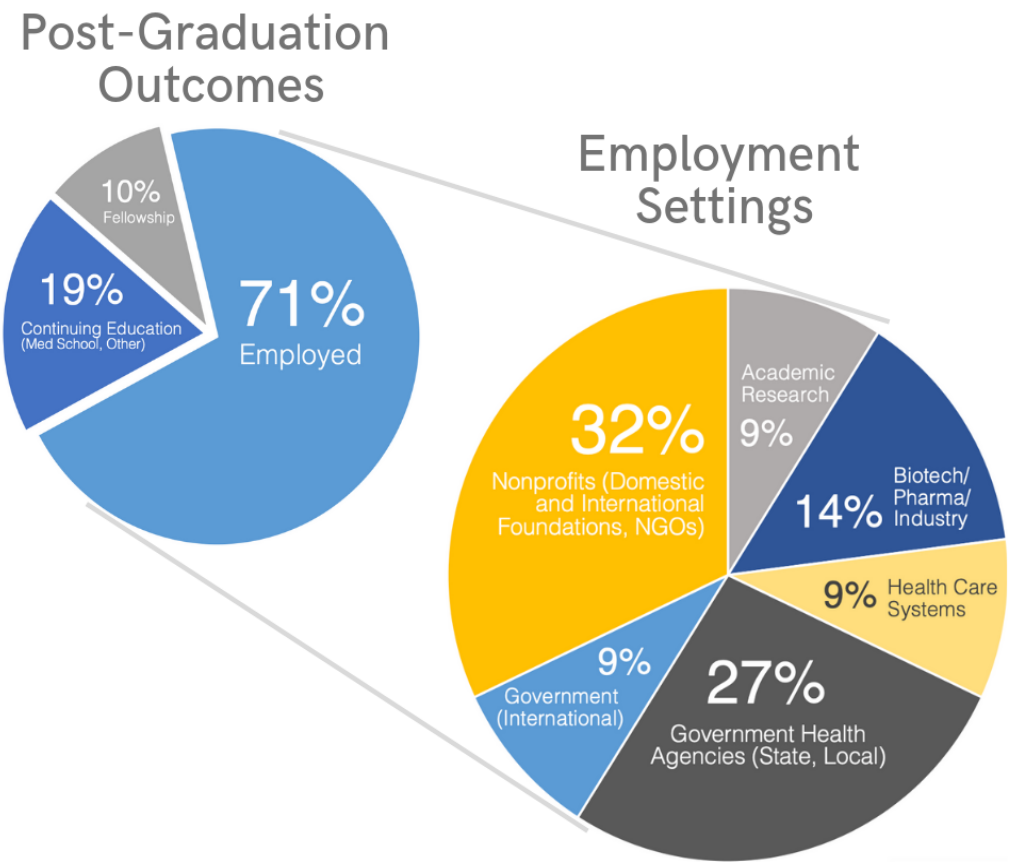
VI. Journalism

1. Science writer
2. Producer/director of science programs

VII. Consulting

VIII. Supplement (public health perspective) to an already earned doctoral degree

Recent SPH MPH Job Placement Statistics



Source: UC Berkeley School of Public Health Career Services; 2017 and 2018 IDV MPH Graduates (N=31)

Previous employers of IDV grads include:

MPH Program Curriculum Requirements

This MPH program provides a basic course of study in public health microbiology and infectious diseases. Persons with a firm background in biology but with no prior experience in infectious diseases, can gain the basic education necessary to pursue careers in the public health, industrial, and clinical fields of infectious diseases. Persons with prior backgrounds in the infectious diseases (i.e. medical technologists, clinical and public health microbiologists, nurses, physicians, etc.) can update and broaden their public health base. **Forty-eight (48) graduate units** are required for graduation. All Breadth and Division core courses must be taken in letter grades, with a minimal of **a B- grade** for graduation. Students must maintain an overall grade-point average of **at least 3.0** on the basis of all upper division and graduate courses (100- and 200-level, please note 300-level courses will not count for graduation) taken in graduate standing. No more than one third of the classes for graduation can be taken in Satisfactory or Unsatisfactory (S/U) grade. A Satisfactory grade implies work of B minus (B-) quality or better. The time required to complete the MPH degree is two years. Twelve units is full time. Graduate students in the MPH program usually take 16 units per semester and the maximum units they can take each semester is no more than 20.5 units.

As part of general School of Public Health Breadth requirements, the following courses: PH 142 and PH 250A or accepted substitutes must be taken. More advanced level substitutes are recommended when possible (pl refer to MPH Breadth Course Requirement), **or** an exemption examination passed. Students entering as of Academic Year 2019-2020 and beyond are eligible to take the exemption exam only upon beginning their graduate program in August at new students orientation. The exam can only be taken once, and a passing grade is 75. The results are communicated to the student and program manager 1-2 weeks after the exam dates. If a student takes and does not pass the exam, they will need to take either the courses to satisfy that breadth requirement. If a student is not be able to sit for the exam(s) on the dates offered, please contact IDV Division and Program manager to set up a date/time within the first week of instruction. Deadline to register: 8/15/19. Please bring a calculator to take the exempt exam.

MPH Breadth Requirement:

PH 200J, K, & L	Public Health Core Breadth Course (PH 200J- 2 units, 200L-2 units, (4 units total) (Fall 2019) (PH 200K 2 units)(Sp 2020)
PH 142	Probability and Statistics in Public Health and Biology (4 units) (F)
PH 250A	Epidemiologic Methods (3 units) (Su) (F)
PH 297	Public Health Field Study (3 units) (Do the Placement in Summer 20), register the class PH 297 Fall 2020 in S/SU grade for 3 units

Effective Fall 2014, MPH students are required to attain a B- or better in Breadth Course Requirements (Epidemiology PH 250A; Biostatistics PH 142; Health Policy & Management PH 200J; Environmental Health PH 200K; Health and Social Behavior PH 200L). This rule also applies to alternative courses. Please refer to the School-wide Student Handbook 2019 for details. **Students attaining less than a B- will be required to retake the course in order to receive a MPH degree**. Students must also meet the "Good Academic Standing Rule" (i.e. student must maintain overall GPA of a B, which is a 3.0) to participate in the PH 297 Field Study and to graduate.

Special curricular requirements for the IDV MPH Program are as follows:

IDV Core Requirements:

PH 260A	Principles of Infectious Disease, Part I (4 units) (F)
PH 260B	Principles of Infectious Disease, Part II (4 units) (Sp)
PH 264	Current Issues in Infectious Diseases (2 units) **(F, 2nd yr IDV MPH students only)**
PH 263	Public Health Immunology (3 units) (F)

PH 260A and PH 260B must be taken in the first year. PH 264 must be taken in the fall of the 2nd year.

Advanced Courses:

At least two advanced courses are required for all MPH students for graduation. Courses offered in alternate years are **in bold**.

PH 260E	Molecular Epidemiology of Infectious Diseases (2 units) (Fa 2020)
PH 260F	Infectious Disease Research in Developing Countries (2 units) (Sp 2021)
PH 262	Molecular Basis of Bacterial Pathogenesis (3 units) (Sp)
PH 265	Molecular Parasitology (3 units) (Fa 2019)
PH 266A	Food-borne Diseases (2 units) (Sp 2021)
PH 266B	Zoonotic Diseases (2 units) (Sp)
PH 236	US Food & Drug Admin, Drug Development, and Public Health (2 units) (Sp)
PH 266C	Hospital Associated Infections (counts as IDV Div Seminar) (2 units)(Fa)

IDV Division Seminar:

All IDV MPH students are required to register for **PH 266C**: Hospital Associated Infections, the IDV Division Seminar, and will be offered in every Fall. Only one seminar is needed, and a substitution by another School of Public Health seminar **related to Infectious Diseases** may be acceptable as IDV Division Seminar. Please contact IDV Division Manager for questions. Please note it is established that PH 290 Infectious Diseases Modeling Seminar I or II by Professor John Marshall.

IDI PhD students should enroll in PH 293: IDI Monday Doctoral Seminar (1 unit) every semester till graduation and PH 293: IDI Wednesday Doctoral Seminar (2 unit) (is for pre-QE IDI PhD students to enroll, advanced IDI PhD students are welcome to enroll in the IDI Wed Doctoral Seminar).

MPH Program
Sample of Two Year Course of Study

COURSE #	COURSE TITLE	UNITS
Year 1: Fall 2019 Semester		
*PH 260A	Principles of Infectious Diseases Part I	4
PH 250A	Epidemiologic Methods I	3
*PH 200J & L	Public Health Core Breadth Course	4
PH 142 or	Intro. Probability and Statistics	4
PH 263	Public Health Immunology	3
Year 1: Spring 2020 Semester		
*PH 260B	Principles of Infectious Diseases, Part II	4
PH 250B	Epidemiologic Methods II	4
PH 257	Outbreak Investigation	2
PH 200K	Public Health Core Breadth Course	2
PH 2XX	Required IDV Advanced Courses or electives	2-4
Year 1: Summer 2020		
*PH 297	Public Health Practice – Field Study Placement	
Year 2: Fall 2020 Semester		
*PH 264	Current issues in Infectious Diseases	2
PH 266C	Hospital Associated Infections (IDV Div Seminar)	2
PH 253B	Epidemiology and Control of Infectious Diseases	3
PH 263	Public Health Immunology	3
PH 2XX	Required IDV Advanced Course and/or elective	2, 4
*PH 297	Public Health Practice – Field Study	3
Year 2: Spring 2021 Semester		
PH 227A	Healthcare Finance	3
PH 2XX	Required IDV course and/or electives	8
PH 299	Work on Comprehensive Exam (Comp Paper mentorship), register for 2 units of PH 299 section of your assigned Comp Paper mentor faculty	2

Students must register for a minimum of 12 units each semester.
* Required course that must be taken during the semester where indicated on this document.
PH 142 and PH 263 can be taken in the first year or second year.

Additional courses offered by the School of Public Health and by other departments on the Berkeley campus may be taken to supplement the above curriculum and to satisfy particular student educational objectives. Such courses should include epidemiology, biostatistics, molecular biology, immunology, Public Health policy, MBA and behavioral science.

Recommended Alternatives to MPH Breadth Required Courses

Course	Acceptable Substitutions
PH 142	PH 141, 241, 245, or *exemption exam
PH 250A	PH 250B or *exemption exam

*Exemption exam will be held during Orientation

Advanced Courses in Infectious Diseases and Vaccinology

(Courses offered in alternate years are **bolded**)

PH 260E	**Molecular Epidemiology of Infectious Diseases**	**2**	**Fall 2020**
PH 260F	**Infectious Diseases Research in Developing Countries**	**2**	**Spring 2021**
PH 262	Molecular Basis of Bacterial Pathogenesis	3	Spring 2020
PH 265	**Molecular Parasitology**	**3**	**Fall 2019**
PH 266A	**Foodborne Diseases**	**2**	**Spring 2021**
PH 236	US Food & Drug Admin, Drug Dev, and Public Health	2	Spring
PH 266C	Hospital Associated Infections (counts as IDV Div seminar)	2	Fall
PH 266B	Zoonotic Diseases	2	Spring

Recommended Electives:

Students may take courses as electives from other concentrations such as Biostat, Epi, EHS, Global Health, HSB, HPM, etc. The list below represents recommended electives relevant to the IDV curriculum that IDV MPH students have taken before and have found useful and relevant.

Class Number	Class Title	Semester	Units
Biostatistics			
PH 290 Section 5 (Previously PH144A/B)	Introduction to SAS Programming	Spring	2
PH 241	Statistical Analysis of Categorical Data	Spring	2
PH 245	Introduction to Multivariate Statistics	Fall	4
PH 251C	Causal Inference and Meta-Analysis in Epidemiology	Fall	2
PH 251D	Applied Epidemiology Using R	Fall	2
PH 252C	Intervention Trial Design	Fall	3
Epidemiology			
*PH 250B	Epidemiologic Methods II	Fall	4
PH 253B	Epidemiology and Control of Infectious Diseases	Spring	3
PH 253D	Behavioral & Policy Science in HIV Treatment & Prevention	Fall	3
PH 253G	Sexual Health Promotion and Sexually Transmitted Diseases	Spring	2
PH 255A	SOCIAL EPIDEMIOLOGY	Fall/Spring	4
PH 256	Molecular and Genetic Epidemiology and Human Health in the 21st Century	Spring	4
PH 257	Outbreak Investigation	Fall/Spring	2
Environmental Health Sciences			
PH 269E	Environmental Medicine	Fall	2
PH 271D	Global Burden of Disease and Comparative Risk Assessment	Spring	3
PH 272A	Geographic Information Science for Public and Environmental Health	Spring	4
PH 273**	Environmental Determinants of Infectious Disease (Seminar)	Fall	3
Health & Social Behavior			
PH 219D	Social and Behavioral Health Research	Fall	3
PH 204F	Culture, Public Health Practice, and Eliminating Health Disparities: From Ideas to Action in the 21st Century	Spring	3
Health Policy and Management			
PH 220D	Health Policy Advocacy	Fall	3
PH 227A	Healthcare Finance	Spring	3
Molecular & Cell Biology			
MCB 110	General Biochemistry and Molecular Biology	Fall/Spring	4
MCB 210	Macromolecular Reaction and the Cell	Spring	4
MCB 250	Advanced Immunology	Spring	4

*****Highly recommended

** Will meet IDV Division seminar requirement

Note: Course offerings based on past years; please check the latest course offerings in Calcentral.

MPH Field Study Practice Requirement

All MPH students in the School are expected to complete a field training or project-based public health practice activity following the first year of academic study in public health. This entails a 12- week, full-time work experience during the summer between the 1st and 2nd year. Unit credit is received by registering for 3 units of Public Health Practice Field Study (PH 297) in the Fall semester of the 2nd year.

The Center for Public Health Practice and Leadership (CPHPL) provides the academic and administrative structure for meeting this practice requirement for the MPH degree. To receive academic credit, students need to complete requirements such as: Placement Confirmation Form, Learning Agreement, Site Visit, and Final Project. Visit http://sph.berkeley.edu/careers/internships to learn more.

Infectious Disease students can fulfill the public health practice requirement by active participation in a research or field project within the School or by working in a public health agency at the local, state, national, or international level. Examples of previous internship placements are listed below. Students are encouraged to explore internship options throughout their first Fall semester of the program and into January/February 2020. CPHPL staff will work closely with Dr. Peter Dailey, IDV Field Consultant, to provide support throughout the internship placement process and the duration of the summer internship. IDV will organize information sessions

Agencies where students were placed during the last few years include:

University Mayores de San Andres, La Paz, Bolivia
California Dept. of Public Health (CDPH), Richmond
- TB Control Branch
- HIV Prevention Training Center
- Alcohol Research Group: Bar Study

UCSF-GI Division
- SF General Hospital/Division of Internal Medicine
- Grant Laboratory Gladstone Institute of Virology & Immunology
- UCB Global Framework
- Global Health Group-Zanzibar Malaria Control Program
- Parnassus - Pediatric Immunology
- Blood Systems Research Institute

University of Zimbabwe
NIH Malaria Training Program, Mali
ID Branch, Ministry of Health, Nicaragua
UCOP CA Breast Cancer Research Program
SFDPH STD Prevention and Control Services
NIH, Bethesda
California Emerging Infections Program
Les Cantres GHESKIO, Haiti
Thailand Ministry of Public Health
City of Berkeley Bioterrorism Preparedness
Alta Bates Medical Center, Berkeley
Contra Costa County, Alameda County and San Francisco, Dept of Public Health
Ctr for Infectious Disease & Emergency Readiness CDC, Washington D.C.
Emerging Drug Resistance -Malaria, Uganda National Institute of Infectious Diseases-Japan
Meheba Refugee Settlement-Zambia
Providence Cancer Center-Portland, Oregon
WHO-Geneva, Switzerland
Fundacao Oswaldo Cruz- Centro de Pesquisa Gonçalo Moniz – FIOCRUZ
Zambia-Meheba Refugee Settlement-
UN Internship Program (NY)
Pan Am Health Organization, Washington DC Family AIDS care & Education Services, Kenya Prevention International, Kenya
Project AIDS East Bay, Oakland
HEAL Africa, Democratic Republic of Congo & Berkeley

IDV MPH Summer 2019 Field Study Placements

Student Name	Field Study	Location
California		
Hannah Sans	UC Berkeley School of Public Health: Buehring Lab	**Berkeley**
Clarissa Martinez	Grifols Diagnostic Solutions Inc	**Emeryville**
Kelli Hager	Alameda County Mosquito Abatement District	**Hayward**
Jennifer Nguyen	LA County Department of Public Health	**Los Angeles**
Nathaniel Sands	Children's Hospital & Research Center	**Oakland**
Jane Lee	CEPA: Office of Environmental Health Hazard Assessment	
Kerri Ann Chen	Alameda County Health Care Services Agency	
Diana Holden	CDPH: Healthcare-Associated Infections Program	**Richmond**
Kaley Parchinski	CDPH: Tuberculosis Control Branch	
Phoebe Lu	CDPH: Disease Investigations Section	
Benjamin Iwaszewicz	CDPH: STD Control Branch	
Peter White	Centers for Disease Control & Prevention	**San Diego**
Christopher Hernandez	San Francisco Department of Public Health	**San Francisco**
Jan Bing Del Rosario	University of California, San Francisco	
Out of State		
Jessica Le	Ventana Medical Systems, Inc.	**Arizona**
Angela Monahan	Forum for Collaborative Research	**Washington DC**
International		
Rachel Marusinec	Universidad de San Francisco de Quito	**Ecuador**
Kathleen Kurowski		
Gathenji Njoroge	Lucile Salter Packard Children's Hospital	**Kenya**
Robin Hauschner	UC Berkeley School of Public Health: Harris Lab	**Nicaragua**
Junlin Chen	Ministry of Public Health	**Thailand**

IDV MPH Summer 2018 Field Study Placements

Student Name	Field Study	Location
Leah Rosenbaum	ScienceNews	
Laura Deneckere	Professor David Collier, in the UCB Political Science Department to focus in part on the role of the influenza virus in creating pandemics	**Berkeley**
Di Niu	Dr. Stanley Lab	
Carrie Whitaker	National Nurses United	**Oakland**
Melody Yu	CA Emerging Infections Program	
Cory Yun	Alameda County Public Health Dept	
Kirsten Hogstad	CDPH Disease Investigation Section	**Richmond**
Zahra Samiezade-Yazd	CDPH STD Control Branch	
Rocky Kee Li	Kaiser Permanente Napa-Solano Family Medicine Residency Program	**Vallejo**
Chandra Greenberg	PaxVax	**Redwood City**
Alejandro Vega	San Diego State University Dept of Biology/Computer Science	**San Diego**
Raj Topiwala	Anne Arundel Health System Research Institute	**Annapolis, MD**
Zaq Tman	Yap Memorial Hospital	**Yap/Federated State of Micronesia**
John Auld	American University of Science & Technology	**Beirut, Lebanon**
Katherine Chen	UCSF Dept of Pulmonary & Critical Care Medicine	**Uganda**
Alexandra Jones	Federal University of Rio de Janeiro	**Rio de Janeiro, Brazil**
Huong Nguyen	USAID PREDICT Project	**Vietnam**
Aster Workineh	Public Health Research Institute of India	**Mysore, India**

IDV MPH Summer 2017 Field Study Placements

Student Name	Field Study	Location
Gerardo Cruz	CDPH Infectious Diseases Branch (Disease Investigations Section)	**Richmond**
Kan Tong	Dr. Buehring lab	**Berkeley**
Jeremy Roland	CEIP Enteric Pathogen Food Surveillance	**Oakland**
Nadine Peinovich	Children's Hospital Oakland Research Institute (CHORI)	
Emma Gierman	PaxVax	**Redwood City**
Laura Rust	PaxVax	
Jessica Bivian Hernandez	Santa Rosa Memorial Hospital, Infection Control	**Santa Rosa**
Madeleine Smith	Roche Molecular Diagnostics	**Pleasanton**
Sylvia Jebiwott	UCSF Center for AIDS Prevention Studies	**San Francisco**
Michelle Ha	UCSF Infection Control Unit	
Emily Schneider	University of Washington Department of Microbiology and Epidemiology	**Seattle**
Melissa Hermerding	Forum for Collaborative HIV Research	**Washington, D.C.**
Namrata Mohanty	Forum for Collaborative HIV Research	
Royce Tsukayama	CGPH Fellow	**Thailand**
Joanna Vinden	CGPH Fellow, Infectious Disease Research Collaboration	**Uganda**

Comprehensive Examination

Students graduating from the MPH Program in Infectious Diseases are expected to possess both core knowledge and critical thinking skills in the area of infectious diseases and a basic understanding of the scope of public health. Students are evaluated for competency in these areas through a comprehensive examination which consist of two components:

1. Preparation of an analytical, comprehensive paper on a topic involving infectious diseases in the public health context, and;
2. An oral examination (conducted in April of their last semester).

The purpose of the comprehensive/analytical paper is to take the student through the process of writing a professional and academic paper, from formulating a hypothesis, gathering data/information, analyzing the results, coming to conclusion(s) supported by the data, building the structure of the paper, writing, revising and finalizing the paper with proper references.

The preparation of the comprehensive/analytical paper is initiated during the Fall Term of the 2nd year in the course "Current Issues in Infectious Diseases" (PH 264). Students are to identify their paper topic early in the Fall semester. The topic may build upon the student's own experience, e.g., a research project, the field study or a community intervention project. Alternatively, the student may develop a novel topic of his/her own interest, e.g. a policy proposal on a public health issue or a research proposal. Second year IDV MPH students present their Field Study projects in the Annual IDV MPH symposium (this will serve as the final report/assignment of their Field Study and complete the final academic requirement of the Field Study.)

Students should start working on the Comprehensive Paper topics early in Fall

Once the topics are decided and approved in the class of PH 264, a faculty mentor will be assigned to the student, who will help the student with the development of the paper as early as in Oct. Student will need to register in the comprehensive faculty mentor PH 299 in their graduating semester **for 2 units in letter grade only**.

During the Fall semester PH 264 course, students will give presentations reviewing progress on their papers for peer and faculty mentor critique as applicable. The paper is completed in the Spring semester under the mentorship of a faculty member in the program assigned to the student under the PH 299 Independent Research (2 units) course number. Students are welcome to get area expertise advice from other faculty not in the program, but the mentor of the paper must be IDV faculty.

Students should start early to meet with their faculty mentors in late Oct/Nov to discuss their proposed paper topics and set a schedule and adhere to it for the work to be done. Students should update/meet with their mentors **regularly** on their progress and made revisions to the paper per feedbacks given. A **highly** complete draft is due to the faculty mentor in mid-February. The final written paper is due in mid-March to the Division prior to Spring Break and is typically 10-15 pages, single spaced, in length. **Deadlines must be strictly adhered to**. No late submission will be accepted.

Students submitting acceptable comprehensive papers are then qualified to take the oral examination. They will be given the Oral Exam questions to study when they submit the final written paper to the Division in mid-March of their final semester. Students must follow the Comp Paper guidelines and meet the time lines. Detailed information will be given out by the instructor of PH 264.

The oral exams are administered during the 2-3 week period immediately following Spring Break starting in April. Each student will be examined by two members of the faculty; exams are one hour in length. A portion of the exam tests the student's knowledge of infectious diseases in the public health context. The exam may also include questions and discussion concerning the comprehensive/analytical paper and general public health issues.

Financial Aid

There are several sources of financial support available for MPH students in IDV Division:

Graduate Division Fellowships:

Block Grant (BG) for Academic Excellence. For new students BG, usually about 1 to 2 awards for IDV which is processed through SPH fellowship competition process per nominated by the Division during admission process. In addition, about 10 Block Grants awards for continuing students for the entire School is available for second year students to apply. SPH Student Services will administer and call for applications for BG award for continuing students. Please watch out for emails from Student Services.

Graduate Opportunity Fellowships: usually 1 per year for IDV

Community Health Fellowships-Kaiser Community Scholars: 2 to 3 awards per year for IDV

Graduate Student Instructors (GSI): about 6 per year for courses in our Division. GSI appointment is similar to Teaching Assistants in other universities, appointment 25% or more come with partial fee remission in addition to salary income. Current salary rate is $1032.5 for 25% appt (about 10 hrs work) and $2065 for 50% (about 20 hrs wk) for **5** months. First time GSI required to complete the new GSI requirements as a condition for employment.
Many for science courses offered by departments such as Molecular and Cell Biology (MCB) at
http://mcb.berkeley.edu/grad/graduate-support/gsi-appointments
do hire a lot of GSI each semester, and IDV MPH students are highly sought after to teach the big courses like BIO 1A and 1B courses. Integrative Biology also hire some GSI. Please apply for GSI positions seeking by departments in your expertise areas and visit the respective department's website for details. Application for GSI positions usually made at least one semester in advance. Annoucements are made at the department websites, email announcements, job postings in career centre and open areas. Please contact the respective Student Affairs Officers for details and pay attention to email announcements at SPH weekly student digest. Please note last minute GSI job openings may be available prior to semester starts. Students interested to apply for GSI should always highlight your academic qualifications and credentials and your teaching assistant/tutoring experience in your application.

Graduate Student Researchers (GSR): GSRs positions are usually hired by faculty and sometimes by research centers for administrating projects or programs. For appointment 25%-44% GSR appointments, it comes with partial fee remission as benefits. For 45% or above GSR appointments, students will get full fee remission. GSRs are subject to availability of funds and research needs. Please contact individual professors to see if they have any positions available. Moreover, faculty usually will give preference to PhD students for GSR appointments.

Financial Aid

Work Study Job or Other Job Opportunities will be announced in Student Services students weekly digest among other announcements as well as SPH Career Center job site.

Please note that you can convert some of your loan amount to work study (if you do not offer any) this will make you more competitive in the process as under the Workstudy program, the employer only needs to pay half of your salary, the other half will come from the Government. Unlike loans, which is guaranteed funding, Workstudy award is only an amount of how much you can earn within the Workstudy program, you still have to land on the job and earn the income. Please visit workstudy program website at http://financialaid.berkeley.edu/work-study and contact Financial Aid Office for questions.

Useful website for jobs:

Work Study: http://workstudy.berkeley.edu/JobSearch.aspx

Campus Career Center: https://career.berkeley.edu/Callisto/CalJobs.stm

School of Public Health Career Center: https://ucalhealth-csm.symplicity.com/

Association for Schools and Programs for Public Health (ASPPH) link
for students to find outside scholarship and external financial aid
http://www.aspph.org/study/financing-your-degree/

Courses

From the Berkeley General Catalog

PH 162A: Public Health Microbiology (4 units) (Fall)

Course Format: Two 1½-hour lectures per week.
Prerequisites: One year each of college-level biology and chemistry.
Description: Introduction to properties of microorganisms; their relationships with humans in causing infectious diseases and in maintaining health. May be taken without 162L.
(F) Harris, Stanley and Liu; (Su)

PH 162L: Public Health Microbiology Laboratory (2 unit) (Fall)

Course Format: One 2-hour laboratory per week.
Prerequisites: One year each of college-level biology and chemistry.
Description: Laboratory to accompany 162A.
(F) Liu

PH 236: US Food & Drug Admin, Drug Development, and Public Health

Course Format: Two hour lectures per week.
Prerequisites: None
Description: The process and principles of drug development will be discussed in the context of the FDA's mandate and reach (basic science, pre-clinical and clinical research, policy law, and public health), emphasizing the impact of public health emergencies such as HIV on evolution of regulatory policies.
(Sp) Miller

PH 260A-260B: Principles of Infectious Diseases (4;4 units) (260A Fall; 260B Spring)

Course Format: 4 hours of lecture per week.
Prerequisites: Upper division course preparation in biology
Description: This course presents general principles of microbial interactions with humans that result in infection and disease. Common themes are developed using examples of viral, bacterial, and parasitological pathogens that exemplify mechanisms of infectious disease. The epidemiology, pathogenesis, host immune response, diagnosis, treatment, and control will be presented for each infectious disease discussed.
PH 260A: (F) Riley & Swartzberg.; PH 260B: (Sp) Swartzberg

PH 260E: Molecular Epidemiology of Infectious Diseases (2 units) (Fall of even-numbered years)

Course Format: Three hours of lecture and ½ hour of discussion per week.
Prerequisites: PH 250A, PH 260A or equivalent course.
Description: The course will cover general principles and practical approaches in the use of molecular laboratory techniques to address infectious disease epidemiologic problems. It is designed for students with experience in the laboratory or in epidemiology, but not both. The principles to be discussed will include the use of molecular techniques in outbreak investigations, characterizations of dynamics of disease transmission, identifying vehicles, and quantifying attributable risks in sporadic infections, refining data stratification to assist case-control studies, distinguishing pathovars from non-pathogenic variants of organisms, doing surveillance, and identifying genetic determinants of disease transmissions.
(Fall 2020) Riley

PH 260F: Infectious Disease Research in Developing Countries (2 units) (Spring of odd-numbered years)

Course Format: Two hours of lecture per week.
Description: The objective of this course is to provide M.P.H. and Ph.D. students with an appreciation and understanding of the complex issues involved in conducting scientific, laboratory-based investigation in developing countries. We will discuss the many obstacles to establishing and sustaining research projects, such as poor infrastructure, insufficient financial and material resources, and lack of scientific information and interaction. More importantly, we will identify innovative solutions to overcoming these obstacles. The first half of the course will consist of presentations by investigators in the U.S. and developing countries that have long-term research experience in Latin America, Asia, and Africa. We will also discuss related issues such as ethical considerations, equitable collaborations, and research capacity strengthening. During the second half of the course, students will give presentations on topics of their choice.
Offered in odd-numbered year.
(Sp 2021) Harris

PH 262: Molecular and Cellular Basis of Bacterial Pathogenesis (3 units) (Spring)

Course Format: Three hours of lecture and 1 hour of literature review per week.
Prerequisites: PH 260A, PH 260B, or consent of instructor.
Description: This course for graduate students will explore the molecular and cellular basis of bacterial pathogenesis. The emphasis will be on model bacterial pathogens of mammals. The course also will include some aspects of bacterial genetics and physiology, immune response to infection, and the cell biology of host-parasite interactions. Public health courses 102 and 262 are taught concurrently. Students enrolled in PH 262 also will be required to attend a weekly discussion of the primary literature, both current and classic. Each student will be required to present one paper.
(Sp) Portnoy

PH 263: Public Health Immunology (Fall)

Course Format: Three hours of lecture and 1 hour of literature review per week
Description: This course will be the principal immunology course for graduate students in the field of public health. It is designed to teach both the basic biology of the human immune system and its response in health and disease, especially the specific response of the human immune system to major human pathogens. Four areas will be explored: 1) components of the immune system (spectrum of cell types and cell products); 2) different arms of the immune system including humoral, cell-mediated, innate and mucosal immunity; 3) specific immune response to infection caused by viral, bacterial, fungal, and parasitic pathogens; and 4) disorders of the immune system unrelated to infectious disease.
(F) Stanley

PH 264: Current Issues in Infectious Diseases (2 units) (Fall)

Course Format: One 2-hour lecture and presentation per week.
Prerequisites: ***2nd year Infectious Diseases M.P.H. students only.***
Description: Formerly PH 264A-264B. Examination of scientific, social, and policy dimensions of issues involving infectious diseases. Students select one topic for in-depth analysis and present findings in class. Topics vary from year to year.
(F) Liu

PH 265: Molecular Parasitology (3 units) (Fall of odd-numbered years)

Course Format: ***Two 1½-hour lectures and 2 hours of discussion per week for 11 weeks.***
Prerequisites: Upper division courses in molecular biology, parasitology, biochemistry, immunology, microbiology, or consent of instructor. Familiarity with reading primary research is recommended.
Credit Option: Course may be repeated for credit.
Description: This is an advanced course in the molecular aspects of parasite immunology, molecular biology, genetics, biochemistry, and genomics. For each parasite, the following areas will be covered: biology (history, classification/taxonomy, life cycle), disease spectrum/clinical manifestations, epidemiology (distribution, impact), pathogenesis, immunology (host immune response, immunopathology), vaccine development, and genomics. The lectures will focus on "state-of-the-art" research and knowledge in these areas in relation to molecular mechanisms of pathogenesis, parasite adaptions for survival within the host, and strategies for drug and vaccine development. Course content will rely heavily on current literature. Readings are required and consist of one review article about each parasite and several primary research articles on selected topics that will be focused upon in the lectures.
(Fall 2019) Harris

PH 266A: Foodborne Diseases (2 units) (Spring of odd-numbered years)

Course Format: 1½ hours of lecture per week.
Prerequisites: Basic knowledge of microbiology.
Description: This course will cover public health, microbiological, social, and economical issues related to foodborne diseases. Three areas will be explored: 1) categories, clinical manifestations, and disease processes of foodborne illness; 2) etiological agents causing foodborne illness; 3) investigation and prevention of foodborne illness. The course will discuss different types of foodborne diseases, clinical manifestations, and the interactions between etiological agents (pathogens and non-pathogens) and human hosts. We will cover pathogens that are the most frequently associated with foodborne illness, including bacterial and viral pathogens such as Salmonella, E. coli, hepatitis viruses and Norwalk-like gastroenteritis viruses. We will also study non-pathogen agents such as heavy metal, pesticide, and toxic chemicals. Furthermore, the course will discuss how to identify the etiological agents in outbreaks and possible measures that can be taken to minimize the risk to the public, including vaccines and education. Finally, we will explore the social and economic issues involved in the food production, distribution, and consumption that contribute to foodborne diseases.
(Spring 2021) Lu

PH 266B: Zoonotic Diseases (Spring)

Course Format: One 2-hour lecture per week.
Prerequisites: ***Principles of Infectious Disease (PH 260A) or equivalent Infectious Diseases course (may be taken concurrently)***
Description: This is a graduate (Ph.D. and MPH) level course designed to describe the major zoonoses and their life cycle, disease manifestations, epidemiology, and methods for prevention and control. Available treatments, diagnostics, and public health and agriculture surveillance and "forecasting" programs will also be discussed. The most recent research on the molecular and cellular basis of the mechanisms and consequences of the "species" jump from other animals to humans will be reviewed. The global nature of zoonotic diseases and the integration of multiple disciplines (molecular biology, immunology, epidemiology, evolutionary biology, ecology, animal science, veterinary medicine, etc.) will be emphasized.
(Sp) Dailey

PH 266C: Hospital Associated Infections (2 units) (Fall)

Course Format: 1 hour lecture and 1 hour discussion per week.
Description: This course will examine and evaluate the principles underlying the control of infections in healthcare settings, the causes of these infections, current important topics in this field and future trends. Students will gain an appreciation of the national and local programs involved in preventing HAI's, their major causes, antimicrobial control, and specific agents and procedures causing HAI's. The class instructors have spent many decades in infection control in healthcare settings. Additional, there will be an invited guest for each class who has extensive knowledge of the topic to be discussed. (Count to meet IDV Division Seminar requirement)
(F) Swartzberg

PH 291: Public Health Professional Development Series (1 unit) Spring

Course Format: Two hours of workshop every week.
Description: A series of skills-based workshops designed to introduce the student to specialized skills needed in the public health workplace. These workshops are designed to complement the core curriculum of the School of Public Health and are selected based on regular feedback from faculty, public health practitioners, and students. Workshop facilitators include consultants, CPHP field supervisors, and public health practitioners with expertise in the subject. This course or series of workshops is open to all M.P.H. and Dr.PH. students. Students select from a list of 2-hour workshops to total 1 unit equal to 15 hours of class time, plus readings that are assigned for many of the workshops. Workshop topics have included writing for publication, moderating focus groups, human resources management, legislative policy and advocacy, negotiation, evaluation, tools for financial planning, scientific grant writing, leadership, oral presentations, strategic planning, cultural competency, time management, and budgeting.
(Sp) CPHP staff

PH 293: Doctoral Seminar (1-2 units)

Course Format: One to four hours of seminar per week.
IDI Monday Doctoral Seminars PH 293 section 7(1 unit, letter grade) Instructor: (Fall 2019) Stanley
IDI Wednesday Doctoral Seminar PH 293 section 8 (2 units, letter grade) Instructor: (Fall 2019) Stanley
Credit Option: Course may be repeated for credit.
Description: Discussion and analysis of dissertation research projects, as well as of conceptual and methodological problems in planning and conducting health research.
(F, Sp) Faculty

PH 297: Field Study in Public Health (3 units) S/SU grade only

Course Format: Field Study.
Grading Option: Must be taken on a satisfactory/unsatisfactory (S/U) grade..
Description: Supervised experience relevant to specific aspects of public health in off-campus organizations for graduate students. Regular individual meetings with faculty sponsor and written reports required. IDV students should sign up for 3 units.
(Field Study will be completed in the summer after the first year; student should register the class in their second year fall semester) Staff

PH 298: Group Study (1-8 units)

Course Format: Independent study.
Credit Option: Course may be repeated for credit.
(F, Sp, Su) Faculty

PH 299: Independent Research (1-12 units)

Credit Option: Course may be repeated for credit.
Description: Independent study.
(F, Sp, Su) Faculty

Seminar Offerings

Fall 2019 & Spring 2020:

IDI Doctoral Seminar series:

PH 293 Sec. 3 — IDI Monday Doctoral Seminar (1 unit, letter grade) (Fall and Spring)
Class # 16506 — Instructor: Dr. S. Stanley, Fall 2019
Mondays, 10 a.m. to 11 a.m. Berkeley Way West classroom: 1205
All IDI PhD students must register and participate in this class for 1 unit and for letter grade

Dr. Harris is teaching this class Spring 2020.
Note: class # will change from semester to semester

PH 293 Sec. 4 — Wednesdays Doctoral Seminar (2 units, letter grade) (Fall and Spring)
Class # 16511 — Instructor: Dr. S. Stanley, Fall 2019
Wednesdays 10:00 to noon, Berkeley Way West classroom: 1206
Discussion and analysis of dissertation research projects, as well as conceptual and methodological problems in planning and conducting health research. IDI PhD students who have not passed the QE must enroll in this course every semester. Other IDI PhD students are welcome to take the seminar if interested.
IDV Faculty is teaching this class Spring 2020

IDV Division Seminar series:

Fall 2019:

PH 266C — Hospital Associated Infections (2 units)
Class # 29539 — Instructor: Dr. Swartzberg
Wed, 12 p.m. to 4 p.m. Berkeley Way West classroom: 1217

Course Description:
This course will look at and evaluate the principles underlying the control of infections in hospitals, the causes of these infections, current important topics in this field and future trends. Students will gain an appreciation of the national and local programs involved in HAI's, their major causes, antimicrobial control, and specific agents and procedures causing HAI's.

Ph.D. Program Introduction

The study of infectious disease and immunity focuses on those interactions between infectious agents, their human and other hosts, and their relationship to the environment that may lead to disease in humans. Infectious disease agents include primarily pathogenic bacteria, fungi, helminthes, protozoa, and viruses that continue to be leading causes of morbidity and mortality in human populations throughout the world. The treatment, control, and prevention of infectious diseases depend upon an in-depth knowledge of the biology and genetics of the pathogen; the factors that allow pathogens to infect, persist in the host and produce disease; and the host's defense mechanisms that bring about recovery. This requires an integration of the disciplines of molecular and cellular biology, genetics, immunology, microbiology (which include virology, bacteriology, mycology as well as parasitology) and epidemiology.

The Graduate Group in Infectious Diseases and Immunity is an interdepartmental graduate program that provides graduate students an opportunity to obtain a Ph.D. degree that is unique in emphasizing integrated, multidisciplinary training of host-pathogen-environmental interactions. Important areas of inquiry include the molecular biology of host-pathogen interactions where the molecular and cellular biology of pathogenesis will be investigated; the ecology, evolution, and transmission of infectious agents where the mechanisms of infectious disease acquisition through environmental factors, intermediate hosts and vectors are integrated with biology, surveillance and epidemiological analysis; and prevention and control where the relationship between host immunity and preventive public health practices are integrated with molecular approaches for detection and vaccine and drug development.

The objective of this program is to provide students with research-oriented pursuits that will train them to design and implement independent investigations and advance the fundamental knowledge of infectious disease agents and their interactions with the human host and the environment. The goal is to promote health by integration of basic research and applied technologies for the development of new approaches for the diagnosis, treatment, prevention, and control of infectious disease in humans. This program crosses traditional departmental boundaries to combine clinical, epidemiological, and basic laboratory research strategies in modern biology and apply these to specific infectious disease problems affecting human populations. Thus, students that matriculate from this program will acquire expertise in fundamental infectious disease research for which there is demand from academic institutions, local and national government agencies, and biotechnology companies.

Ph.D. Program Admission and Curriculum

I. Undergraduate Preparation for Admission

Applicants with a B.A. or B.S. degree, typically in the biological sciences, from accredited institutions must meet the following minimal qualifications for admission:

a) satisfactory record of scholarship (minimum GPA of 3.0),
b) evidence of significant intellectual potential (GRE scores), and
c) demonstrated competence in English.

Admission Criteria: Final selection for admission follows the ranking of all applicants on the basis of academic record, intellectual potential, preparation, letters of recommendation, research interests, and overall promise, as well as availability of enrollment allocation (determined by the Campus) for the program. Admissions are limited to the top 10% of the applicants depending on available allotment. Because a major part of the program is laboratory research training, each admitted student must be acceptable to at least three faculty members who would commit to providing research training in their laboratory.

The following subjects are normally required as undergraduate preparation for all candidates. Deficiencies must be made up early during the graduate program.

a) Mathematics: calculus; one course in probability or statistics.
b) Physics: general physics.
c) Chemistry and biochemistry: inorganic chemistry; organic chemistry; biochemistry and associated laboratories.
d) Biology: general biology lecture and laboratory; genetics, and a basic course in molecular biology.

Applicants are reviewed by the Group Admissions Committee appointed by the Group Chair and are considered for entry in the fall semester only. Admission recommendations are forwarded to the Dean of the Graduate Division for final approval.

II. Foreign Language

There is no requirement for a foreign language.

III. Program of Study

1. Program

In addition to the minimal core course requirements (listed below – see Section II, Part 3), each student shall take additional courses selected in consultation with the major professor and/or Graduate Advisor and approved by the Group Executive Faculty Committee. The specific courses will not be listed here since this part of the student's curriculum will be tailored to meet identified professional career goals. In addition, laboratory rotations, teaching, Candidacy examination, research resulting in a dissertation and a culminating seminar are required for completion of the Ph.D. degree.

2. Unit Requirements

Doctor of Philosophy:

Students should take a minimum of twelve units each semester to qualify for full time students, and are advised not to take more than 16 to avoid academic overload. Any class load exceeding 20.5 units will need the Head Graduate Advisor's approval. The minimum requirements include a) general training in molecular biology, epidemiology, statistics, and research ethics; and b) specific training in infectious disease related to their major interest to obtain more specialized preparation. It is expected that students will complete a minimum of 30 units of predominantly graduate-level courses, in addition to 4 units of graduate seminar. All IDI PhD students must enroll and participate in PH 293 the IDI Seminar Series: Monday Doctoral Seminar. In addition, IDI PhD students who have not passed their qualifying examinations must enroll and participate in Wednesday Doctoral Seminar PH 293.

During the first three to four semesters of the program, doctoral students complete all or most of the course work required for the degree and rotate through the research laboratories of one to three faculty members, who evaluate the student's ability to conduct laboratory research. This allows the student to determine what research opportunities are available to them, to learn new research methods that will be of value in their subsequent dissertation research, and to decide on a suitable research project for their dissertation.

The Candidacy examination is taken no later than the 4th semester. Within three months of passing the examination, the student is required to apply for Advancement to Candidacy for the Ph.D. degree, and then complete the requirements for the degree under Plan B of the Graduate Division, by submitting an acceptable dissertation on a suitable research question in a timely fashion.

3. Required and Recommended Courses, including teaching requirement

The following minimum core graduate courses, or their equivalent, are required of all students in the Graduate Group. These courses should be taken before the Qualifying Examination Committee is appointed, and the student must receive a "B" or higher grade average in these courses, except seminars that may be taken on a S/U basis.

<u>Group I: Infectious Diseases (2 courses)</u>

PH 260A	Principles of Infectious Disease, Part I (4 units); Riley & Swartzberg
	<u>and</u> one of the following:
PH 260B	Principles of Infectious Disease, Part II (4 units); Swartzberg & Riley
PH 262	Molecular Basis of Bacterial Pathogenesis (3 units); Portnoy
PH 265	Molecular Parasitology (3 units); Harris

<u>Group II: Immunology (1 course)</u>

PH 263	Public Health Immunology (3 units) Stanley
or:	
MCB 250	Advanced Immunology (4 units); Raulet/Robey/Shastri

Group III: Epidemiology and Biostatistics (2 courses)

PH 145	Statistical Analysis of Continuous-Outcome Data (4 units)
or	
PH 245	Introduction to Multivariate Statistics (4 units)
PH 253B*	Epidemiology and Control of Infectious Diseases (3 units); Reingold
or:	
PH 260E	Molecular Epidemiology (3 units); Riley

***Note: IDI PhD students without an epidemiology background are strongly encouraged to read more about Epidemiology and/or take 250A prior to taking PH 253B**

Group IV: Research (2 courses)

PH 293	IDI Monday Doctoral Seminar (1 unit), required every semester & IDI Wed Doctoral Seminar (2 units) for pre-QE students, others IDI PhD are welcome to enroll.

In addition to the required courses listed above per Group I to Group IV, students will **elect at least a few additional course work appropriate to the student's area of research interest with the guidance of the Graduate Advisor and other faculty.**

Examples for electives:

PH 250A	Epidemiologic Methods I (4 units)
MCB 210	Molecular and Cell Biology (4 units) Rio
PH 266A	Foodborne Diseases (2 units); Lu
PH 260F	Infectious Disease Research in Developing countries (3 units); Harris
PH 266B	Zoonotic Diseases (2 units); Dailey
PMB 200B	Genomics and Computational Biology (1.5 units) Brenner
MCB 230	Advanced Cell Biology (4 units); Bilder
MCB 259J	Immune Evasion by Viruses (2 units); Coscoy

4. Lab Rotations

Rotations in lab provide an opportunity for students to experience different research areas and environments. Lab rotation should be arranged by **mutual** agreement with the faculty and the student in consultation with the IDI Head Graduate Advisor. Each lab rotation may last 10 weeks and should begin as early as desired**, but** no later than the mid of the first semester. IDI follows MCB lab rotation schedule. The schedule for 2019-2020 is follows:

1st Rotation: Sept. 9 – Nov. 15, 2019
2nd Rotation: Nov. 18 – Feb. 7, 2020
3rd Rotation: Feb. 10 – April 24, 2020

Students are suggested to do at least one or two lab rotations before deciding on the lab for their research. IDI PhD first year students must decide on their lab by the end of April 2020 or early May 2020, the latest. And inform IDI Head Graduate Advisor Eva Harris and the IDV Division manager as soon as possible of their lab decision based on mutual agreement with the PI and the student. It is important for continuality of student funding support by the PI of the lab they joined.

5. Teaching Requirements

Teaching is an important part of training for a scientist and an educator. Doctoral students are required to work as GSIs for at least two semesters 50% GSI is preferable) to fulfill the teaching requirements for the program.

6. Qualifying Examination

The Qualifying Examination (QE) is usually taken late in the second year of graduate study (in the fourth semester), after all course requirements have been completed with a grade-point average of at least 3.0, excluding lower-division courses, seminars, and research. Each student will choose a four-member faculty committee. The committee membership must be approved by the Program Chair of the IDI Graduate Group and IDV Division before the student can submit the eform officially in calcentral for program and the Grad Division approval. Both the QE Chair and Academic Senate Representative must be members of the Berkeley academic senate. The latter must be non- IDI Graduate Group faculty. The QE Chair **cannot** also serve as the Chair of the student's Dissertation committee. The fourth member can be from the IDI department or other departments with expertise on the subject matter. The Ph.D. Qualifying Examination consists of an oral defense of two written research proposals (10-15 pages each). The application for Qualifying Exam via eform calcentral must be submitted at least three weeks prior to the proposed exam date. No students can take the QE Exam without the Grad Division's approval.

One proposal represents the student's proposed dissertation research, but the other must be on an unrelated topic pertaining to infectious diseases. The Chair of the Ph.D. Qualifying Examination Committee must approve both proposals. During the examination, questions by the committee focus on the background and theory of the proposed research, the rationale for the presented methods of data analysis, the experimental approach, etc., and not on the actual research results. The latter is a function of the dissertation committee. The purpose of the examination is to test your ability to recognize research problems of fundamental importance, to propose experimental approaches to address problems, and to demonstrate comprehensive knowledge of your disciplinary area and related subjects to test the student's mastery of a broad area of knowledge reflecting the interdisciplinary preparation of an approved course of study. **Please visit IDI website for IDI Guidelines for QE at http://microbe.berkeley.edu/idgroup/currents.html**

7. Advancement to Candidacy

Within the same semester, or the latest, by the following semester, of passing the qualifying examination, students must apply for advancement to candidacy for the Ph.D. degree. IDV Division still require student to copy the hard copy of the form with required signatures before student can submit the eform in calcentral.berkeley.edu to the GSAO for review and routing to the Grad Division for approval. Information required on the form is as follows:

1) Their dissertation committee and Dissertation title;

2) Whether human subjects or animal research will be involved in the dissertation research. A human subjects protocol must be procured from the Committee for the Protection of Human Subjects before any dissertation research is conducted. Please visit CPHS Web Page at http://cphs.berkeley.edu for requirements and contact ophs@berkeley.edu for questions.

The dissertation committee chair is the student's research mentor. Both the Dissertation Chair and the Academic Senate Representative of the Dissertation Committee must be members of the Berkeley academic senate. In addition, student must choose another committee member from the Graduate Group in Infectious Disease & Immunity. PhD students with advanced candidacy status are required to meet with their dissertation committee **at least once a year** and complete an academic progress report in the student information portal with input from both the student and the Dissertation Chair.

8. Research and Dissertation

After obtaining research experience through laboratory rotations, the student should be acquainted with the research opportunities available in several laboratories and can evaluate these opportunities in the context of their personal interests. Students with interests that are clearly defined and are not identified among the Graduate Group faculty, but can be identified among faculty at Berkeley or UCSF outside of the Graduate Group, may elect through direct mentorship of a Graduate Group member to conduct their research in a laboratory other than one represented in the Graduate Group.

Ph.D. candidates who are advanced to candidacy must meet with their dissertation committee periodically at least once a year to complete the Annual Report on Candidacy Program in Doctoral Program to the Division for onward submission to the Graduate Division.

The purpose of the committee meeting is to assess student's progress and provide guidance to the student's research. It is expected that the student's research will be of sufficient quality to be accepted for publications in peer-reviewed journals. A goal of three first-author publications is typically considered to write the dissertation. The emphasis on publication of student research, rather than merely completing a dissertation is an intrinsic component of the Program's training experience and one of its unique strengths.

9. Time to Degree

Most Infectious Disease & Immunity Ph.D. students take 5 years to complete the program. By UC Berkeley policy, IDI students must complete the program in 10 semesters following advancement to candidacy (normative time). Graduates from this program have gone on to academic, government, and industry positions.

10. Culminating Seminar

Within three months prior of filing the student's dissertation, the student will give an oral seminar to the members of the Graduate Group describing the dissertation research conducted at the IDI Monday Doctoral Seminar.

Ph.D. Program
Sample Curriculum (Minimum Course load)

COURSE #		UNITS
Year 1 – Fall Semester		
Lab rotation		
PH 260A	Principles of Infectious Disease, Part 1	4
PH 263	Public Health Immunology	3
PH 265	Molecular Parasitology	3
PH 293	IDI Monday and Wed Doctoral Seminar	1; 2 units respectively
Year 1 – Spring Semester		
PH 260B	Principles of Infectious Disease, Part II	4
Electives MCB 210	Molecular and Cell Biology	4
PH 145	Statistical Analysis of Continuous Outcome Data	4
PH 293	IDI Monday and Wednesday Doctoral Seminar	1; 2
PH 253B	Epidemiology and Control of Infectious Diseases	3
Year 2 – Summer		
Year 2 – Fall Semester		
PH 299	Research or Teaching	3
PH 293	IDI Monday and Wednesday Doctoral Seminar	1;2
PMB 200B	Genomics and Computational Biology	1.5
PH 260E	Molecular Epidemiology of Infectious Diseases	2
Electives PH 2XX	Advanced courses as Electives	6
Year 2 – Spring Semester		
PH 266B	Zoonotic Diseases	2
	Qualifying Examination (If passed, submit the Advancement to Candidacy application in the same semester when passed	
PH 299	Research	12
PH 293	IDI Monday and Wednesday Doctoral Seminar	1; 2
Year 3+ until Graduation		
PH 299	Research	12
PH 293	IDI Monday Doctoral Seminar	1

Note: IDI PhD students <u>without</u> an epidemiology background are strongly encouraged to read more about Epidemiology and/or take 250A prior to taking PH 253B. In addition to the required coursework (Group I to IV), students should take <u>a few</u> advanced courses as electives to strengthen the knowledge in the areas of their interest. Please consult the IDI Head Graduate Advisor or faculty advisor for academic advising and/or IDV Division manager for questions.

Ph.D. Program Financial Support

Financial Aid and Fellowships

The Division offers full funding to doctoral students for the first year of study from a combination of state and Division funds. Funding support will include fees and tuition as well as a monthly stipend. Graduate Student Instructorship (GSIship) can also be used to supplement funding support, independent of the required two semesters of GSIship. Effective Fall 2018, the current minimum annual stipend for IDI students are $34,000.

After the students have decided on the laboratory for research after a series of lab rotations, usually before the fall semester of their second year, the faculty as their mentor and PI, will be responsible for continuing funding the students as Graduate Student Researcher (GSR) until graduation.

United States citizens and permanent residents who are not California residents must establish residency after one year and will no longer be subject to non-resident tuition.

Extramural sources of pre-doctoral fellowships are available to apply from the National Institute of Allergy and Infectious Diseases, National Science Foundation, and some private sources such as Founder Region Fellowship for women in doctoral program.

Graduate students are strongly encouraged to apply for these and other extramural fellowships

Intramural sources include Graduate Fellowships are awarded and administered through the Graduate Division. All prospective applicants who wish to be considered for graduate fellowships beginning in the fall semester must apply by December 1st of the preceding year. The number of Graduate Fellowships awarded each year is limited, and the competition for them is highly competitive. Teaching and research assistantships are awarded and administered by the IDV Division of the School of Public Health or the PI's and the PI's home department respectively.

Graduate Division Conference Travel Grant for PhD and Master Student in Academic Degrees

PhD and Master's students in academic degree programs can apply for the Conference Travel Grant If you're going to present a research paper or poster at a professional conference. Please see the link for details: http://grad.berkeley.edu/news/announcements/travel-grant/

PHAA Alumni Fellowship

Infectious Diseases & Immunity Ph.D. Program Graduate Group Faculty

IDI Graduate Group Faculty and IDV SPH Faculty 2019

Buerhing, Gertrude, Professor Emertius
Harris, Eva, IDI PhD Program Head
Liu, Fenyong
Lu, Sangwei, Adjunct Professor
Veronica Miller, Adjunct Professor
Riley, Lee, IDV Division Chair
Sensabaugh, George, Professor Emertius
Stanley, Sarah
Stephens, Richard, Professor Emertius

IDI Graduate Group Faculty from Other Units

Barton, Gregory	MCB
Brenner, Steven	PMB/BIOE
Coscoy, Laurent	MCB
Cox, Jeffery	MCB
Fleiszig, Suzanne M.J.	OPT
Getz, Wayne	ESPM
Glaunsinger, Britt A.	PMB
Gronert, Karsten	OPT
Herr, Amy	BIOE
Lee, Luke	BIOE
Machen, Terry	MCB
Nelson, Kara	CEE
Portnoy, Daniel	MCB/PMB
Reingold, Arthur	SPH
Resh, Vincent	ESPM
Robey, Ellen A.	MCB
Seed, Kimberley	PMB
Shastri, Nilabh	MCB
Sjolander, Kimmen	PMB/BIOE
Taylor, John W.	PMB
Vance, Rusell E.	MCB
Welch, Matthew D.	MCB
Zhou, Qiang	MCB

Fall 2019 - Course Weekly Grid

Division of Infectious Diseases & Vaccinology (IDV and MPH Breadth Courses)

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8 A.M.				
8 to 9 A.M. *PH 142: Intro to Probability and Stats in Bio and PH **INSTRUCTOR:** Riddell **LOCATION:** LKS 245	**8 to 9:30 A.M.** PH 162A: Public Health Microbiology **INSTRUCTOR:** Harris, Liu, Stanley **LOCATION:** GPB 100	**8 to 9 A.M.** *PH 142: Intro to Probability and Stats in Bio and PH **INSTRUCTOR:** Riddell **LOCATION:** LKS 245	**8 to 9:30 A.M.** PH 162A: Public Health Microbiology **INSTRUCTOR:** Harris, Liu, Stanley **LOCATION:** GPB 100	**8 to 9 A.M.** *PH 142: Intro to Probability and Stats in Bio and PH **INSTRUCTOR:** Riddell **LOCATION:** LKS 245
9 A.M.				
9 to 10 A.M. *PH 250A: Epidemiologic Methods I **INSTRUCTOR:** McCoy **LOCATION:** GPB 100	**9:30 to 11 A.M.** PH 263: Public Health Immunology **INSTRUCTOR:** Stanley **LOCATION:** BWW 1104 **9:30 to noon** PH 162L **INSTRUCTOR:** Liu **LOCATION:** GPB 201	**9 to 10 A.M.** *PH 250A: Epidemiologic Methods I **INSTRUCTOR:** McCoy **LOCATION:** GPB 100	**9:30 to 11 A.M.** PH 263: Public Health Immunology **INSTRUCTOR:** Stanley **LOCATION:** BWW 1104 **9:30 to noon** PH 162L **INSTRUCTOR:** Liu **LOCATION:** GPB 201	**9 to 10 A.M.** *PH 250A: Epidemiologic Methods I **INSTRUCTOR:** Sandra McCoy **LOCATION:** GPB 100
10 A.M.				
10 to 11 A.M. PH 293: IDI Mon. Doctoral Seminar **INSTRUCTOR:** Stanley **LOCATION:** BWW 1205 **10:00 to 12 PM** PH 200J Health Policy and Management Breadth Course **INSTRUCTOR:** Robinson **LOCATION:** HFA A1		**10 to noon** PH 293: IDI Wed. Doctoral seminar **INSTRUCTOR:** Stanley **LOCATION:** BWW 1206 **10:00 to 12PM** **PH 200L** Health Social Behavior Breadth Course **INSTRUCTOR:** Emily Ozer **LOCATION:** HFA A1		
11 A. M				
	11 to 12:30 PM PH 265: Molecular Parasitology **INSTRUCTOR:** Harris **LOCATION:** BWW 1217		**11 to 12:30 PM** PH 265: Molecular Parasitology **INSTRUCTOR:** Harris **LOCATION:** BWW 1217	
12 P.M.				
	12:30 PM – 3 PM PH 162L **INSTRUCTOR:** Liu **LOCATION:** GPB 201	**Noon to 2 P.M.** PH 266C: Hospital Associated Infections **INSTRUCTOR:** Swartzberg **LOCATION:** BWW 1217	**12:30 PM – 3 PM** PH 162L **INSTRUCTOR:** Liu **LOCATION:** GPB 201	
2 P.M.				
2 to 4 P.M. PH 260A: Princ. of Infectious Diseases **INSTRUCTOR:** Riley **LOCATION:** LKS 125		**2 to 4 P.M.** PH 260A: Princ. of Infectious Diseases **INSTRUCTOR:** Riley **LOCATION:** LKS 125		
5 P.M				
	5to 7 P.M PH 264: Current Issues in Infectious Diseases (**2nd** yr IDV/MPH students only) **INSTRUCTOR:** Liu **LOCATION:** BWW 1217			

Green –MPH Breadth Course Yellow –IDV Course Blue–PhD Seminar Purple – Undergraduate Course

Tips for Newcomers

Library Resources

The School of Public Health Library is located on the ground floor of University Hall in Room 1. Your registration card entitles you to borrow books from the main University library and any of its branches. For more information, call the Doe Library Privileges Desk at (510) 642-3403 or visit the UC Berkeley Library homepage at http://www.lib.berkeley.edu.

Computing Resources

A shared computer lab for School of Public Health students is located in 340A Haviland Hall. Students may use the lab when classes are not scheduled. The drop-in facility for School of Public Health students is at 340B Haviland. Doctoral students will find computers for drop-in use in 585 University Hall; a pass code is needed. For more information about Instructional Computing resources in the School of Public Health, go to http://microbe.berkeley.edu. Students can also contact David Lein, Coordinator of Academic Computing, for assistance: dlein@berkeley.edu; (510) 642-6011.

Email Accounts:

UCB Campus email account should be set up once your student identification number (SID) is available at CalMail Website at https://calmail.berkeley.edu. Your Berkeley email account is the official email we will use to communicate with students. Students are responsible for the contents of the emails sent to them regarding policies and deadlines.

Useful Websites:

Please refer to IDV website at http://microbe. berkeley.edu on useful links. To name a few:
UC Berkeley homepage*:* http://www.berkeley.edu,
(Students can use the search engine in the Berkeley home page to look for Online General Catalog, current Schedule of Classes and links to all campus departments and resources.)
Graduate Division homepage: http://www.grad.berkeley.edu
(Important information on the Guide to Graduate Studies, Information for holding GSI/GSR appointments, various academic forms, and fellowship information can be found in this site)
School of Public Health homepage: http://sph.berkeley.edu
SPH Career Center: http://sph.berkeley.edu/cphp/career_services/index.php

The Role of a Faculty Advisor

It is the responsibility of the academic faculty advisor to assist the student in developing an optimal academic plan that meets the basic curriculum requirements for the degree being pursued and insures sufficient flexibility to meet individual goals. The academic faculty advisor is prepared to discuss the requirements of the specific degree program and the individual area of concentration in which the student is enrolled. **It is the student's responsibility to keep his/her faculty advisor of apprised of their academic progress and seek academic advice as needed**. IDV MPH students are required to meet with their faculty advisor at least once a year, preferably every semester. General program information can be addressed to IDV Division Manager.

All faculty advisors will make available a sufficient number of office hours to advise students during Orientation Week, the first week of the semester, and throughout the semester. Advisors are encouraged to post a sign-up sheet outside their door indicating office hours available for advising purposes. Students can then sign-up for the amount of time they believe they need to have all their questions answered.

A list of some possible questions students might want to ask their faculty advisor during an initial meeting is listed below. The purpose of a meeting with a faculty advisor early in a student's first semester is to give the student a chance to get to know their advisor and vice versa, give the faculty advisor a chance to learn about the student's academic and career goals and provide the student with specific information about what he/she can expect from the relationship with a faculty advisor. During the first meeting, students need to be prepared to ask the questions for which they want answers and to talk about themselves and their academic goals.

Suggested questions for the initial meeting with your faculty advisor include:

1. Let your advisor know whether you have a specific career goal in mind or if you are uncertain and are "exploring different possibilities".
2. Tell him/her what you would like to focus on while a student here; ask "What courses do you suggest I take?"
3. "Here are the courses I am thinking about taking; what do you think of this plan?"
4. "How often should I plan to meet with you?"
5. "What is the best way to communicate with you if I have questions, a problem, or need to make an appointment?

Steps for resolving an unsatisfactory advising situation

The faculty advisor's responsibilities are limited to advising the student about coursework and other aspects of the curriculum. He/she is not necessarily the same person who will be the student's mentor for the MPH Comp paper. Summer Field Study placement should be arranged early through the Center for Public Health Practice; students should start the process early by working with the Field Study Placement supervisor and participating in the IDV Field Study Placement information session and speaking with peer students of their experience. IDV faculty advisor can give general research advice to students but are not expected to be involved in the actual placement process.

1. If a student feels that their faculty advisor is not fulfilling their responsibilities, the student should talk first with the advisor regarding that perception, and they should try to work together to take steps toward improving the situation. 2. If the situation is not resolved after talking about it with the faculty advisor, the student is encouraged to talk with the Division Head, Dr. Lee Riley and/or the Associate Dean of Services. It is the responsibility of the Division Head or the Associate Dean to discuss the situation with the faculty advisor to insure resolution of any advising difficulties.

Student Groups

Infectious Disease and Immunity PhD Student Group

2019-2020 Co-Presidents: Perri Callaway, Nicholas Lo

Association of Public Health Infectious Diseases Students (APHIDS)

2019-2020 Coordinators: Diana Holden, Kathleen Kurowski, Phoebe Lu, Rachel Marusinec

2019 -2020 Academic Calendar

Fall Semester 2019

Event	Date
Fall Semester Begins	Wednesday, August 21, 2019
Instruction Begins	Wednesday, August 28, 2019
Academic & Administrative Holiday (Labor Day)	Monday, September 2, 2019
Academic & Administrative Holiday (Veterans Day)	Monday, November 11, 2019
Non-Instructional Day	Wednesday, November 27, 2019
Academic & Administrative Holiday (Thanksgiving)	Thursday, November 28 & Friday, November 29, 2019
Formal Classes End	Friday, December 6, 2019
Reading/Review/Recitation Week	Monday, December 9 – Friday, December 13, 2019
Last Day of Instruction	Friday, December 13, 2019
Final Examinations	Monday, December 16 – Friday, December 20, 2019
Fall Semester Ends	Friday, December 20, 2019
Academic & Administrative Holidays (Winter Holidays)	Tuesday, December 24 & Wednesday, December 25, 2019
Academic & Administrative Holiday (New Year's)	Tuesday, December 31 & Wednesday, January 1, 2020

2019 -2020 Academic Calendar

Spring Semester 2020

Event	Date
Spring Semester Begins	Tuesday, January 14, 2020
Academic & Administrative Holiday (Martin Luther King, Jr. Day)	Monday, January 20, 2020
Instruction Begins	Tuesday, January 21, 2020
Academic & Administrative Holiday (Presidents' Day)	Monday, February 17, 2020
Spring Recess	Monday, March 23 – Friday, March 27, 2020
Academic & Administrative Holiday (Cesar Chavez Day)	Friday, March 27, 2020
Classes End	Friday, May 1, 2020
Reading/Review/Recitation Week	Monday, May 4 – Friday, May 8, 2020
Last Day of Instruction	Friday, May 8, 2020
Final Examinations	Monday, May 11 – Friday, May 15, 2020
Spring Semester Ends	Friday, May 15, 2020
Academic & Administrative Holiday (Memorial Day)	Monday, May 25, 2020

General Information

California Residency

Every entering student is classified as a Resident or Non-resident of California for tuition purposes. Fees and tuition will vary depending upon the student's residency status. To establish California residence for tuition purpose, it is important for non-California residents to begin collecting documentation. For more information, please visit the Registrar's website at **http://registrar.berkeley.edu/Residency/legalinfo.html** and California residency information for non-citizens is at **http://registrar.berkeley.edu/?PageID=non-citizen.html**. For inquiries regarding residence requirements, determination, and exemptions, please contact the Residence Affairs Unit of the Registrar's Office, email: orres@berkeley.edu, phone: (510) 642-5990, office located at 120 Sproul Hall.

Registration and Enrollment

Incoming IDV MPH and IDI PhD graduate students are asked to register for classes they must take by reviewing the program curriculum requirement in **Calcentral** student portal and confirming their class schedule after meeting with their faculty advisors during Orientation. Make any changes if necessary during the Adjustment Period.

To be officially registered at Berkeley, you must enrolled in at least 12 units; your registration fees must have been paid, either in full or by payment plan, by the published deadlines and you must have no registration/financial blocks. After adjustment period ended by the end of the 3rd week of instruction, students must fill out the Petition to Change Class Schedule for Graduate Students (forms available online) to make course schedule change. The form should be submitted to the Student Services at 417 U Hall and a small fee charged for adding/dropping classes. No change of class schedule will be entertained by Student Services after the SPH internal add/drop deadline for graduate students, it is usually earlier a week prior to the published deadline. Please always check your enrollment status in Calcentral on a regular basis to make sure your enrollment information is correct.

Note: Please check financial aid website for satisfactory academic progress requirement for student receiving federal loans and work study. http://financialaid.berkeley.edu/satisfactory-academic-progress

Online MPH courses

UC Berkeley's online learning is a rewarding experience that provides students with relevant, unique skills in a way that integrates with your busy schedule. While an online degree is flexible, it requires a good deal of time management. Online courses, like any academic endeavor, require significant effort and a commitment to keeping up with weekly assignments and engaging with course materials in a timely manner. With this in mind, we offer some advice for how to get the most out of your online education.

Campus students must complete the free OOMPH 101 tutorial one-time only prior to requesting a permission code for an online course from your program manager. You may enroll at any time at this link: https://berkeleyphw.catalog.instructure.com/courses/oomph-101 and selecting "enroll."

Campus Resources for students with disabilities

The campus offers many different resources for graduate students with disabilities. The purpose of an academic accommodation is to offer the graduate student an equal opportunity to meet with the department's academic standards and requirements. The Disabled Students Program http://dsp.berkeley.edu at (510) 642- 0518 serves graduate students with disabilities (who complete the process of establishing eligibility) by authorizing academic accommodations. To get more information on the Disabled Access Services, please visit http://access.berkeley.edu or contact (510) 643-6473 or (510) 643-6456. It can usually assist with accommodations to extra-curricular events. Most physical access issues are addressed in the Campus Access Guide http://acads.chance.berkeley.edu/GAG/. Finally, problems with accommodations may be reported to the campus Disability Resolution Officer Derek Coates http://acads.chance.berkeley.edu/ada.shtml at (510) 642- 2795

University Health Services (UHS)

University Health Services (UHS) provides comprehensive medical, mental health and health promotion services to all Cal students and a variety of occupational health services to faculty and staff. http://www.uhs.berkeley.edu/

GSI/GSR Position

If you are interested in finding GSI (Graduate Student Instructor) and/or GSR (Graduate Student Researcher). The best way is to contact the Student Affairs Officers and the faculty concerned of individual hiring departments and the faculty concerned, check the department's website and pay attention to email announcements. Most departments hire their GSI at least a semester or even an academic year ahead of time (such as MCB), please apply early. The SPH GSI job openings are also posted in the SPH Career Center at https://ucalhealth-csm.symplicity.com/students/

Complete academic departments and programs list (search by alphabet) can be found at www.berkeley.edu/academics/dept/a.shtml

Useful Resources

Useful SPH resources for students:

- http://sph.berkeley.edu/current-students/student-resources

Useful campus resources:

- CalCentral is UC Berkeley's **online** one-stop service center that allows students to manage class enrollment, billing, financial aid, and student records.. This website combines multiple campus systems into one easy-to-use mobile friendly place. Check campus email, calendar, academic progress, financial aid, enrollment information, and more.
  https://calcentral.berkeley.edu
- **Cal Student Central** is the physical one-stop student services center located in 120 Sproul Hall where students can find answers to questions regarding financial aid, fees and billing, payments, disbursements, registration and enrollment in one convenient location. Visit studentcentral.berkeley.edu for quick answers to top questions. If you need further assistance, stop by 120 Sproul Hall, Monday - Friday, 9 a.m. - 4 p.m.http://studentcentral.berkeley.edu/
- www.berkeley.edu/visitors/contacts.html

Center for Public Health Practice & Leadership:

- http://sph.berkeley.edu/careers/center-public-health-practice-leadership
- http://sph.berkeley.edu/careers/internships

Registrar's Office (Academic & student calendars, fees, establishing legal residency):
http://registrar.berkeley.edu/

Graduate Division: www.grad.berkeley.edu

- Guide to Graduate Policy: www.grad.berkeley.edu/policies/guide.shtml
- What do you Need to know about being a GSI, GSR, Reader or Tutor http://www.grad.berkeley.edu/policies/pdf/apptknow.pdf
- Degrees FAQ: www.grad.berkeley.edu/policies/faq.shtml
- Fees: www.grad.berkeley.edu/admissions/cost_fees.shtml
- Fellowship Office: www.grad.berkeley.edu/financial/fellowships_office.shtml
- Information on GSI/GSR/Reader/Tutor appointments:
  www.grad.berkeley.edu/policies/pdf/apptknow.pdf
- Graduate Diversity Program: http://www.grad.berkeley.edu/diversity/diversity.shtml
- Financial Aid Office: http://students.berkeley.edu/finaid/
- Disabilities Service: http://dsp.berkeley.edu
- University Health Services at UCTang Center: http://uhs.berkeley.edu/
- GSI Teaching and Resource Center: http://gsi.berkeley.edu/
- Housing: www.housing.berkeley.edu/livingatcal/graduatestudents.html

Faculty Advisor List
2019 – 2020 IDI PhD Program

Student Name	Email	Faculty Advisor, Lab
IDI 1st Year Students		
Eric Jedel	ericjedel@berkeley.edu	Dr. Harris
Kishen Patel	kishen.patel@berkeley.edu	Dr. Harris
Reinaldo Mercado-Hernandez	reinaldo@berkeley.edu	Dr. Harris
IDI 2nd Year Students		
Cuong Tran	cuongt3@berkeley.edu	Dr. Welch, Welch Lab
Joanna Vinden	joanna_vinden@berkeley.edu	Dr. Greenhouse Lab, UCSF
Marcus Wong	mpwong@berkeley.edu	Dr. Harris, Harris Lab
IDI 3rd Year Students		
Nicholas Lo	nicholas.lo@berkeley.edu	Dr. Harris, Harris Lab
IDI 4th Year Students		
Perri Callaway	perricallaway@berkeley.edu	Dr. Harris at UCB, Feeney Lab UCSF
IDI 5th Year Students		
Derek Bangs	djbangs@berkeley.edu	Dr. Robey, Robey Lab
Gina Borgo	gborgo@berkeley.edu	Dr. Welch, Welch Lab
Kristina Geiger	kgeiger@berkeley.edu	Dr. Coscoy, Coscoy Lab
IDI 6th Year Students		
Paulina Andrade	paulinaandradeproano@berkeley.edu	Dr. Harris, Harris Lab
Eric Lee	eric.lee.822@berkeley.edu	Dr. Portnoy, Portnoy Lab
Alexandra Tsitsiklis	alexandra.tsitsiklis@berkeley.edu	Dr. Robey, Robey Lab

Faculty Advisor List
2019 – 2020 IDV MPH Program

1st Year IDV MPH Students

Student Name	Email	Faculty Advisor	Office
Tolulope Ayoade	tolulope_ayoade@berkeley.edu	Dr. Stanley	500C Li Ka Shing
Tyler Chervo	tchervo@berkeley.edu	Dr. Dailey	5321-13 BWW By appointment
Jennifer DeGuzman	jldeguzman@berkeley.edu	Dr. Dailey	5321-13 By appointment
Sarah Gomez	sarah_gomez@berkeley.edu	Dr. Harris	500B Li Ka Shing
Joseph Lau	jolau12@berkeley.edu	Dr. Miller	5321 BWW, By appointment
Michelle-Ann Meas	meas@berkeley.edu	Dr. Swartzberg	570 U Hall
Daniel Mota	daniel_mota@berkeley.edu	Dr. Stanley	500C Li Ka Shing
Ariel Munoz	adhmunoz@berkeley.edu	Dr. Harris	500B Li Ka Shing
Emily Parker	emily_parker@berkeley.edu	Dr. Lu	57B Koshland Hall
Ruben Prado	rmprado@berkeley.edu	Dr. Swartzberg	570 U Hall
Frederique Sauve	frederique_sauve@berkeley.edu	Dr. Riley	500D Li Ka Shing
Elise Symer	elsymer@berkeley.edu	Dr. Liu	326 Barker Hall
Matthew White	mwhite732@berkeley.edu	Dr. Riley	500D Li Ka Shing
Bonnie Xu	bonnie.xu@berkeley.edu	Dr. Swartzberg	570 U Hall

IDV 4+1 Students

Helen Guo	h.guo12@berkeley.edu	Dr. Lu	57B Koshland Hall
Alyssa Ochoa-Mena	alyssa.ochoa.mena@berkeley.edu	Dr. Lu	57B Koshland Hall

Gilead Fellows - OOMPH Students in IDV

Bryan Fulbert Tegomoh	bryan.tegomoh@berkeley.edu	Dr. Reingold	5419 BWW
Daphine Narmara	daphine.namara@berkeley.edu	Dr. Riley	500D Li Ka Shing
Leandro Mendes	kcmendes@berkeley.edu	Dr. Harris	500B Li Ka Shing

Faculty Advisor List
2019 – 2020 IDV MPH Program

2nd Year IDV MPH Students

Student Name	Email	Faculty Advisor	Office
Junlin Chen	junlinc12@berkeley.edu	Dr. Sensabaugh	319 Mulford Hall
Jan Bing Del Rosario	jbadelro@berkeley.edu	Dr. Liu	326 Barker Hall
Kelli Hager	kelli_hager@berkeley.edu	Dr. Dailey	By appointment
Robin Hauschner	robin_hauschner@berkeley.edu	Dr. Harris	500B Li Ka Shing
Christopher Hernandez	chrishernandezb@berkeley.edu	Dr. Dailey	By appointment
Diana Holden	dianazyh@berkeley.edu	Dr. Swartzberg	570 U Hall
Benjamin Iwaszewicz	beniwasz@berkeley.edu	Dr. Sensabaugh	319 Mulford Hall
Kathleen Kurowski	kathleen_kurowski@berkeley.edu	Dr. Stanley	500C Li Ka Shing
Phoebe Lu	phoebelu@berkeley.edu	Dr. Dailey	By appointment
Clarissa Martinez	cimartinez@berkeley.edu	Dr. Harris	500B Li Ka Shing
Rachel Marusinec	rachel_marusinec@berkeley.edu	Dr. Liu	326 Barker Hall
Angela Monahan	angela_monahan@berkeley.edu	Dr. Stanley	500C Li Ka Shing
Jennifer Nguyen	jennifer_nguyen@berkeley.edu	Dr. Stanley	500C Li Ka Shing
Gathenji Njoroge	gathenji_njoroge@berkeley.edu	Dr. Swartzberg	570 U Hall
Kaley Parchinski	kaley_parchinski@berkeley.edu	Dr. Lu	57B Koshland Hall
Nathaniel Sands	nathaniel_sands@berkeley.edu	Dr. Swartzberg	570 U Hall
Peter White	pfwhitemd@berkeley.edu	Dr. Riley	500D Li Ka Shing

Infectious Diseases and Immunity (IDI) PhD Students 2019 – 2020

1st Year

Kishen Patel

Eric Jedel

Reinaldo Mercado-Hernandez

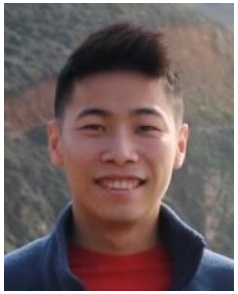
2nd Year

Joanna Vinden

Cuong Tran

Marcus Wong

3rd Year



Nicholas Lo

4th Year

Perri Callaway

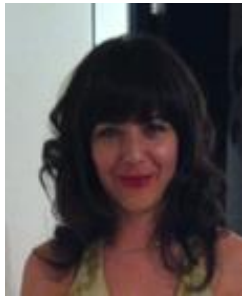
5th Year

Derek Bangs

Gina Borgo

Kristina Geiger

6th Year



Paulina Andrade

Eric Lee

Alexandra Tsitsiklis

Division of Infectious Diseases and Vaccinology; School of Public Health

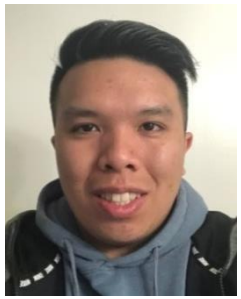
1st Year Infectious Disease and Vaccinology (IDV) MPH Students 2019-2020

Tolulope Ayoade

Tyler Chervo

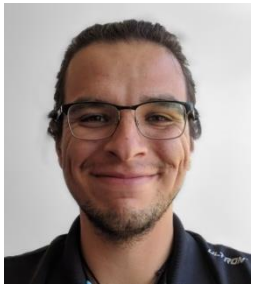
Jennifer DeGuzman

Sarah Gomez



Joseph Lau

Michelle Meas



Daniel Mota

Ariel Munoz

Emily Parker

Ruben Prado

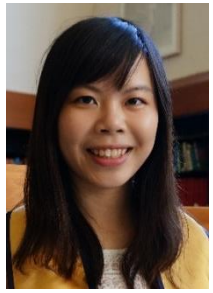
Frederique Sauve

Elise Symer

Matthew White

Bonnie Xu

2nd Year Infectious Disease and Vaccinology (IDV) MPH Students 2019-2020

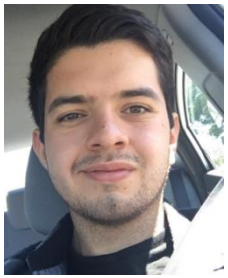


Junlin Chen

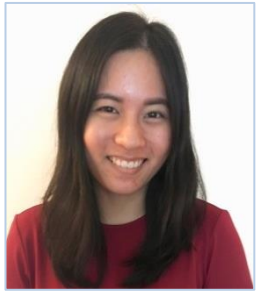
Jan Bing Del Rosario

Kelli Hager

Robin Hauschner



Chris Hernandez

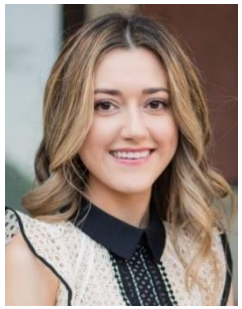


Diana Holden

Benjamin Iwaszewicz

Kathleen Kurowski

Phoebe Lu



Clarissa Martinez

Rachel Marusinec

Angela Monahan

Jennifer Nguyen

Gathenji Njoroge

Kaley Parchinski

Nathaniel Sands

Peter White

1st Year Infectious Disease and Vaccinology (IDV) 4+1 Students 2019-2020

Helen Guo

Alyssa Ochoa-Mena

Gilead Fellows (OOMPH Students) 2019-2020

Bryan Fulbert Tegomoh

Daphine Narmara

Leandro Mendes