What is Epidemiology?

Epidemiology is the study of the distribution and determinants of disease. The field aims to identify factors that promote health and reduce the burden of disease in human populations. The Department of Epidemiology at the University of Michigan was founded in 1942 and is one of five departments in the School of Public Health. It offers programs of study in General Epidemiology, Hospital and Molecular Epidemiology, Dental Public Health, and International Health. The department continues its more-than-50-year tradition of an exciting integration of biological, social, and analytic approaches to understanding the determinants of human health. In addition to didactic teaching, faculty and students pursue the department’s mission through both individual and multidisciplinary team research projects. Faculty and students also aim to improve the public’s health through service as advisors to health professionals at the state, national, and international levels.
Mission of the Department of Epidemiology

The mission of the Department of Epidemiology at the University of Michigan is to contribute to the reduction of the disease burden in human populations through research, education, and service. The research mission is met by study into the risk of disease associated with inherent, acquired, social, or environmental factors, and the development and application of methods to alleviate that risk. These methods range from primary prevention through service provision to modification of social systems. Faculty and students pursue this research mission through research projects conducted both by individuals and by multidisciplinary teams.

The educational mission includes the training of students to generate and interpret epidemiologic information, to synthesize it with other information, and to apply it to reduction of the disease burden. Graduates from the department’s research training programs are prepared to develop their careers as independent researchers, and all departmental graduates are prepared to take up leadership positions in academia and in public and private agencies involved with health care.

The major components of research training in the Department of Epidemiology include:

a) the design of studies
b) the collection and analysis of data
c) the interpretation of empirical findings, and
d) the development and maintenance of surveillance systems

This training emphasis holds, whether the research is conducted in the laboratory, the field, or with archival records.

The department’s service mission requires that faculty and students provide service as advisors and consultants to health professionals and agencies at the state, national, and international levels.

The department seeks to maintain an intellectual environment which facilitates the integration of biological, social, and analytic approaches to understanding the determinants of human health. Within such an environment, faculty and students will be able to develop the breadth of knowledge necessary to appreciate fully the complexities of the biosocial systems that we seek to understand and modify.

Degrees Offered

The Department of Epidemiology offers three different degrees in four programs of study. The degrees available include the following: Master of Public Health (MPH); Doctor of Public Health (DrPH), and Doctor of Philosophy (PhD). The four programs are General Epidemiology, Hospital and Molecular Epidemiology, International Health, and Dental Public Health. The MPH and DrPH are administered by the School of Public Health, while the PhD is administered by the Horace H. Rackham School of Graduate Studies.

An MPH qualifies the graduate for work in research, teaching, government, and industry, whereas students who are interested in academic and research careers are encouraged to pursue a doctoral degree. The DrPH, a professional degree, is recommended for students who already have another professional degree and who plan careers in government or industry. The PhD in epidemiologic science is a research degree, and is appropriate for research careers in academia, government, and industry.

The MPH degree requires 60 credit hours of course work and normally takes four terms to complete. A 42-credit-hour program is available for students already possessing a doctoral degree such as a PhD in a relevant field, an MD, DDS or DVM. The Dental Public Health Program also has a 48-credit-hour program specifically designed for students with dental hygienist training.
Master of Public Health Programs

General Epidemiology
The major components of the MPH Program in General Epidemiology include the design of studies, the collection and analysis of data, the interpretation of empirical findings, and the development and maintenance of surveillance systems. The program emphasizes training in basic principles and methods of epidemiology and biostatistics and their application to the study of health and disease in human populations.

The general epidemiology program is intended to prepare students for a diverse set of skills in the practice of epidemiology. Applicants to this program should hold a bachelor’s degree with a major in biology or a related area such as premedical or predental studies, nursing, zoology, or microbiology. Those with a major in social sciences such as psychology, sociology, or anthropology will also be considered.

Course Requirements
There are four major areas in the general epidemiology MPH curriculum:

- Schoolwide requirements, including basic epidemiology and an introductory biostatistics course
- “Breadth requirements,” which are fulfilled by taking courses outside the specific focus of epidemiology
- Departmental requirements, including pathology, methodology, infectious disease, chronic disease, and three advanced biostatistics courses
- A capstone project, which includes the completion of an internship between the first and second year, the presentation of a scientific poster at a departmental poster session, and the completion of a data analysis project in the final term

In addition to the core courses listed above, students in the department may choose from a wide range of electives including courses within the epidemiology department or elsewhere in the school and university. Examples include courses in cancer epidemiology, social epidemiology, nutrition, reproductive health, and molecular epidemiology.

Hospital and Molecular Epidemiology
The Program in Hospital and Molecular Epidemiology involves lectures and structured laboratory courses covering bacteriology and virology, and lecture courses in infectious disease epidemiology, immunology, and hospital epidemiology. Students in the 60-credit-hour program are required to gain experience in the field and/or laboratory in a relevant area of study. The 60-credit-hour program is intended to prepare students holding bachelor’s degrees for laboratory-based job positions. Applicants to the 60-credit-hour program should hold a bachelor’s degree with a major in biology, or a related area such as premedical or predental studies, nursing, zoology, or microbiology. The 42-credit-hour program emphasizes laboratory-based research skills in the fields of bacteriology and virology.

Course Requirements
There are four major areas in the hospital and molecular epidemiology curriculum:

- Schoolwide requirements, including basic epidemiology and an introductory biostatistics course
- “Breadth requirements,” which are fulfilled by taking courses outside the specific focus of epidemiology
- Departmental requirements, including lab courses that cover virology and bacteriology and lecture courses that cover pathology, epidemiologic methods, infectious disease, hospital epidemiology, and an advanced biostatistics course
- A capstone project, which includes field experience working in a lab doing a molecular epidemiology research project and submitting a final paper
In addition to the core courses listed above, students in the department may choose from a wide range of electives including courses within the epidemiology department or elsewhere in the school and university. Examples include courses in cancer epidemiology, social epidemiology, nutrition, reproductive health, and molecular epidemiology.

International Health
The department’s MPH Program in International Health aims to provide its graduates with the technical skills to work as epidemiologists in any setting, domestic or overseas. Those skills, combined with the international content of the program, qualify the graduate for employment in international, national, and nongovernmental agencies involved in health research or health service delivery in developing countries. It is interdisciplinary and provides training in both the health-science and social-science sides of the subject.

Course Requirements
There are four major areas in the international health MPH curriculum:

- Schoolwide requirements, including basic epidemiology and an introductory biostatistics course
- “Breadth requirements,” which are fulfilled by taking courses outside of the specific focus of epidemiology
- Departmental requirements, including pathology, methodology, infectious disease, chronic diseases, introduction to international health, international health care systems, and three advanced biostatistics courses
- A capstone project, which includes the completion of an internship between the first and second year, the presentation of a scientific poster at a departmental poster session, and the completion of a data analysis project in the final term.

Dental Public Health
Studies within the Program in Dental Public Health are designed to prepare dentists and dental hygienists for a wide range of administrative, supervisory, academic, and research careers. In addition to the MPH and DrPH degrees administered by the School of Public Health, the PhD in epidemiologic science is also available through the Rackham School of Graduate Studies. Admission to the Program in Dental Public Health is usually given only to dentists and dental hygienists, though licensure in Michigan is not required.

Students are admitted for degree courses of 42-, 48-, or 60-credit hours. The 42-hour program is restricted to dentists. The 48-hour program is for dental hygienists who seek careers in administrative or academic positions; it extends over four terms and includes a summer field experience of some eight weeks. The 60-hour degree, over four terms, is for dentists who wish to become board-eligible for specialty certification by the American Board of Dental Public Health. It is accredited by the American Dental Association as meeting the educational requirements for specialty certification by the American Board of Dental Public Health. The 60-hour degree also includes a required summer field experience.

Course Requirements
There are four major areas in the 60-credit-hour Program in Dental Public Health MPH curriculum:

- Schoolwide requirements, including basic epidemiology and an introductory biostatistics course
- “Breadth requirements,” which are fulfilled by taking courses outside the specific focus of epidemiology

In addition to the core courses listed above, students in the Department may choose from a wide range of electives including courses within the Epidemiology Department or elsewhere in the School and University. Examples include courses in cancer epidemiology, social epidemiology, nutrition, reproductive health, and molecular epidemiology.
• Departmental requirements, including epidemiologic methods, prevention of oral diseases, administration in dental public health, a chronic disease, infectious disease, and three advanced biostatistics courses

• Capstone and integrative courses, including foundations in dental public health, collection and analysis of dental data, and a field work requirement to be completed between the first and second years

The reduced credit programs in dental public health do not require a field work project, and several of the courses listed above would also not be required.

**Doctor of Public Health (DrPH) Degree**

The Doctor of Public Health (DrPH) degree is administered and awarded by the School of Public Health (SPH) as a professional degree. It is oriented towards applied research in various areas of public health rather than in basic research. Completion of the program requires meeting course requirements, successfully completing a preliminary examination and advancing to DrPH candidacy, and completing a research project and dissertation. The program is typically completed in six terms.

An MPH in epidemiology, or other relevant master’s degree in a related discipline (for example, an MS in microbiology), is required prior to entrance into the DrPH program. Successful applicants lacking credit for any courses, laboratories, or field work equivalent to those of the University of Michigan School of Public Health MPH Program in Epidemiology are expected to make up these deficiencies during their initial stage of studies.

Course requirements for the degree are tailored to the experience, training, and objectives of the candidate. Course selection is determined through discussion between the student and the faculty mentor. Upon the completion of formal course work, each student will be required to pass a preliminary examination to ascertain her/his competency to advance to doctoral research.

Upon advancement to candidacy, the DrPH student may begin his or her research. Doctoral research must consist of original research that focuses on a particular problem. The student’s mentor is expected to provide guidance in the selection of a suitable project that provides a clear direction for implementing the research.

The final steps to completing the degree require that the student prepare a formal dissertation, give a departmental seminar, and successfully complete an oral defense of the dissertation in a meeting with the doctoral committee.

**Doctor of Philosophy (PhD) Degree**

The PhD Program in Epidemiologic Science is administered and awarded by the Horace H. Rackham School of Graduate Studies. Its objective is to provide scientists with expertise in the recognition and investigation of basic aspects of etiology and pathogenesis of disease relevant to prevention and control of infectious and non-infectious diseases. Graduates are qualified for positions in academia, research institutes, government, and industry.

An MPH in epidemiology, or other relevant master’s degree in a related discipline (for example, an MS in microbiology), is required prior to entrance into the PhD program. Successful applicants lacking credit for any courses, laboratories, or field work equivalent to those of the University of Michigan School of Public Health MPH Program in Epidemiology are expected to make up these deficiencies during their initial stage of studies. The field work/laboratory requirement is waived for students with a professional doctoral degree and for others who have documented evidence of employment in a relevant area.

Course requirements are tailored to the experience, training, and objectives of the student. Course selection is determined through discussion between the student and the faculty mentor. There are two major stages in the PhD program. These stages are the pre-candidate stage and the candidate stage. The major tasks of the pre-candidate stage are to successfully complete missing course work, pass the...
competency examination, and develop and present a prospectus that reflects the research program that will be undertaken. The major task of the candidate stage is to successfully complete the proposed research identified in the prospectus, with the ongoing guidance of an individual’s committee whose membership is defined just prior to advancement to candidacy. This research program is then presented and defended as a “dissertation defense” as the penultimate event in achieving the doctoral degree.

Typically, a PhD program takes a total of 2.5 to 4 years to complete when a Master of Public Health (or other relevant degree) has been obtained. The time frame depends largely on how soon advancement to candidacy is achieved. Once advancement to candidacy has occurred, the typical time required to graduate is two years. An optimal time line might be admission for the fall term with a relevant master’s degree, successful completion of the competency examination in the following winter term, development and defense of the research prospectus within 6–12 months, and completion of the research effort (including its written presentation) in two years.

**Preventive Medicine Residency**

The General Preventive Medicine Residency at the University of Michigan School of Public Health is designed to provide advanced training in preventive medicine and to prepare residents to sit for the boards in General Preventive Medicine and Public Health.

The program serves to enhance the skills and competencies of other physicians already board-certified in another specialty or currently working in public health practice. This gives mid-career private practitioners, physician administrators, academic clinicians, and public health physicians the opportunity to seek additional training in population-based medicine, clinical preventive services, or public health research.

**Structure**

Successful completion of a residency in general preventive medicine and public health requires three years: an internship or postgraduate clinical training year in a primary care specialty, an academic year culminating in completion of an MPH, and a practicum year of public health practice. This residency offers only the academic and practicum years of training. Successful applicants will be expected to have completed their intern year at admission.

The practicum year is administered by the School of Public Health but involves field placement in a wide variety of settings. The practicum experience relies heavily on public health practitioners to facilitate appropriate field experiences. Residents also rotate through more clinically-oriented venues such as Henry Ford Hospital and University of Michigan–affiliated hospitals. The linkages cultivated by assigned clinical rotations in such a practicum model help strengthen relationships between the School of Public Health and both the Centers for Disease Control and Prevention (CDC) and the Michigan Department of Community Health. Given the highly collaborative nature of the training, the residency is producing a cadre of preventive medicine physicians who are expanding and enhancing the network currently operating among the many public health agencies and institutions in this state.

Residents complete a Master’s in Public Health (MPH) degree and practicum in 23 months. New residents start the program on September 1. Two to four new residents will be admitted to the program each year. Positions will be awarded on a competitive basis.

Residents are committed full-time to the program and reside within commuting distance of Ann Arbor. All trainees in the program receive financial support (i.e., tuition and a competitive stipend). The MPH requires three semesters of formal course work. Practicum rotations begin after the first two semesters of courses are completed.
The practicum is available independently both for physicians taking their MPH in the program and for physicians who already hold the degree. It includes a minimum of 11 months of rotation in state departments, preventive medical practice, community-based health organizations, and potentially at the CDC.

Admission
Basic requirements for admission include:

- Graduation from a Class A medical school (United States, Canada, or equivalent)
- Completion of one year of post-graduate medical training in an ACGME–approved clinical training program

The residency program does not offer a PGY-1 or internship year. Admissions priority is given to applicants who have completed clinical training in a medical specialty, such as internal medicine, family practice, psychiatry, or emergency medicine.

Academic and Practicum Program:
Applications should be submitted in the fall of the year preceding enrollment; supporting materials should be received by November 1. The residency does not participate in the National Residency Match Program, but it does adhere to the uniform notification deadline accepted by most preventive medicine residency programs: December 15. Applications received after this date will be considered on a space-available basis. Applicants are strongly advised to request an on-campus interview prior to December 15.

Practicum Program:
Since the practicum program is not tied to the academic calendar, applications and admissions to the practicum program can occur at any time during the year.

Interdepartmental Concentrations
Interdepartmental Concentrations (IC) offer curricula that cross departmental boundaries and address important targeted problems in public health. An IC brings together faculty and students from each of our five departments (Biostatistics, Environmental Health Sciences, Epidemiology, Health Behavior and Health Education, Health Management and Policy). By working with professors from across these departments, students are able to see the interrelated factors that give rise to serious health problems, and identify the range of interventions necessary to resolve them. The School of Public Health offers Interdepartmental Concentrations in Global Health, Public Health and Genetics, and Reproductive and Women’s Health. These programs are described further in the School’s viewbook, or you may request a specific brochure on the IC programs.

A supplemental application is required for admission to an IC, and spaces in each IC are limited.

Graduate Summer Session in Epidemiology
The University of Michigan School of Public Health (Department of Epidemiology) began hosting this highly prestigious international program in 1988 under the co-sponsorship of the American College of Preventive Medicine and the Association of Teachers of Preventive Medicine. An historic tradition in the implementation of this program has been the selection of distinguished faculty who are scholars and practitioners from academic institutions and public health agencies in the United States and other countries.

The primary purpose of this program is to promote and expand teaching and research skills in epidemiology. Various courses are offered, lasting one week and three weeks. Weekend courses are also available. The curriculum may change slightly from year to year to enable the program to cover a wide range of areas. In general, approximately 35 courses are offered during the three-week period. Courses range from one to three credit hours. Whereas at the University of Michigan, courses offered in the
Summer Session cannot substitute for regular term course offerings, students may elect courses for up to six credit hours that can be applied toward their graduate degree. A special tuition rate has been established, with an alternative option of selecting courses without receiving credit. CME Category I credit is also available. The Graduate Summer Session is held in July of each year.

Complete information and application materials can be found at the following Web site:
http://www.sph.umich.edu/epid/GSS

Specific information on the Graduate Summer Session can be obtained from:

Jody Lind Gray
School of Public Health, Room 1002
Department of Epidemiology
University of Michigan
109 South Observatory
Ann Arbor, MI 48109-2029

Telephone 734.764.5454
Fax 734.764.3192
e-mail umichgss@sph.umich.edu
Admissions and Financial Aid

The Department of Epidemiology offers three different degrees: a Master of Public Health (MPH), a Doctor of Public Health (DrPH), and a Doctor of Philosophy (PhD). The School of Public Health administers the MPH and the DrPH; therefore, for either of these two degrees a School of Public Health application should be completed. It is available online at http://www.sph.umich.edu/admissions/index.html or can be requested by contacting sph.epid.inquiries@umich.edu. The PhD is administered by The Horace H. Rackham School of Graduate Studies. Admission to the PhD program requires that a Rackham application be completed. It is available online at http://www.rackham.umich.edu/Admis/, or can be requested by contacting sph.epid.inquiries@umich.edu.

Application materials for all programs and additional information may be obtained from:

Office of Academic Affairs
University of Michigan
School of Public Health
109 South Observatory #3537
Ann Arbor, MI 48109-2029

Master of Public Health Application
Requirements
Applicants to the MPH program must have a bachelor’s degree from an accredited institution. A substantial knowledge in a discipline relevant to public health, gained either through schooling or work experience, is expected. MPH applicants are evaluated on the basis of academic credentials, Graduate Record Examination (GRE) or equivalent (MCAT, LDAT) scores, recommendations from former professors or supervisors, and expressed commitment to a career in epidemiology through a personal statement.

Doctoral Program Application
Requirements
Applicants for either of the doctoral programs (PhD or DrPH) must have a relevant master’s degree (i.e., MPH, or MS in biostatistics or other public health field) prior to being considered for admission. Doctoral program applicants are evaluated on the basis of academic credentials, Graduate Record Examination (GRE) or equivalent (MCAT, LDAT) scores, recommendations from former professors or supervisors, and expressed commitment to a career in epidemiology through a personal statement. In addition, it is very helpful when potential students list which faculty they are interested in working with. Prior agreement by a faculty member in the department to mentor a new student is necessary for acceptance into either of the doctoral programs.

Materials Required to Accompany All Applications:
In addition to submitting the appropriate application form for the specific degree, several supporting documents are required. An application will not be considered until all the required materials are received by the Department of Epidemiology. It is the applicant’s responsibility to confirm that all application materials have been received by the department. Therefore, it is recommended that the student contact the department’s Student Services Office to ensure that the application is complete.

• GRE or MCAT scores (DAT scores are acceptable only for applicants to the Program in Dental Public Health in the Department of Epidemiology), which must be from within the last five years. Applicants with special circumstances may request a waiver of the GRE/MCAT or time limit requirement by appealing to the Admissions Committee in memo form. The waiver request may be submitted with the application, but please keep in mind that if the waiver is not granted the application will not be reviewed until a GRE or MCAT score is submitted.

• Official transcripts documenting undergraduate and graduate course work.

• A personal statement describing the applicant’s interest in public health and epidemiology, reason for choosing the University of Michigan’s program, and what the student intends to do with the degree upon completion.
Three letters of recommendation from former professors or supervisors.

Applications from international applicants whose native language is not English will also need to include evidence of competency in English (TOEFL or MELAB scores). However, if a non-native English speaker has been granted a degree in an English-speaking institution, the TOEFL or MELAB test is not required.

International applicants who have been academically admitted to the program will need to present additional documentation certifying funding for the entire course of study (i.e., bank statements or a letter of support from a sponsoring agency) in order for visa paperwork to be processed.

Deadlines for Applying
MPH: February 1
DrPH: January 1 (this deadline is unique to the Epidemiology Department)
PhD: January 1

Please note: The department works on a rolling admissions process, with the review process starting in mid-December. It is recommended that applicants try to submit a complete application well in advance of the deadline. For MPH applicants wishing to be considered for department funding, applications must be received no later than the February 1 deadline.

Application Materials
Application materials are available from the Office of Academic Affairs. To request materials:

Call 734.764.5425
Fax 734.763.5455
Visit our web site at http://www.sph.umich.edu
Or e-mail sph.inquiries @umich.edu

Application Fee: $60 for Domestic Applicants (U.S. citizens and permanent residents) and $75 for International Applicants.

Financial Aid
At the master’s level, all tuition assistantships are merit-based. All admitted applicants are automatically considered for funding, with awards being offered to the most accomplished students. At the PhD level, once a mentor has been identified there may be funding offered from the faculty member. Applicants who desire a teaching or research assistantship are encouraged to look also at other departments outside the School of Public Health. In this case, the department of interest should be contacted directly by the prospective student.

Contact the University of Michigan Central Office of Financial Aid at 734.763.6600 or http://www.finaid.umich.edu for information on, or applications for, financial aid loans.

A Free Application for Federal Student Aid (FAFSA) must be filed in order to be considered for loans, work study, and many of the available assistantships. FAFSAs can be obtained from most universities or college financial aid offices or from the public library.

Tuition and Fees
The tuition structure at the University of Michigan is two-tiered, reflecting resident and non-resident rates. Eligibility to pay resident tuition is determined by the University based on criteria set forth in the University’s Residency Classification Guidelines. For more information, or to request a copy of the guidelines, please contact the Residency Classification Office, 1514 LSA Building, University of Michigan, Ann Arbor, MI 48109-1382, telephone 734.764.1400.

Tuition and fees for a term are payable at registration or in installments during the term. The number and dates of the installments are specified in advance for each term. Tuition and fees are subject to change without notice by action of the Regents of the University. The following is the tuition as of fall 2005:

Michigan resident, per term $8,020
Michigan non-resident, per term $14,814
PhD candidate (resident and non-resident), per term $4,743
(PhD candidate refers to a student who has been advanced to candidacy)
This is a list of all courses in the Department of Epidemiology. For details about terms offered and meeting times, please refer to the registrar’s website: www.umich.edu/~regoff/timesched/on-line. For an online listing of course descriptions, please visit www3.sph.umich.edu/caid.

503. Strategies and Uses of Epidemiology
Basic epidemiology for the public health professional, with review of fundamental principles and concepts, and application to selected examples of chronic, noninfectious diseases and infectious diseases. Designed for students without a doctoral degree.

506. Health of Nations: Introduction to International Health
Survey of international health for non-majors in the Interdepartmental Program. Presents an overview of mortality and disease occurrence in terms of geographic, cultural, nutritional and environmental factors. Reviews health indicators such as infant mortality and economic factors associated with development. Discusses health problems of developing countries and describes programs and organizations involved in addressing them.

511. Introduction to Public Health Genetics
This course is designed for those interested in a basic understanding of human genetics who have had only a very limited exposure to biologic sciences. This course will cover the basics of genetics at both the molecular and population level. In addition to the basic science, some ethical, legal, and social implications of genetics research will be examined. Examples relevant to public health will be emphasized.

514. Social Epidemiology
Considers the uses of epidemiology with emphasis on the social determinants of chronic diseases and premature mortality. Theoretical as well as methodological issues in conducting social epidemiology research are emphasized. Designed for graduate students who have prior familiarity with the basic principles and methods of epidemiologic research.

515. Genetics in Public Health
This course is designed for students with a background in biology or genetics, who are interested in understanding genetics in public health. This course will provide an in-depth examination of genetics in public health, including newborn screening diseases and practices, fundamentals of population genetics, and the genetics of common chronic diseases.

516. Genomics in Epidemiology
This course relates genomics to the core public health discipline of epidemiology, emphasizing the use of genomics to help describe disease frequency and distribution and to gain insights into biological etiologies. Topics include genetic material in disease and in families and populations; the investigation of multifactorial traits; model-based linkage analysis; model-free linkage analysis; segregation analysis; allele association and linkage disequilibrium; and gene-gene interactions and gene-environment interactions. Issues related to implementing studies are considered.

524. AIDS: A Public Health Challenge
Lectures will describe the fundamental issues necessary for understanding the public-health crisis presented by the AIDS epidemic, including the virology of HIV, immune response and natural history, provision of care, prevention, legal/ethical issues. Includes opportunity for small group discussion of policy formulation. For those students satisfactorily completing a paper on a special topic in AIDS, an additional credit hour is available.

525. Clinical and Diagnostic Microbiology
This course will provide students with an introduction to methods used by clinical microbiology laboratories to recover and identify bacteria, fungi, parasites, and viruses from human clinical specimens. The focus will be on organisms that are clinically relevant and will demonstrate the role of the clinical microbiology laboratory in patient management.
543. Virus Diseases
The nature of viruses including replication, transmission, pathogenesis, pathology, antigenic relationships and preventive measures.

545. Viral and Molecular Techniques Laboratory
Methods, including procedures, employed in the study and identification of viruses and virus diseases; molecular techniques used in virology, bacteriology, and molecular epidemiology. Techniques covered include PCR, flow cytometry, gel electrophoresis, recombinant DNA technology, westerns and bacterial typing procedures.

546. Advanced Virology
Advanced laboratory studies of viruses and virus diseases with emphasis upon the application of procedures to investigation. May be elected more than once.

550. Reproductive Epidemiology
This course will provide an overview of epidemiologic methods for the study of reproductive outcomes including menstruation, fertility, pregnancy loss, birth outcomes, and maternal morbidity and mortality. Measurement of these outcomes, problems of study design, selection of study populations, common biases and problems of sample size calculation will be covered. This course is intended for people with a basic understanding of epidemiologic methods. The course will be limited to a maximum of 20 students. Both male and female reproductive concerns are addressed as well as methodologic issues in domestic and international settings.

552. Epidemiology of Chronic Diseases
This course uses a data-driven approach to assess the health status of populations, with students preparing and comparing health and demographic data collected from local health jurisdictions, the state of Michigan, and the U.S. as a means of learning the epidemiology of selected chronic diseases and conditions, such as heart disease, diabetes, cancer, and musculoskeletal diseases. Students are teamed with local public health practitioners who help provide the context for students to develop grants applications to address those chronic diseases which have been identified through the comparative data analysis as important and for which the student has learned the underlying biology and epidemiology.

555. Globalization and Health
This seminar explores the diverse health impacts of economic, environmental, and cultural globalization. The transnational movement of people, technologies, capital, commodities, toxins, pathogens, ideologies, and treatments is affecting people’s well-being through diverse pathways. Introductory lectures and discussion of readings will explore various topics related to these issues. We will study the forces of globalization, beneficial and harmful health impacts, role in economic development and resource distribution, and implications for public health practice.

560. Mechanisms of Bacterial Pathogenesis
Microbial structures and their relation to basic mechanisms of bacterial pathogenesis; structure, function, and genetics of bacterial toxins; and host resistance and immunity. Discussions of pathogenic organisms of major public health importance, diseases caused, and their epidemiology.

562. Advanced Bacteriology Laboratory
Individual laboratory studies of selected topics on bacteria of public health importance. May be elected more than once.

565. Research in Hospital and Molecular Epidemiology
Investigation of a selected problem planned and carried out by each student. Pertinent literature, investigational approaches, and progress in the investigations are discussed in seminars. May be taken more than once for up to six credits. Usually taken first for one credit. This is the Capstone Course for Hospital and Molecular Epidemiology Students.

570. Socioeconomic Health Inequalities
This course will familiarize students with the extensive epidemiologic research and concepts that have documented and attempted to explain socioeconomic inequalities in health. The course will mainly focus on socioeconomic health inequalities in the U.S., but will also draw on evidence concerning cross-national comparisons among industrialized countries and global health inequalities more generally. The course will focus on developing an understanding of how aspects of the way we structure our socioeconomic systems affect the likelihood of exposure to positive and negative risk factors for disease over the life course.
582. Molecular Epidemiology
The rapid development in molecular techniques since the early 1980s has enhanced the ability of epidemiologists to define and measure both exposures and outcomes. In this course, we will explore the impact of these measures on the design, conduct, and analysis of epidemiologic studies by examining successful and unsuccessful applications of these new measurement tools. We will also discuss the ethical issues arising from an enhanced ability to identify individuals with early stage of disease, increased susceptibility, or to measure very low levels of exposure in the environment, and sensitize students to the potential conflicts in research ethics arising from collaborative research projects.

595. Foundations of Dental Public Health
Basic principles in dental public-health practice, including the scope of the discipline, definition of public health problems, structure and organization of the dental professions, dental education and licensure, ethical issues, demographic trends, and demand for dental care. Includes literature searching, critical appraisal, editing, referencing, use of tables and graphics. Students prepare a critical review of a topic from the dental literature. Required for all students in dental public health.

601. Principles and Methods of Epidemiology
Basic concepts, principles, and methods of population-based epidemiologic research, focusing on the investigation of disease etiology and other cause-and-effect relations in public health and medicine. Emphasis is given to study design, data quality, statistical analysis, and causal inference.

605. Infectious Disease Epidemiology
Introduction to disease and transmission characteristics, and the descriptive epidemiology of infectious agents. This course will help students to understand the theoretical basis of pathogen transmission and what factors determine patterns of disease occurrence. Students will learn how to apply this understanding to disease prevention and control.

606. Advanced Infectious Disease Epidemiology
This second course in infectious disease epidemiology will further prepare students to practice infectious disease epidemiology in health departments, NGOs, and academic settings. It addresses the processes and mechanisms which make infectious disease epidemiology differ from noninfectious-disease epidemiology with regard to risk assessment and control-program implementation. Focus will be on how risk factors, contact patterns, transmission dynamics, and pathogen evolution determine endemic and epidemic levels of infection. This in turn will serve as a basis upon which to discuss how a) vaccination, b) hygiene and sanitation, c) vector control, d) alteration of contact patterns, and e) treatment programs should be organized to minimize endemic and epidemic infection levels.

607. Applied Epidemiology for Public Health Practice
This course will address the role of the epidemiologist in the provision of personal and preventive health services in the public health practice setting. Emphasis will be on developing an understanding of the biomedical basis and applied use of these services with particular attention to communicable disease surveillance, immunizations, and sexually transmitted disease services. The effect of changing funding streams, managed care, and the role of federal, state and local political, health, and community agencies in determining service mix and content will also be discussed. Students will have the opportunity to directly participate in service provision in their area of interest and will be expected to develop a semester project addressing a specific public health practice problem.

609. Vaccines in Public Health
Vaccines represent the most cost-effective medical intervention that has made a major effect on mortality reduction and population growth. This course will cover the epidemiological, statistical, biological, microbiologic, and immunological principles, approaches, and methods used in vaccine development and vaccination program design. Through a detailed discussion of the pathobiology, epidemiology, vaccine, and vaccination program design of a selected group of vaccine-preventable diseases, the course will introduce students to the major types of infectious diseases defined by the types of pathogens, the different transmission mechanisms of infectious diseases, the concept of population transmission dynamics, and the basic types of population effects of vaccination. Current issues and challenges in vaccine development and immunization practice will also be discussed.
610. Epidemiology and Prevention of Oral Diseases
Philosophy, principles, and methods of study in the epidemiology of oral conditions. Includes measurement techniques, risk factor identification, and disease distribution in populations. The scientific basis for procedures and programs to prevent oral diseases is examined, with emphasis on public health applications. Includes water fluoridation, other fluoride programs, pit-and-fissure sealant, diet, nutrition, oral hygiene, chemotherapeutics, and screening programs. Required for all students in dental public health.

611. Administration in Dental Public Health
The planning, operation, and evaluation of dental public health programs, including quality assurance, budgeting, and legislative issues. Students prepare a research proposal and develop skills in oral presentations. Required for all students in dental public health.

612. Collection and Analysis of Dental Data
Conduct of a dental field survey and analysis of the data collected. Includes establishment of survey aims, survey organization, examination of subjects, processing and analysis of data, preparation and submission of report. Several otherwise free days are required for the field survey, which is usually conducted outside Ann Arbor. Both custom-written data-capture software and commercial statistical software are employed. Particular attention is paid to the special problems presented by dental data in analysis and interpretation. Extensive use of microcomputers is required. Required for all students in dental public health.

613. Problems in Dental Public Health
Solutions to problems in dental public health can be pursued by students under the tutorial guidance of a faculty member. The problems can be in any aspect of research or administration. Students can also analyze data from existing research databases, and prepare reports intended for publication. Students meet regularly with the faculty supervisor to assess progress throughout the project. May be elected more than once.

614. Planning and Evaluating Field Experience in Dental Public Health
Individual arrangements and preparation for field experience are made with the guidance of the faculty advisor. Arrangements prior to the field experience include setting objectives; selecting the field site; appropriate reading assignments; and assessment of skills and knowledge needed. After the field placement, students submit a written evaluation of the experience to the faculty advisor. The course must be elected the term immediately preceding field experience, and is required if a credit-hour reduction is requested for the field experience.

615. Provision and Financing of Dental Care
Analysis of organizational arrangements and patterns for provision of dental care services. Methods of financing dental care. Types of dental personnel and social, economic, and political factors determining their supply and deployment. Emphasis on the United States with some reference to other countries.

616. Neuroepidemiology of Aging Populations
This course will cover topics in neuroepidemiology as applied to aging populations, including application of epidemiologic methods and principles to common neurologic outcomes; specific outcomes such as Alzheimer’s disease, Parkinson’s, stroke, peripheral neuropathy, and cognitive impairment; and etiology and prevention of common outcomes, including current knowledge from observational and intervention studies. The use/experience of neuroimaging in population-based studies will be addressed.

620. The Epidemiology of Women’s Health
This course will examine sexual differences in biology and physiology as well as gender differences in social roles, occupations, and life experiences that can lead to gender differences in patterns of exposure and disease expression. This course will then consider when and how these gender differences influence the selection and implementation of epidemiologic research methods and areas in which research methods and measurement tools need development. Topics will include: 1) the physiology and endocrinology of puberty, the menstrual cycle, menopause, and pregnancy; 2) physiology and endocrinology of gender differences in cardiovascular, immunological, neurological, and musculoskeletal sys-
tems; 3) women’s social and political role and the theory of woman’s double burden, occupational and economic patterns across the lifespan, health care practices across the lifespan, and social status; and 4) the impact of gender on research questions, study design, sampling approaches, recruitment and retention of study participants, questionnaire design, and research approaches.

621. Cancer Epidemiology
This course serves as a basic introduction to the field of cancer epidemiology. The course applies the principles developed in the introductory epidemiology courses to the study of cancer. The course commences with a descriptive account of cancer vocabulary; multistage model of carcinogenesis; and pathologic and biologic basis of cancer. The course topics also include magnitude of the cancer problem, and trends in cancer frequency, incidence, burden, mortality, survival, and international cancer epidemiology. The concepts of the role of smoking, radiation, lifestyles, nutrition, and other exposures are reviewed. The descriptive epidemiology, natural history, and pathologic and biologic characteristics of selected common cancers, as well as factors related to their etiology, are also discussed. The course format consists of a series of lectures by three faculty members and directed readings from the current literature. Students are required to analyze and present assigned papers on a given cancer.

623. Nutritional Epidemiology
This course will include study in three areas of nutritional epidemiology: methods of exploring nutrition-disease interrelationships, major epidemiologically identified associations between nutritional status and health status, and implications for public health and public health policy in associations between nutritional status and health status.

624. Readings in Epidemiology
Review of literature on selected subjects under guidance of individual faculty members and through scheduled seminars at which reports are presented. May be elected more than once.

625. Field Studies in Epidemiology
Strategies of epidemiologic study design and analysis. Formulation of study goals, selection of epidemiologic parameters, sampling strategies, questionnaire design, interpretation of multivariate relationships, estimation of parameters and confidence intervals from different types of data. Student groups design and execute a field study.

657. Seminar on Field Studies in Epidemiology I
Analysis and discussion of student field experience in epidemiology. Students register for one credit hour with their field placement advisor. Students work with their field placement advisor to prepare the content and organization of an oral report describing their field experience for presentation during Epid 658.

658. Seminar on Field Studies in Epidemiology II
Presentation, analysis and discussion of student field experience in epidemiology. Introduction to requirements of data analysis project (Epid 659) and matching with Epid 659 mentor. Students present oral reports on their field experience to first year students and faculty.

659. Applications of Epidemiology
Application of epidemiological methods and concepts to analysis of data from epidemiological, clinical or laboratory studies. Introduction to independent research and scientific writing under faculty guidance. May be elected more than once for a total credit of not more than four hours. Course must be elected for a total of four credits; either elected for two credits each during two different terms or for four credits during a single term. This is the Capstone Course for General Epidemiology and International Health Students.

664. Field Methods in Epidemiology for Developing Countries
This course is developed for students and researchers interested in pursuing collaborative epidemiologic research in international settings. The course will focus on steps and procedures for setting up and conducting international epidemiologic studies. Topics will include the relationship between research groups and host country policymakers and collaborators, and cultural and logistical differences between research studies in the U.S. and international settings. Other topics will include developing and maintaining research infrastructure, research design, field operations, anticipated obstacles, monitoring, ethical and IRB requirements for international studies; funding, and plans for maintaining future collaborations. Occasional guest lecturers, actively involved in international epidemiologic research, will be integrated into the syllabus.
665. Research Seminar in International Health
The seminar provides a forum for the discussion of Capstone Research Projects in international health. Students in both the General Epidemiology and the Hospital and Molecular Epidemiology tracks of the International Health Program present their research findings. In addition, the seminar includes presentations of international health research by other speakers from the University and elsewhere.

666. Health and Socioeconomic Development
Reviews links between health conditions and socioeconomic development in low-income countries; trends in health indicators; socioeconomic determinants of health, including poverty and income, education, nutrition, fertility, and culture and behavior; impact of globalization in terms of neoliberal policies, trade and capital flows, and the urbanization and growth of the informal economy; and examines the effects of health changes on economic growth and development.

677. Epidemiology of Aging
This course will address the epidemiology of aging from a public health perspective with a specific focus on epidemiologic methods and their application to the study of function and disease in the elderly. These will include demography, biology of aging, models of aging, functional status, genetics of longevity, cognition and dementias, social factors, and sensory changes. Group projects will involve small-scale data collection on elderly individuals or analysis of existing data on aging. The project will emphasize understanding of some aspect of epidemiologic methods.

680. Hospital Epidemiology
An integration of information from basic courses allows application of microbiologic, epidemiologic and statistical principles to problems of infections in hospitals. Surveillance, investigation and control of hospital infections described.

682. Current Issues in Molecular Epidemiology of Infectious Diseases
Seminar providing a forum for discussing current topics in molecular epidemiology of infectious diseases. Required for students in the interdisciplinary program in infectious diseases. This course can be taken more than once for credit.

801. Topics in Epidemiologic Analysis
Small group seminars on topics relevant to design of a PhD thesis in General Epidemiology: philosophical basis for formulation of epidemiologic questions, quantitative basis for design of studies and interpretation of results, models used for prediction of effects, models used for causal analyses, measures of causal effect, systems behavior effects, assessment of confounding, assessment of effect modification, causal interactions, measurement and misclassification errors in different types of studies, selection biases in different types of studies and power to achieve epidemiologic goals.

802. Computer Simulation of Epidemiologic Processes
This course deals with dynamics of disease in populations. The student learns how to construct simulations of disease processes in populations using deterministic, continuous state space, computer-simulation software. Using these simulations the student learns how the parameters of causal models relate to epidemiological parameters and the statistics that are commonly calculated from epidemiological data. The simulation capabilities acquired are intended to improve the student’s ability to develop and evaluate causal models and explore the consequences of specific theories. Temporal and exposure group patterns in non-communicable disease are emphasized. An introduction to communicable disease transmission system analysis is also presented.

803. Topics in Social Epidemiology and Population Health
This is a proseminar designed for doctoral students from public health and other fields who are interested in social epidemiology. It is open to doctoral students in epidemiology, other SPH departments, and other units in that order of priority. Enrollment will be limited to 20. Permission of instructor is required to enroll. The course focuses on a rotating selection of topics, with a different selection each year. The focus is on building bridges between biological and social approaches. Topics include, but are not limited to: socioeconomic status and health; community structure and function and health outcomes; life-course approaches to chronic disease; psychosocial factors in cardiovascular disease and cancer; the social epidemiology of the epidemiologic transition; gender, race, and class; impact of catastrophic events on the health status of individuals and populations; social factors in aging.
and disability transitions; religion, spirituality, and health; biological mechanisms underlying psychosocial associations with health outcomes; psychosocial factors in infectious disease; globalization and health, measurement of health inequalities, and issues given an expanded definition of social epidemiology. The course is taught as a seminar and includes substantial readings, student presentations, and visiting speakers. Evaluation is based on class participation, including presentations.

804. Population Health and its Determinants
This seminar, involving considerable reading, will introduce students to the emerging area of scholarship and research on the determinants of population health and its trends. The focus will be on patterns of health in populations seen from the integration of core findings on inequalities in health, race/ethnicity, community and spatial aspects of health, behavioral and psychosocial factors, life-course perspectives, stress biology, and policy/intervention. Thus the seminar will concentrate on multi-level approaches to important health issues. The course is open by permission of the instructors to participants in the Health and Society Scholars program, and advanced doctoral students in public health and other fields.

810. Epidemiologic Methods for Longitudinal Studies
This course will address a) epidemiologic methods for the design and interpretation of longitudinal studies involving repeated measures; b) field problems and measurement issues unique to longitudinal studies; and c) statistical methods appropriate for longitudinal data including robust variance estimation, growth curve models and random effects models, and transitional models. A series of case studies will be used to illustrate the major design issues and statistical approaches.

811. Critical Appraisal of Epidemiologic Studies
The objectives of the course are: a) to provide a synthesis of fundamental epidemiological concepts related to measures of association, study design and inferences of causality; b) to understand the historical developments that lead to these fundamental concepts; and c) to apply these conceptual ideas to the critical evaluation of the literature. This course is required for newly enrolling doctoral students in the Department of Epidemiology.

812. Critical Appraisal of Pathobiology
This course is for doctoral students in the epidemiology department who are preparing for the Progress Examination. This course will integrate basic concepts of disease mechanisms with the biology and epidemiology of representative human diseases. Students will be required to give a presentation on a selected disease and to discuss what is known of the pathogenesis of disease as well as how epidemiologic studies inform pathogenesis and how knowledge of pathogenesis informs epidemiologic studies.

814. Topics in Epidemiologic Analysis
This course will focus on selected theoretical and methodologic issues related to the analysis of epidemiologic data with the purpose of drawing causal inference. The topics covered will include longstanding fundamental issues as well as new techniques or novel epidemiologic applications of methods used in other disciplines. The course will consist of 14 two-hour sessions. Each session will include a brief didactic presentation of the key issues for the session by the instructor followed by a structured small group and class discussion of a selected reading or readings.

815. Research Seminar on AIDS and Sexually Transmitted Infections
This course will focus on theoretical and methodological issues in the design and conduct of research on AIDS and sexually transmitted diseases. The topics covered will include issues on collecting sensitive data, working with stigmatized groups, designing studies in clinical and community settings, collecting data on networks, and estimating the demographic impact of the AIDS epidemic.

816. Tuberculosis: Pathogen, Host and Environment
Tuberculosis remains one of the deadliest diseases in the world. Social and operational factors, the growing AIDS epidemic, and increasing drug resistance have dramatically compounded the tuberculosis crisis. This course will review the history, epidemiology, biology, pathogenesis, and clinical management of tuberculosis. It will examine the current issues related to tuberculosis and discuss the complex mechanisms that contribute to the almost unparalleled impact of tuberculosis on global health in past and present times, including the impact of the emergence of AIDS epidemics. Each session will include a one-hour didactic presentation of
the specific topic for the session by the instructor, followed by a structured class discussion of reading(s) relevant to the session-specific topics that address emerging methods. In the last session, students will be asked to present their research proposals on an infectious disease of their primary interest using the concepts and methods learned in this class. While the focus of the lectures will be centered on tuberculosis, the discussions will address the application of general concepts in infectious disease.

817. Advanced Genomic Epidemiology
This course provides a depth of experience in advanced genomic epidemiology methods. The focus will be on developing and implementing high-throughput analyses of single nucleotide polymorphisms and their association with disease. Analytical methods such as linkage disequilibrium testing, haplotype estimation, gene-environment interactions, gene-gene interactions, classification trees, and neural networks will be reviewed and then applied to a real dataset. We will also review and apply the many bioinformatic resources available from the National Center for Biotechnology and Information (NCBI) to provide a biological context for the analysis and to facilitate interpretation of genomic epidemiological association studies. Emphasis will also be placed on issues of statistical hypothesis testing, such as multiple testing (e.g. adjusting p-values using false discovery rate methods and permutation methods), and on techniques for performing cross-validation. Students will get hands-on experience creating analysis plans, performing data analysis, and interpreting genomic association results.

840. Current Issues in Oral Epidemiology
Seminar for the detailed examination of current knowledge, etiologies, risk factors, methods of measurement, data-collection procedures, quality of existing data, and further research needs in the epidemiology of oral conditions. Required for doctoral students in oral epidemiology.

841. Research in Dental Public Health
Identification of problems in dental public health and development of research strategies to address them. Various research designs and their application in dental services research, program evaluation, testing of treatment procedures, behavioral studies, and clinical trials, as well as epidemiology of oral conditions. Funding sources, political aspects of research, procedures for acquisition and management of research funds. Required for doctoral students in dental public health.

850. Psychosocial Factors in Mental Health and Illness
Selected advanced topics including problems of diagnosing psychopathology through community surveys, psychosocial predictors of mental illness, primary prevention and coping with undesirable life events. This seminar meets in conjunction with a training program, National Institute of Mental Health. May be elected more than once. (Follows in sequence with Soc 850/Psych 890; Soc 851/Psych 891; Soc 852/Psych 892; Soc 853/Psych 893.)

890. Doctoral Seminar in Epidemiology
Students will give a 50-minute presentation as part of the departmental seminar series. One faculty member will work with the student in developing the seminar and then critique it afterwards.

891. Advanced Readings in Epidemiology
Students will review assigned readings on the epidemiology or natural history of specific infections or chronic diseases or on host or environmental factors associated with disease, or on epidemiological methods and their application. May be elected more than once.

970. Pre-candidacy Research in Epidemiology
Original investigations in the various fields of epidemiology as part of the student’s preparation for their dissertation research and writing.

990. Dissertation Research/Pre-Candidate
Election for dissertation work by doctoral students not yet admitted to status as candidates.

995. Dissertation Research/Candidate
Election for dissertation work by doctoral students who have been admitted to status as candidates.

For information on courses in the Graduate Summer Session in Epidemiology please consult the Graduate Summer Session brochure.
Faculty

Morgenstern, Hal, PhD
Professor and Chair
Musculoskeletal conditions, neuropsychiatric disorders, cancers, cardiovascular disease, psychosocial aspects of disease, occupational and environmental health, research methods and access to quality health care issues.

Aiello, Allison E., PhD
Assistant Professor
Multidisciplinary approaches for assessing antibiotic resistance in the community, clinical, and institutional setting; lifestyle SES, social context, and infectious diseases in elderly minority populations; the link between infectious agents/immunological biomarkers and chronic disease risk.

Barbosa-Cesnik, Cibele, MD, MPH
Research Investigator
Reproductive and women’s health, particularly infectious diseases in women.

Beebe-Dimmer, Jennifer, PhD
Assistant Research Scientist
Adjunct Lecturer
Cancer epidemiology; genetic epidemiology of prostate and bladder cancer; anthropometric risk factors for hormone-responsive tumors (breast, prostate, endometrium).

Bielak, Lawrence F., DDS, MPH
Assistant Research Scientist
Epidemiology of subclinical coronary atherosclerosis; clinical epidemiology; validity studies; measurement and quality-control issues.

Boulton, Matthew L., MD, MPH
Associate Professor of Epidemiology
Associate Dean for Practice
Director, Preventive Medicine Residency Program
Director, Bioterrorism Preparedness Initiative
Public health practice; applied infectious-disease epidemiology; outbreak control and surveillance in the practice setting; clinical preventive medicine; domestic family planning and women’s health; tuberculosis/STD program and control.

Diez-Roux, Ana V., MD, PhD
Associate Professor
Social determinants of health; neighborhood health effects; cardiovascular disease epidemiology; epidemiologic methods generally; methodological issues related to the presence of multiple levels of analysis and the integration of social and biological factors in epidemiology; multilevel analysis; health in Latin America.

Erdmann, Christine A., PhD
Assistant Professor
Cancer epidemiology, environmental factors and breast cancer risk, spatial analysis, molecular epidemiology.

Ford, Kathleen, PhD
Research Scientist (on leave 2005–2006)
Social epidemiology and demography; studies related to prevention of HIV/STD transmission in African-American and Hispanic youth and in Asian populations; Detroit-based study on pregnancy outcomes of adolescent mothers.

Foxman, Betsy, PhD
Professor
Director, Center for Molecular and Clinical Epidemiology of Infectious Diseases
Women’s health; molecular epidemiology. Research focuses on women’s health and the integration of epidemiologic methods with modern molecular biological techniques; particular interests in infectious diseases that primarily affect women. Has ongoing NIH-funded studies of urinary tract infection and lactation mastitis; studies involve examining the individual and joint effects of characteristics on disease risk.

Galea, Sandro, MD, DrPH
Associate Professor
The social and economic determinants of population health, particularly in the urban context; the epidemiology of mental health and substance use; the consequences of disasters and mass trauma.

Gerrard, Sonja R.
Assistant Professor
Molecular virology; viral pathogenesis; genetics; research is focused on Rift Valley fever, a mosquito-borne viral disease endemic to sub-Saharan Africa.

Gonzalez, Hector M., PhD
Assistant Research Scientist
Epidemiology of neuropsychiatric disorders (Alzheimer’s disease, vascular dementia, depression) in older minority populations; cultural, behavioral, psychosocial effects on health.

Haan, Mary N., MPH, DrPH
Professor
Geriatric epidemiology focused on older women and minorities; cognitive impairment and dementia in older populations; aging health policy; the effects of hormones on eye disease in older women; psychosocial and physical health issues that affect older adults.
Harlow, Sioban D., PhD  
Professor (on leave 2005–2006)  
Reproductive and occupational epidemiology with a focus on women’s health issues and occupational health needs in developing countries, particularly Mexico; also involved in mathematical models of menstrual patterns developing across the reproductive lifespan.

Kaplan, George A., PhD  
Professor of Epidemiology  
Thomas Francis Collegiate Professor of Public Health  
Director, Center for Social Epidemiology and Population Health and Robert Wood Johnson Health and Society Scholars Program  
Social epidemiology; inequalities in health; aging; cardiovascular disease; impact of social and economic policy on health; population health.

Kardia, Sharon, PhD  
Associate Professor  
Director, IC in Public Health Genetics,  
Genetic epidemiology with a focus on genetics of common chronic diseases, especially cardiovascular disease and hypertension.

Koopman, James S., MD  
Professor  
Causal and transmission models in epidemiology; disease surveillance; AIDS, sexually transmitted diseases, and control programs in developing countries.

Marrs, Carl F., PhD  
Associate Professor  
Bacterial pathogenesis; molecular studies on the mechanisms of virulence in bacterially caused diseases, especially urinary tract infections, and diseases caused by Haemophilus influenzae and group B streptococci.

McConnell, Daniel, S., PhD  
Assistant Research Scientist  
Imunoassay development through the use of non-radioactive labeling techniques.

Montgomery, Jolynn Pratt, PhD  
Research Investigator  
Communicable Disease Epidemiologist, Michigan Department of Community Health  
Applied epidemiology and public health practice, with specializations in outbreak investigations and control of communicable diseases, disease surveillance systems, and public health emergency preparedness and response.

Monto, Arnold S., MD  
Professor  
Epidemiology of respiratory and enteric diseases; behavior of respiratory and enteric pathogens, especially viruses, in a natural community; infections diseases in developing countries; vaccine and antiviral testing.

Ohmit, Suzanne E., DrPH  
Assistant Research Scientist  
Clinical trials: influenza vaccine and antiviral evaluation studies; longitudinal cohort studies: HIV.

Peyser, Patricia A., PhD  
Professor  
Genetics and epidemiology; contribution of inherited differences among individuals to prediction of diseases and traits that aggregate in families.

Ranjit, Nalini, PhD  
Research Investigator  
Life course epidemiology; reproductive health; cardiovascular epidemiology.

Sarma, Aruna V., PhD  
Assistant Research Scientist  
Research Assistant Professor, Urology  
Urologic neoplastic diseases.

Soliman, Amr S., MD, PhD  
Assistant Professor  
Colorectal and breast cancer in Egypt and the Middle East.

Sowers, Mary Fran R., PhD  
Professor  
Director, Center for Integrative Approaches to Complex Diseases  
Epidemiology of chronic disease and women’s health; relationship of hormones, genetics and nutrition status to bone diseases, obesity, blood pressure, and arthritis; study of vitamin D and calcium metabolism in disease.

Stein, Howard, PhD  
Visiting Professor (2003–2006)  
Organic and two-way relationship between health and socioeconomic development; impact of neoliberalism, how it has affected the pattern of globalization, and what the implications are to developing countries; policy alternatives to structural adjustment.
Symons, James P., PhD
Assistant Research Scientist
Women’s health, e.g., effects of hormones and their metabolites on both deleterious and beneficial outcomes, i.e. breast cancer, osteoporosis, osteoarthritis, cardiovascular disease; androgens in both men and women, e.g. the effects of androgens on various outcomes (bone minerals density, sexuality, cognition, etc.).

Wilson, Mark, ScD
Professor of Epidemiology
Professor, Ecology and Evolutionary Biology
Director, Global Health Program
Ecology of infectious diseases.

Yang, Zhenhua, MD, PhD
Assistant Professor
Molecular epidemiology, specifically related to: tuberculosis transmission and pathogenesis in developing countries; DNA fingerprinting of Myobacterium tuberculosis (MTB); drug resistance to TB.

Zhang, Lixin, PhD
Assistant Research Scientist
Emergence and maintenance of infectious diseases. Integrated approach to studying urinary tract infection using epidemiologic, molecular, statistic, simulation, and informatic tools; mechanisms of microbial pathogenesis.
Emeritus Faculty

Barlow, Robin, PhD
Professor Emeritus
International health; economics of health and population in developing countries.

Burt, Brian A., BDS, MPH, PhD
Professor
Dental public health; health services research; assessment of treatment needs; outcomes of dental care and international oral health.

Eklund, Stephen A., DDS, MSHA, DrPH
Professor Emeritus
Dental public health; health services research; assessment of treatment needs; outcomes of dental care and international oral health.

Hawthorne, Victor M., MD
Professor Emeritus
Chronic disease prevention; diabetes and cardiovascular disease.

Higgins, Millicent, MD, DPH
Professor Emeritus of Epidemiology and Internal Medicine
Epidemiology and prevention of cardiovascular and chronic pulmonary diseases and obesity; familial and genetic factors influencing susceptibility to environmental exposures.

Maassab, H.F., PhD
Professor Emeritus
Virology; studies of mechanisms of virus-cell integration; studies in modification of virulence of animal viruses; uses of physical and chemical methods to induce mutational change in viruses.

Port, Friedrich, MD
Professor Emeritus of Epidemiology and Internal Medicine
Kidney diseases.

Schottenfeld, David, MD, MSc
John G. Searle Professor Emeritus of Epidemiology and Internal Medicine
Cancer epidemiology and preventive oncology; natural history of various types of cancer, in particular the hormone-dependent cancers in women and men, and development of effective strategies for cancer prevention and control.
Joint and Adjunct Appointments

**Burgard, Sarah A., PhD**
Assistant Professor, Sociology
Assistant Research Scientist, Population Studies Center
Assistant Professor, Epidemiology
The influences of social inequality on population health and health disparities; racial/ethnic and socioeconomic disparities in children’s health in Brazil and South Africa; reciprocal relationships between job insecurity and health among U.S. workers.

**Chenoweth, Carol E., MD**
Clinical Associate Professor of Internal Medicine, Division of Infectious Diseases
Clinical Associate Professor of Epidemiology
Epidemiology of infectious diseases; hospital epidemiology; nosocomial infections.

**Davis, Ronald M., MD**
Director, Center for Health Promotion and Disease Prevention, Henry Ford Health System
Adjunct Professor of Epidemiology
Preventive medicine, tobacco-related diseases.

**Garabrant, David H., MD**
Professor of Occupational Medicine, EHS
Professor of Epidemiology
Occupational cancer epidemiology and cancer prevention. Specific topics under investigation are chemical risk factors for pancreas cancer, asbestos and colon cancer, and the role of physical activity in colon cancer.

**Gilsdorf, Janet R., MD**
Professor and Director, Pediatric Infectious Diseases
Professor of Epidemiology
Bacterial pathogenesis and human health.

**Gruber, Stephen B., MD, PhD, MPH**
Associate Professor of Internal Medicine, Division of Medical Genetics
Associate Professor of Epidemiology
Genetic epidemiology; cancer genetics; low-penetrance susceptibility alleles; environmental modification of genetic susceptibility; colorectal cancer; melanoma; molecular epidemiology

**Herman, William H., MD**
Professor of Internal Medicine,
Division of Endocrinology and Metabolism
Professor of Epidemiology
Epidemiology and public health aspects of diabetes mellitus.

**House, James S., PhD**
Professor of Sociology
Research Professor, Survey Research Center
Senior Research Scientist of Epidemiology
Social epidemiology of health and aging; socioeconomic status and health.

**Ismail, Amid I., DrPH**
Professor of Dentistry, Department of Cariology, Restorative Science, and Endodontics
Professor of Epidemiology
Caries diagnosis; epidemiology of fluorosis, dental caries, and other oral conditions.

**Johnson, David R., MD, MPH**
Director of Scientific and Medical Affairs, Aventis Pasteur
Adjunct Associate Professor of Epidemiology
Applied epidemiology; public health practice; immunizations.

**Joseph, Christine, PhD**
Senior Epidemiologist, Henry Ford Health System
Adjunct Associate Research Scientist, Epidemiology
Principal investigator of Partnership to Control Asthma in Schools.

**Krasan, Graham P., MD**
Assistant Professor of Pediatric Infectious Diseases
Assistant Professor of Epidemiology
Pediatric infectious diseases

**LiPuma, John J., MD**
Professor of Pediatric Infectious Diseases
Professor of Epidemiology
Burkholderia cepacia in cystic fibrosis.

**Morgenstern, Lewis B., MD**
Professor of Neurology and Neurosurgery
Professor of Epidemiology
Race/ethnic and gender disparities in stroke; access to health care and acculturation of Hispanic Americans; community and professional education for acute stroke treatment and stroke prevention; social epidemiology.

**Musch, David C., PhD**
Professor of Ophthalmology and Visual Science
Associate Research Scientist of Epidemiology
Epidemiology of clinical trials.
Newton, Duane W., PhD  
Clinical Assistant Professor, Pathology  
Assistant Professor, Epidemiology  
Virology and molecular diagnostics; development of molecular assays for the diagnosis and management of infectious diseases

Patel, Divya A., PhD  
Adjunct Lecturer, Epidemiology  
Research Investigator, Obstetrics and Gynecology  
Women’s health; sexually transmitted infections; gynecologic cancers; obstetrics and gynecology health services research

Richards, Julia E., PhD  
Associate Professor of Ophthalmology and Visual Science  
Associate Professor of Epidemiology  
Molecular genetics of inherited eye diseases.

Rowney, Rosemarie H., MPH, RN  
Clinical Instructor in Nursing  
Clinical Instructor in Epidemiology  
Director of Training, Bioterrorism Preparedness Initiative  
Local public health practice, policy, and leadership; identification and control of communicable disease outbreaks; bioterrorism training.

Ruffin, Mack T., MD  
Associate Professor of Family Practice  
Assistant Research Scientist of Epidemiology  
Cancer screening and early detection.

Sienko, Dean G., MD  
Medical Director/Medical Examiner, Ingham County Health Department  
Adjunct Associate Professor of Epidemiology  
Disaster preparedness.

Taylor, George W., DrPH, DMD  
Associate Professor of Dentistry  
Department of Cariology, Restorative Sciences, and Endodontics  
Associate Professor of Epidemiology  
Relationships between oral diseases and other systemic diseases, particularly the role of oral infections in diabetes mellitus, oral health and pneumonia in older adults and other adverse medical outcomes; factors affecting oral health status and dental care utilization of both the general and minority populations; active involvement in clinical research as well as secondary analyses of complex survey data.

Williams, David R., PhD  
Harold W. Cruse Collegiate Professor of Sociology  
Senior Research Scientist, Survey Research Center  
Professor of Epidemiology  
Social influences on health; trends and determinants of socioeconomic and racial differences in mental and physical health; development of health policy at the national level.
A Letter from the President

Welcome to the University of Michigan, one of our country’s great public universities. One of the many reasons I am thrilled to be part of this university community is because of its long-standing commitment to diversity. I firmly believe that we can learn some of life’s most important lessons from each other. The more varied the perspectives represented, the richer our education. Our differences—whether they be the academic questions that engage us, age, economic background, gender, or race, to name just a few—bring a buoyancy to our campus community and help create the intellectual vitality that makes Michigan internationally renowned.

Since its founding more than 180 years ago, the university has aspired to provide an outstanding education to a diverse student population. Former President James B. Angell, in his 1879 commencement address, said, “Good learning is always catholic and generous... It frowns on caste and bigotry. It spurns the artificial distinctions of conventional society. It greets all comers whose intellectual gifts entitle them to admission to the goodly fellowship of cultivated minds. It is essentially democratic in the best sense of that term.”

Several years ago, Michigan’s faculty, through the university senate, reaffirmed its commitment “to recruiting and maintaining a culturally and racially diverse student body and faculty that are representative of contemporary society, and to assuring that these diverse influences are respected and incorporated into the structure of the university.”

I am proud to belong to an academic community that historically has embraced diversity and is as committed today to this ideal as it was during the days of President Angell. I invite you to join me in supporting Michigan’s ongoing efforts to promote an appreciation of and openness to the viewpoints and contributions of others.

Sincerely,

Mary Sue Coleman
President

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