



Mel and Enid Zuckerman
College of Public Health

Academic Catalog *2010-2011*

Office of Academic Affairs
Roy P. Drachman Hall
1295 N. Martin Ave.
PO Box 245163
Tucson, Arizona 85724-5163

The University of Arizona is an equal opportunity, affirmative action institution. The University prohibits discrimination in its programs and activities on the basis of race, color, religion, sex, national origin, age, disability, veteran status, or sexual orientation and is committed to maintaining an environment free from sexual harassment and retaliation.

TABLE OF CONTENTS

What Is Public Health?	1
Bachelor of Science in Public Health – B.S.	2
Master’s Programs	
Master of Public Health – MPH	5
Biostatistics	8
Environmental and Occupational Health	10
Epidemiology	12
Family and Child Health	14
Health Behavior and Health Promotion	18
Public Health Policy and Management	21
Public Health Practice.....	23
Dual Degree Programs	25
Master of Science – MS	
Epidemiology	34
Clinical Epidemiology Track.....	35
Master of Science/Doctor of Philosophy-MS/PhD	
Environmental Health Sciences.....	36
Environmental Health Sciences Minor.....	38
Doctoral Programs	
Doctor of Public Health – DrPH	39
Maternal and Child Health	40
Public Health Policy and Management	42
Public Health Minor	44
Doctor of Philosophy – PhD	
Biostatistics	45
Biostatistics Minor.....	47
Epidemiology	48
Epidemiology Minor	49

WHAT IS PUBLIC HEALTH?

The broad mission of public health was defined by the Council on Education for Public Health in 1978 as "enhancing health in human populations through organized community effort." Public health practitioners are concerned with the determinants of disease, disability and premature death, and the planning and organization of appropriate health services, including health education and policy. The aim of public health is to apply scientific, behavioral, social, and technical knowledge to prevent disease and disability, and to promote health by means of organized community effort. Programs of public health train students in these and other disciplines, and help them to practice the coordination of the various fields in the interest of community health.

The Master and Doctor of Public Health are professional degrees designed to prepare graduates to solve public health problems as practitioners who can apply a breadth of knowledge as well as expertise and experience in one specific area of public health.

Bachelor of Science in Public Health

Director: Joe K. Gerald, MD, PhD

Faculty: Paloma Beamer, PhD; Jeff Burgess, MD, MPH; Scott Carvajal, PhD, MPH; Christina Cutshaw, PhD; Peter Giacobbi, PhD; Robin Harris, PhD, MPH; Mary Koss, PhD; Miranda M. Loh, ScD; Jennie Mullins, MPH; Mary Kay O'Rourke, PhD; Kerstin Reinschmidt, PhD, MPH; Kelly Reynolds, PhD, MSPH; Terry J. Stobbe, PhD, CIH; Douglas Taren, PhD; Ron Watson, PhD

Academic Advisor: Alan Beaudrie, MAOM

The BSPH is designed to promote an understanding of health and disease based on public health principles. The primary goal of the program is to train public health professionals who will seek to improve the quality of life of individuals and communities within Arizona. The curriculum provides general knowledge regarding public health principles and practice augmented by concentrated study (tracks) in Environmental and Occupational Health, Health Behavior and Health Delivery. Field work provides students with an experience that incorporates classroom learning into public health practice and prepares them for future employment.

The core competencies of the major provide the knowledge and skills needed to conduct public health practice in diverse populations. Particular emphasis is placed on understanding health care delivery in the US and abroad, incorporating epidemiologic and statistical methodologies into public health practice, providing culturally appropriate and effective interventions, identifying health disparities, planning and evaluating health interventions, and understanding the link between nutrition and health.

Specific focus in one or more tracks provides in-depth knowledge of a particular aspect of public health practice. The Environmental and Occupational Health track focuses on recognition of health hazard sources and approaches used to identify and evaluate them. Through available frameworks student will learn to manage and control exposures at individual and population levels thus promoting health and preventing disease. The Health Behaviors track emphasizes preventable behavioral risk factors for social dysfunction, illness and injury. The Health Delivery track focuses on important but often overlooked biologic, individual and system level determinants that affect health and health delivery in the United States. Mastery of the core and track content prepares students to directly enter the workforce or for graduate education in public health, medicine, pharmacy or dentistry.

Acceptance to the public health major is dependent on the candidate's academic aptitude; prior experience in public health demonstrated via community service or public health practice; leadership potential; commitment to underserved areas and populations, and respect for cultural diversity. Admission to the major is by application only and requires at minimum: a University of Arizona GPA of 2.5 or greater; completion of the pre-health prerequisite courses with a grade of C or higher; except for ENGL 102, which requires a grade of B or higher; a completed major application, a resume or CV and personal narrative. Acceptance is competitive and may require qualifications that exceed the listed minimums. The required **prerequisite courses** for the Bachelor of Science in Public Health are a minimum of **56 credit hours**.

BACHELOR OF SCIENCE IN PUBLIC HEALTH CURRICULUM (64 units)

Required Core Courses (33 units)

ENGL 308	Technical Writing (3)
EPID 309	Introduction to Epidemiology (3)
CPH 300	Community Health Sciences and Services (3)
CPH 310	Health Care in the US (3)
CPH 376	Introduction to Health Statistics (3)
CPH 350	Principles of Health Education and Health Promotion (3)
CPH 387	Health Disparities and Minority Health (3)
CPH 433	Global Health (3)
CPH 478	Maternal and Child Health Nutrition (3) or
NSC 310	Principles of Nutrition in Health and Disease (3)
CPH 493	Field Work in Public Health (6)

Track Courses – 9 units

Environmental and Occupational Health Track

CPH 418	Introduction to Health Risk Assessment (3)
CPH 484	Fundamentals of Industrial and Environmental Health (3)
CPH 489	Public Health Preparedness (3)

Health Behaviors Track

CPH 306	Drugs and Society (3)
CPH 330	Human Sexuality (3)
CPH 449	Family Violence (3)

Health Delivery Track

CPH 405	Biology in Public Health Research (3)
CPH 407	Health Economics and Policy (3)
CPH 4xx	Public Health Approaches to Mental Disorders in the United States (3)

CPH Electives*[#] (12 units)

CPH 321	Health Care Policy and Institutions (3) see also PA 321
CPH 322	Health Education Ethical Leadership (3)
CPH 381	Health Education Intervention Methods (3)
CPH 400	Contemporary Community Health Problems (3)
CPH 409	Evolution of Infectious Disease (3) see also ECOL 409
CPH 421	Disease and Illness in Mining (3) see also M NE 421
CPH 422	Safety Fundamentals (3)
CPH 425	Topics in Latino Health (3) see also MAS 425
CPH 444	Rethinking Race and Health in US (3) see also AFAS 444

General Electives (10 units)

Track courses may be used as CPH electives/*See advisor for updated elective courses.

Total Minimum Credit Requirements for the Bachelor of Science in Public Health = 120 units

Recommended Course Sequencing – Bachelor of Science in Public Health

First Year

Fall Semester (15 units)

ENGL 308	Technical Writing (3)
CPH 300	Community Health Sciences and Services (3)
CPH 310	Health Care in the US (3)
CPH	Track Requirement 1 (3)
CPH	CPH Elective 1 (3)

Spring Semester (15 units)

EPID 309	Introduction to Epidemiology (3)
CPH 376	Introduction to Health Statistics (3)
CPH 433	Global Health (3)
CPH	Track Requirement 2 (3)
	General Elective 1 (3)

Second Year

Fall Semester (15 units)

CPH 350	Principles of Health Education and Health Promotion (3)
CPH 478	Maternal and Child Health Nutrition (3)
CPH	Track Requirement 3 (3)
CPH	CPH Elective 2 (3)*
	General Elective 2 (3)*

Spring Semester (18 units)

CPH 387	Health Disparities and Minority Health (3)
CPH	CPH Elective 3 (3)
CPH	CPH Elective 4 (3)
	General Elective 3 (3)
CPH 493	Field Work in Public Health [#] (6)

* Students may substitute CPH 493 Field Work in Public Health (6)

Admission to the major and permission of instructor required for enrollment.

MASTER OF PUBLIC HEALTH

The Master of Public Health (MPH) degree is designed to be an interdisciplinary, graduate, professional degree in public health. The program provides opportunities for students to obtain broad knowledge and basic skills in the core areas of public health. Students are able to acquire proficiency in one or more specialized areas through advanced coursework, and gain experience in applying advanced knowledge to the solution of actual health problems in community settings during internship training.

The mission of the MPH program is to prepare professionals to assume public health leadership roles in the identification of community health problems, and in the planning, implementation and evaluation of programs and policies essential for the promotion of health and the alleviation of illness and disease. The MPH program is designed to meet the particular needs of the southwestern United States, with emphasis on rural and urban medically underserved populations, including Hispanics, Native Americans, and other ethnic minority populations.

The MPH Program blends the strengths and experiences of the medical and health-related programs of The University of Arizona and the community health agencies of Arizona to provide a program of sufficient breadth and depth to offer high quality community-oriented graduate public health education.

MASTER OF PUBLIC HEALTH (MPH) DEGREE OPTIONS

The UA Zuckerman College of Public Health offers a MPH program in which students acquire a sound academic background for competent practice in the field of public health. The MPH program is a two year program for full-time students; part-time students may take up to six years to complete the program. MPH students are required to select one of the seven concentration areas listed below. Dual degree options are also available, including the MD/MPH with the College of Medicine, the JD/MPH with the College of Law, the MBA/MPH with Eller College of Management, the MPH/MA in Latin American Studies, and the MPH/MS in Mexican American Studies.

Biostatistics

The Biostatistics area of study's educational objective is to prepare individuals to apply statistical methods to the solution of problems encountered in such fields as public health, medicine, nursing, pharmacy and dentistry. They collaborate with scientists and investigators in nearly every area related to health, and have made major contributions to our understanding of diseases such as AIDS, cancer, and coronary heart disease.

Epidemiology

Epidemiology is a fundamental science of public health with a major focus on health problems in communities, groups, or aggregates of people. Individuals who choose this concentration will have the opportunity to acquire knowledge, skills and experiences for measuring and studying the distributions, characteristics, causes, and prevention of disease, disability, and premature death in humans. The Epidemiology concentration prepares students to work proficiently with tasks related to epidemiological study design, data collection, data analysis, and study presentations in public health.

Family and Child Health

The Family and Child Health (FCH) area of study provides students with the history and current status of the socioeconomic, cultural, political and physiological issues that affect families and children. Students entering the FCH concentration must choose a plan of work in one of two specialized areas: maternal and child health or global health. All students in the FCH area of study will take a set of courses that focus on maternal and child health issues, government policies affecting women and children, adolescent health, and nutrition.

Health Behavior and Health Promotion

The Health Behavior and Health Promotion (HBHP) concentration is founded on a philosophy of health education, health promotion, and disease prevention to improve the quality of life of individuals, families and communities. HBHP focuses on sociocultural factors that influence health and health behavior; scientific and theoretical bases for planning, implementing, and evaluating effective public health education, health promotion and disease prevention programs; and the goal of facilitating behavior change for healthy life.

Environmental and Occupational Health

The Environmental and Occupational Health concentration area of study prepares individuals to evaluate and control health risks posed by chemical and biological contaminants and physical exposures (noise, heat and radiation) in occupational and non-occupational environments. Those interested in industrial hygiene may be eligible to receive funds through the NIOSH training program. Faculty members have experience in industrial hygiene, occupational and environmental health, toxicology, occupational and preventive medicine, environmental sciences and epidemiology. Concentration coursework includes: indoor/outdoor pollution, assessment and evaluation strategies, the toxicology of chemical agents, and implementation of research protocols.

Public Health Policy and Management

The Public Health Policy and Management area of study prepares leaders of public and private health systems to manage effectively and to create and implement policies that promote the public's health. The concentration develops skills in management and leadership, policy analysis and formulation, strategic and financial planning, health services administration and evaluation for all levels of practice, including local/community, state, national and international. Consistent with the College's focus on community participation and development, the curriculum emphasizes community partnership in all aspects of public health policy development and program management.

Public Health Practice (Phoenix Collaborative Program)

The MPH in Public Health Practice prepares students to work effectively as part of multidisciplinary teams to develop, manage and evaluate public health programs that are appropriate for decreasing health disparities. Coursework includes: core areas of public health and skills in the administration and fiscal management of programs within diverse populations.

MASTER OF PUBLIC HEALTH DEGREE REQUIREMENTS

The Master of Public Health (MPH) degree is comprised of core courses, concentration and elective courses, and an internship. Each student also will be required to produce a comprehensive, analytical, problem solving report integrating the in-class learning into the internship experience. An oral presentation of the material before a student and faculty colloquium, reporting on activities during the internship and relating those activities to broader public health issues is required. Detailed information on the requirements for each concentration area follows.

Biostatistics

Faculty: Denise Roe, DrPH – **Section Chair**; Angelika Gruessner, PhD; Paul Hsu, PhD; Chengcheng Hu, PhD; Bonnie LaFleur, PhD, MPH; Duane Sherrill, PhD.

The MPH program in Biostatistics is offered by the Division of Epidemiology and Biostatistics. The educational objective of the MPH degree in Biostatistics is to prepare individuals to work effectively as biostatisticians in a variety of public health, epidemiological and clinical research settings. Candidates for admission may come from medical and public health backgrounds. Applicants should possess 1) a demonstrated interest and/or experience in the area of statistics, 2) in the case of a deficient overall GPA, evidence that recent performance significantly exceeds the past average, and 3) evidence of personal qualities that suggest the ability to commit and succeed in the course of studies. While courses in statistics are not required as prerequisites, students should have had college level calculus and/or linear algebra.

MPH Biostatistics Total Minimum Credit Requirements = 44 units

Required Core Courses (15 units)

CPH 573A	Basic Principles of Epidemiology (3)
CPH 574	Public Health Policy and Management (3)
CPH 575	Environmental and Occupational Health (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 577	Sociocultural and Behavioral Aspects of Public Health (3)
	Internship Preparation Tutorial (required ; non-credit)

Required Biostatistics Courses (23 units)

CPH 576B	Biostatistics for Research (3)
CPH 576C	Applied Biostatistics Analysis (3)
CPH 576D	Data Management and the SAS Programming Language (3)
CPH 647	Analysis of Categorical Data (3)
CPH 684	General Linear and Mixed Effects Models (3)
CPH 688	Statistical Consulting (3)
CPH 909	Master's Report "Internship" (3)
CPH 696S	Biostatistics Seminar (1 unit – 2 times)

Elective Courses (minimum 6 units) – approved by Advisor

CPH 648	Analysis of High Dimensional Data (3)
CPH 675	Clinical Trials and Intervention Studies (3)
CPH 677	Genetic Association Studies (3)
CPH 686	Survival Analysis (3)
CPH 687	Theory of Linear Models (3)
STAT 564	Theory of Probability (3)
STAT 566	Theory of Statistics (3)
STAT 571B	Design of Experiments (3)
STAT 675	Statistical Computing (3)

Recommended Course Sequencing – MPH Biostatistics

First Year

Fall Semester (12 credits)

- CPH 573A* Basic Principles of Epidemiology (3)
- CPH 575* Environmental & Occupational Health (3)
- CPH 576A* Biostatistics in Public Health (3)
- CPH 576D Data Management and the SAS Programming Language (3)

Spring Semester (10 credits)

- CPH 574* Public Health Policy & Management (3)
- CPH 576B Biostatistics for Research (3)
- CPH 577 * Sociocultural & Behavioral Aspects of Public Health (3)
- CPH 696S Biostatistics Seminar (1)

Summer Semester (3 credits)

- CPH 576C Applied Biostatistics Analysis (3)

Second Year

Fall Semester (10 units)

- CPH 684 General Linear and Mixed Effects Models (3)
- CPH 688 Statistical Consulting (3)
- Elective (approved by Advisor) (3)
- CPH 696S Biostatistics Seminar (1)
- Internship Preparation Tutorial (**required**; non-credit)

Spring Semester (9 credits)

- CPH 647 Analysis of Categorical Data (3)
- CPH 909** Master's Report "Internship" (3)
- Elective (approved by Advisor) (3)

*MPH Core Courses are offered fall & spring semesters, allowing flexibility

**Prerequisites for CPH 909 – Master's Report "Internship": at least 3 MPH core courses.

Environmental and Occupational Health

Faculty: Mary Kay O'Rourke, PhD – **Section Chair**; Paloma Beamer, PhD;
Jeff Burgess, MD, MS, MPH; Miranda Loh, ScD; Eric Lutz, PhD;
Kelly Reynolds, PhD, MSPH; Terry Stobbe, PhD, CIH, CSP, CPE

The MPH degree in Environmental and Occupational Health (EOH) is offered by the Division of Community, Environment and Policy. The degree prepares individuals to evaluate and control health risks posed by chemical and biological contaminants and physical exposures (noise, heat and radiation) in occupational and non-occupational environments. Those interested in industrial hygiene may be eligible to receive funds through the NIOSH training program. The faculty have experience and teach courses addressing industrial hygiene, occupational and environmental health, toxicology, occupational and preventive medicine, safety and ergonomics, epidemiology, microbiology, environmental sciences and engineering.

Concentration coursework includes: indoor/outdoor agents, assessment and evaluation strategies, the toxicology of chemical agents, health responses to changing global systems, and implementation of research protocols. Students perform internships to gain experience in a setting related to their professional interests. Collaborative research is facilitated; students may present their findings at professional conferences and publish their results. A technical paper or research paper is required of all students and is defended during a final oral examination.

Students selecting the EOH concentration area should have a strong background in the biological and physical sciences. Inorganic chemistry is required for admission to this concentration; organic chemistry is highly recommended.

MPH EOH Total Minimum Credit Requirements = 42 units**

Required Core Courses (15 units)

- CPH 573A Basic Principles of Epidemiology (3)
- CPH 574 Public Health Policy and Management (3)
- CPH 575 Environmental and Occupational Health (3)
- CPH 576A Biostatistics in Public Health (3)
- CPH 577 Sociocultural and Behavioral Aspects of Public Health (3)
Internship Preparation Tutorial (**required**; non-credit)

Required EOH Courses (18 units)

- CPH 502 Environmental Monitoring and Analysis (3)
- CPH 584 Fundamentals of Industrial and Environmental Health (3)
- CPH 653 Applied Exposure Assessment (3)
- CPH 696R Environmental & Occupational Health Seminar (1 unit – **3 times**)
- CPH 900 Research – Environmental and Occupational Health (3)
- CPH 909 Master's Report "Internship" (3)

Selective Courses (minimum 9 units) – approved by Advisor

*Students select courses in one of two areas of emphasis: +Environmental Health Science or *Industrial Hygiene.* ** Some scholarships require additional units.

Recommended Course Sequencing – MPH EOH
(Even year entry)

First Year

Fall Semester

CPH 502	Environmental Monitoring & Analysis (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 584	Fundamentals of Industrial & Environmental Health (3)
CPH 696R	Environmental & Occupational Health Seminar (1 unit)
*/+IH/EH	Selective I (approved by Advisor)

Spring Semester

CPH 573A	Basic Principles of Epidemiology (3)
CPH 574	Public Health Policy and Management (3)
CPH 696R	Environmental & Occupational Health Seminar (1 unit)
CPH 653	Applied Exposure Assessment (3)
	Internship Preparation Tutorial (required ; non-credit)
*/+ IH/EH	Selective II (approved by Advisor)

Summer Session

@CPH 909	Master's Report "Internship" (3) OR CPH 900 Research (3)
----------	---

Second Year

Fall Semester

CPH 577	Sociocultural & Behavioral Aspects of Public Health (3)
CPH 575	Environmental & Occupational Health (3)
CPH 696R	Environmental & Occupational Health Seminar (1 unit)
*/+ IH/EH	Selective III (approved by Advisor)

Spring Semester

CPH 900	EOH Research OR CPH 909 Master's Report (Internship) (3)
Additional Selective(s) (approved by Advisor)**	

@Prerequisites for CPH 909: at least 3 MPH core courses and CPH 502, 584 and Internship preparation tutorial

Contact your Advisor for a list of selective courses appropriate to your interest area.

Students select courses in one of two areas of emphasis:

+Environmental Health Science or *Industrial Hygiene.

****** Some scholarships require additional units (CPH 583, 655, 696R)

Make sure you consider courses delivery by year (some courses only have even or odd year offerings).

Epidemiology

Faculty: Robin Harris, PhD, MPH – **Section Chair**; Zhao Chen, PhD, MPH; Kacey Ernst, PhD; Janet Foote, PhD; Elizabeth Jacobs, PhD; M. Elena Martinez, PhD, MPH; Sydney Pettygrove, PhD; Eyal Shahar, MD, MPH; Patricia Thompson, PhD.

The MPH in Epidemiology is offered by the Division of Epidemiology and Biostatistics. Epidemiology is a fundamental science of public health with a major focus on health problems in communities, groups, or aggregates of people.

The Epidemiology concentration curriculum provides systematic training in epidemiological principles, methods, and practices through constructive coursework and an internship. Individuals who choose the epidemiology concentration will have the opportunity to acquire knowledge, skills and experiences for measuring and studying the distributions, characteristics, causes, and prevention of disease, disability, and premature death in humans.

Students accepted into this discipline should have a good background in the biological sciences and mathematics. In addition to the general admission requirements for the MPH program, other factors considered in the determination of a candidate's potential for success in the epidemiology concentration area are long range goals and commitment to both public health and epidemiology; experience/interest in applying epidemiological principles to public health; and work and volunteer experience in epidemiology.

MPH Epidemiology Total Minimum Credit Requirements = 44 units

Required Core Courses (15 units)

CPH 573A	Basic Principles of Epidemiology (3)
CPH 574	Public Health Policy and Management (3)
CPH 575	Environmental and Occupational Health (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 577	Sociocultural and Behavioral Aspects of Public Health (3)
	Internship Preparation Tutorial (required ; non-credit)

Required Epidemiology Courses (23 units)

CPH 573B	Epidemiologic Methods (3)
CPH 573C	Advanced Epidemiology (3)
CPH 576B	Biostatistics for Research (3)
CPH 596D	Public Health Experience – Student Epidemiology Response Team (2)
CPH 660	Infectious Disease Epidemiology (3)
CPH 670	Chronic Disease Epidemiology (3)
CPH 696A	Epidemiology Seminar (1 unit – 2 times)
CPH 909	Master's Report "Internship" (4)

Elective Courses (minimum 6 units) – approved by Advisor

Recommended Course Sequencing – MPH Epidemiology

First Year

Fall Semester

- CPH 573A Basic Principles of Epidemiology (3)
CPH 574 Public Health Policy & Management (3) **OR** other Core MPH Course*
CPH 576A Biostatistics in Public Health (3)
CPH 596D Public Health Experience – Student Epidemiology Response Team (2)**
CPH 696A Epidemiology Seminar (1)

Spring Semester

- CPH 573B Epidemiologic Methods (3)
CPH 576B Biostatistics for Research (3)
CPH 577 Sociocultural & Behavioral Aspects of Public Health (3) **OR** other Core MPH Class*
CPH 696A Epidemiology Seminar (1)
Internship Preparation Tutorial (**required**; non-credit)

Summer Semester

- CPH 909*** Master's Report "Internship" (0-4) **AND/OR** Elective (approved by Advisor)

Second Year

Fall Semester

- CPH 573C Advanced Epidemiology (3)
CPH 575 Environmental & Occupational Health (3) **OR** other Core MPH Class*
CPH 670 Chronic Disease Epidemiology (3)
CPH 909 Master's Report "Internship" (0-6) **OR** Elective (approved by Advisor)

Spring Semester

- CPH 660 Infectious Disease Epidemiology (3)
CPH 909*** Master's Report "Internship" (0-4) **AND/OR** Elective (approved by Advisor)

*MPH Core Courses are offered fall & spring semesters, allowing flexibility

**CPH 596D is offered both fall and spring semesters

***CPH 909 – Master's Report "Internship" may be taken in one or more semesters and the credits may be split across semesters. Prerequisite courses for CPH 909 are: CPH 573A, CPH 576A, CPH 573B, CPH 576B.

Family and Child Health

Faculty: *Francisco Garcia, MD, - Section Chair*; Christina Cutshaw, PhD, Burris “Duke” Duncan, M.D; John Ehiri, PhD, MPH; Iman Hakim, MBBCh, PhD, MPH; Mary Koss, PhD; Douglas Taren, PhD; Nicolette Teufel-Shone, PhD; Ronald Watson, PhD.

The MPH in Family and Child Health is offered by the Division of Health Promotion Sciences. The Family and Child Health Concentration (FCH) provides students a curriculum that addresses the history and current status of the socioeconomic, cultural, political and physiological issues that affect the health of families and children. Students entering the FCH concentration must choose a plan of work in one of two specialized areas: Maternal and Child Health (MCH) or Global Health. All students in the FCH concentration will take a set of courses that focus on maternal and child health issues, government policies affecting women and children, adolescent health, and nutrition. In addition, each student, under the guidance of an advisor, will develop an individualized plan of study for his or her specialized area of interest.

In addition to the general admission requirements for the MPH Program, factors considered in the determination of a candidate’s potential for success in the FCH concentration include work or volunteer experience in the area of maternal and child health. The FCH concentration encourages a variety of health care professionals to apply to this program, including nurses, nutritionists, social workers, and physicians. Students with backgrounds in a variety of social sciences who have public health experience outside of FCH are also encouraged to apply.

MPH FCH Total Minimum Credit Requirements: **MCH Track = 44 units Global Health Track = 46 units**

Required Core Courses (15 units)

- CPH 573A Basic Principles of Epidemiology (3)
- CPH 574 Public Health Policy and Management (3)
- CPH 575 Environmental and Occupational Health (3)
- CPH 576A Biostatistics in Public Health (3)
- CPH 577 Sociocultural and Behavioral Aspects of Public Health (3)
- Internship Preparation Tutorial (**required**; non-credit)

Maternal and Child Health Track Requirements

Required MCH Courses (29 units)

- CPH 586 Maternal and Child Health (3)
- CPH 630 Maternal and Child Health Epidemiology (3)
- CPH 682 Women & Children Health Policy (3)
- CHP 597A Maternal & Child Health Programs in Urban Settings (1)
- CPH 597B Maternal & Child Health Programs in Rural Southwest (1)
- CPH 696H Maternal & Child Health/Public Health Seminar (1)
- CPH 596E Health Education/Behavioral Leadership Course (2)
- One Planning and/or Evaluation Course (from approved list – consult with Advisor) (3)
- CPH 909 Master’s Report “Internship” (6)

Elective Courses (minimum 6 units) – approved by Advisor

Global Health Track Requirements:

Required Global Health Courses (31 units)

- CPH 533 Global Health (3)
CPH 586 Maternal and Child Health (3)
CPH 560 International Nutrition (3)
CPH 630 Maternal and Child Health Epidemiology (3)
 OR CPH 645 Nutritional Epidemiology (3)
 OR CPH 660 Infectious Disease Epidemiology (3)
CPH 606 Changing Health Policy: Cultural Understanding & Epi Analysis (3)
CPH 696H Maternal and Child Health/Public Health Seminar (1)
One Planning and/or Evaluation Course (from approved list – consult with Advisor) (3)
CPH 909 Master’s Report “Internship” (6)
Elective Courses (minimum 6 units) – approved by Advisor

Recommended Course Sequencing – MPH Maternal & Child Health Track

(This course sequencing schedule is only a recommendation. The schedule was designed so that the 4th semester would consist solely of internship hours thus allowing a student to engage in an internship project outside of Tucson. Students and advisors may opt to create a schedule that better suits student strengths and interests.)

First Year

Fall Semester (13 credits)

CPH 577	Sociocultural & Behavioral Aspects of Public Health (3)
CPH 573A	Basic Principles of Epidemiology (3)
CPH 586	Maternal & Child Health (3)
Elective	(approved by Advisor) (3)
CPH 696H	Maternal & Child Health/Public Health Seminar (1)

Spring Semester (11 credits)

CPH 630	MCH Epidemiology (3)
CPH 682	Women & Child Health Policy (3)
	Planning/Evaluation Course (3)
CPH 596E	Health Education/Behavioral Leadership Course (2)

Summer Pre-Session Semester *one week after Spring semester*

CPH 597B	MCH Programs in Rural Southwest (1)
----------	-------------------------------------

Summer Session II

CPH 597A	MCH Programs in Urban Settings (1) <i>one week before Fall semester</i>
----------	---

Second Year

Fall Semester (12 credits)

CPH 575	Environmental & Occupational Health (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 574	Public Health Policy & Management (3)
Elective	(approved by Advisor) (3)
	Internship Preparation Tutorial (required ; non-credit)

Spring Semester (6 credits)

CPH 909	Master's Report "Internship" (6)
---------	----------------------------------

Recommended Course Sequencing – MPH Global Health Track

(This course sequencing schedule is only a recommendation. Students and advisors may opt to create a schedule that better suits student strengths and interests.)

First Year

Fall Semester (13 units)

- CPH 573A Basic Principles of Epidemiology (3)
- CPH 586 Maternal & Child Health (3)
- CPH 577 Sociocultural Aspects of Public Health (3)
- Elective (approved by Advisor) (3)
- CPH 696H Maternal & Child Health/Public Health Seminar (1)

Spring Semester (12 units)

- CPH 533 Global Health (3)
- CPH 630 MCH Epidemiology (3)
 - OR** CPH 645 Nutritional Epidemiology (3)
 - OR** CPH 660 Infectious Epidemiology (3)
- CPH 574 Public Health Policy & Management (3)
- CPH 560 International Nutrition (3)

Second Year

Fall Semester (15 credits)

- CPH 576A Biostatistics in Public Health (3)
- CPH 575 Environmental & Occupational Health (3)
- CPH 606 Changing Health Policy: Cultural Understanding & Epi Analysis (3)
 - Planning/Evaluation Course (3)
 - Elective (approved by Advisor) (3)
 - Internship Preparation Tutorial (**required**; non-credit)

Spring Semester (6 credits)

- CPH 909 Master's Report "Internship" (6)

Health Behavior and Health Promotion

Faculty: Scott Carvajal PhD, MPH, *Interim Section Chair*; Lynda Bergsma, PhD;
Richard Carmona, MD, MPH; Lynn Gerald, PhD, MSPH; Peter Giacobbi, PhD;
Maria Glowacka PhD; Nicole Yuan, PhD

Adjunct Instructor: Sheila Parker, DrPH

The MPH in Health Behavior and Health Promotion (HBHP), offered by the Division of Health Promotion Sciences, is based on a philosophy of health education, health promotion, and disease prevention, to improve the quality of life of individuals, families and communities. The HBHP discipline focuses on three areas:

1. Sociocultural factors that influence health and health behavior;
2. Scientific and theoretical basis for planning, implementing, and evaluating effective public health education, health promotion and disease prevention programs; and
3. The goal of facilitating behavior change for healthy life.

The program provides students with the opportunity to acquire the knowledge and skills that are essential for the promotion of health and prevention of disease in culturally diverse populations. Specific competencies that students are expected to acquire include: a working knowledge of sociocultural factors that influence health, an ability to plan culturally appropriate and effective public health interventions, knowledge and skills relating to the application of sociocultural principles to health promotion and disease prevention programs, culturally relevant service delivery that facilitates positively changed health behaviors, and appropriate methods and skills to effectively plan, implement, and evaluate public health programs.

The Health Behavior and Health Promotion concentration places a strong emphasis on the following factors in its determination of a candidates' potential for success in the concentration: long range goals and commitment to public health; successful leadership experience or potential; work and volunteer experience related to the concentration's public health focus; demonstrated community service; public health experience or interest; documented experience and/or commitment to underserved areas and populations. The personal statements of students applying for admission to the Health Behavior and Health Promotion concentration should include information regarding these factors.

MPH HBHP Total Minimum Credit Requirements = 42 units

Required Core Courses (15 units)

CPH 573A	Basic Principles of Epidemiology (3)
CPH 574	Public Health Policy and Management (3)
CPH 575	Environmental and Occupational Health (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 577	Sociocultural and Behavioral Aspects of Public Health (3)
	Internship Preparation Tutorial (required ; non-credit)

Required HBHP Courses (21 units)

CPH 531	Contemporary Health Issues and Research (3)
CPH 532A	Applied Aspects of Program Planning, Implementation, and Evaluation I (4)
CPH 535	Multicultural Health Beliefs (3)
CPH 596E	Health Education/Behavioral Sciences Leadership Seminar (2)
CPH 650	Applied Public Health Theory (3)
CPH 909	Master's Report "Internship" (6)

Elective Courses (minimum 6 units) – approved by Advisor

Recommended Course Sequencing – MPH HBHP

First Year

Fall Semester (12 credits)

CPH 531	Contemporary Health Issues & Research (3)
CPH 576A*	Biostatistics in Public Health (3)
CPH 577 *	Sociocultural & Behavioral Aspects of Public Health (3)
CPH 535	Multi Cultural Health Beliefs (3)

Spring Semester (12 credits)

CPH 532A**	Applied Aspects of Program Planning, Implementation & Evaluation I (4)
CPH 573A*	Basic Principles of Epidemiology (3)
CPH 596E	Health Education Leadership Seminar (2)
Elective	(approved by Advisor) (3)
	Internship Preparation Tutorial (required ; non-credit)

Second Year

Fall Semester (11 credits)

CPH 650**	Applied Public Health Theory (3)
CPH 574*	Public Health Policy & Management (3)
CPH 909**	Master's Report "Internship" (2)
Elective	(approved by Advisor) (3)

Spring Semester (7 credits)

CPH 575*	Environmental & Occupational Health (3)
CPH 909**	Master's Report "Internship" (4)

*MPH Core Courses are offered fall & spring semesters, allowing flexibility

****Prerequisites:** CPH 532A: CPH 535 and CPH 577
CPH 650: CPH 531, CPH 532A
CPH 909: At least 3 core courses and CPH 532A

Public Health Policy and Management

Faculty: Joe Gerald, MD, PhD – *Interim Section Chair*;
Gail Barker, PhD; Merrill Eisenberg, PhD; Howard Eng, DrPH, MS;
Ralph Renger, PhD; Cecilia Rosales, MD, MS; Kenneth Schachter, MD, MBA;
Ernest Schloss, PhD; Anthony Vuturo, MD, MPH

Appointed Professionals and Lecturers:
Jill Guernsey de Zapien, BA; Alison Hughes, MPA; Maia Ingram, MPH

The MPH in Public Health Policy and Management is offered by the Division of Community, Environment and Policy. The Public Health Policy and Management Section prepares MPH students for leadership roles in the public and private sectors and to effectively create and implement policies and manage programs that promote the public's health with special emphasis on the diverse and rural populations of the Southwest.

The Public Health Policy and Management concentration places a strong emphasis on the following factors in its determination of a candidate's potential for success in the concentration: public health experience or interest; documented experience and/or commitment to underserved areas and populations (an interest in rural and border health issues is also encouraged); passion for social justice; successful leadership experience or potential and demonstrated community service.

MPH PHPM Total Minimum Credit Requirements = 45 units

Required Core Courses (15 units)

CPH 573A	Basic Principles of Epidemiology (3)
CPH 574	Public Health Policy and Management (3)
CPH 575	Environmental and Occupational Health (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 577	Sociocultural and Behavioral Aspects of Public Health (3)
	Internship Preparation Tutorial (required ; non-credit)

Required PHPM Courses (18 units)

CPH 562	Health Services Administration (3)
CPH 567	Public Health Leadership & Management (3)
CPH 569	Fundamentals of Health Budgeting and Financial Management (3)
CPH 616	Public Health and Rural Policy Analysis (3)
CPH 909	Master's Report "Internship" (6)

Elective Courses (minimum 12 units) - Approved by Advisor

Recommended Course Sequencing – MPH PHPM

First Year

Fall Semester (12 credits)

CPH 562	Health Services Administration (3)
CPH 573A*	Basic Principles of Epidemiology (3)
CPH 574*	Public Health Policy & Management (3)
CPH 576A*	Biostatistics in Public Health (3) OR CPH 577 Sociocultural & Behavioral Aspects of Public Health (3)

Spring Semester (12 credits)

CPH 567	Public Health Leadership & Management (3)
Elective	(approved by Advisor) (3)
Elective	(approved by Advisor) (3)
CPH 616	Public Health and Rural Policy Analysis (3)

Second Year

Fall Semester (12 credits)

CPH 569	Fundamentals of Health Budgeting & Financial Management (3)
CPH 575 *	Environmental & Occupational Health (3)
CPH 577*	Sociocultural & Behavioral Aspects of Public Health (3) OR CPH 576A Biostatistics in Public Health (3)
	Internship Preparation Tutorial (required ; non-credit)
Elective	(approved by Advisor) (3)

Spring Semester (9 credits)

CPH 909**	Master's Report "Internship" (6)
Elective	(approved by Advisor) (3)

*MPH Core Courses are offered fall & spring semesters, allowing flexibility

**Prerequisites for CPH 909 – Master's Report "Internship": at least 3 MPH core courses.

Public Health Practice - (Phoenix Collaborative Program)

Faculty:

Cecilia Rosales, MD, MS- **Program Chair**; Iman Hakim, MBBCh, PhD, MPH; Gail Barker, PhD; Janet Foote, PhD; Douglas Campos-Outcalt, MD, MPH, Douglas Taren, PhD, Michael Trujillo, MD, MPH

The Master of Public Health in Public Health Practice is an interdisciplinary program that prepares students to develop the public health skills needed to work in a variety of governmental and non-governmental settings including the local, county and state departments of health, the Indian Health Service, Medicaid and Medicare programs, hospitals, and community health centers. Students learn to work effectively as part of multidisciplinary teams to develop, manage and evaluate public health programs that are appropriate for decreasing health disparities between and within diverse populations.

The Public Health Practice concentration is geared toward students who are able to enroll in courses that utilize a combination of distance and in person teaching modalities. An internship that integrates classroom work into a practice setting serves as the culminating experience of the curriculum. Course work includes subject matter in the core areas of public health: epidemiology, biostatistics, environmental and occupational health, public health policy and management, and socio-cultural and behavioral aspects of public health. Students obtain additional skills in the administration and fiscal management of programs that address the health beliefs in a variety of cultures. Students selecting the public health practice program should possess strong administrative skills, an academic background in a public health related field and/or experience working or volunteering within at least one public health program.

MPH PHP Total Minimum Credit Requirements = 42 units

Required Core Courses (15 units)

- CPH 573A Basic Principles of Epidemiology* (3)
- CPH 574 Public Health Policy and Management* (3)
- CPH 575 Environmental and Occupational Health* (3)
- CPH 576A Biostatistics in Public Health* (3)
- CPH 577 Sociocultural & Behavioral Aspects of Public Health* (3)
- Internship Preparation Tutorial† (required; non-credit)

Required Public Health Practice Courses (24 units)

- CPH 569 Fundamentals of Health Budgeting and Financial Management§ (3)
- CPH 641 Advanced Health Care Administration§ (3)
- CPH 535 Multi Cultural Health Beliefs§ (3)
- CPH 572 Applied Public Health Practice§ (3)
- CPH 696V Public Health Practice Seminar§ (1 unit – **2 times**)
- CPH 594 Practicum (6)
- CPH 909 Master's Report "Internship" (3)
- Service Learning Course (approved by Advisor) (1)

Elective Courses (minimum 3 units)

- Planning/Evaluation Course (approved by Advisor)

Recommended Course Sequencing – MPH Public Health Practice

First Year

Fall Semester (10 credits)

CPH 574	Public Health Policy and Management* (3)
CPH 569	Fundamentals of Health Budgeting and Financial Management§ (3)
CPH 535	Multi Cultural Health Beliefs§ (3)
CPH 696V	Public Health Practice Seminar§ (1)

Spring Semester (10 credits)

CPH 576A	Biostatistics in Public Health* *(3)
CPH 641	Advanced Health Care Administration§ (3)
CPH 572	Applied Public Health Practice§ (3)
CPH 696V	Public Health Practice Seminar§ (1)
	Internship Preparation Tutorial† (required ; non-credit)

Summer Session (7 credits)

CPH 573A	Basic Principles of Epidemiology** (3)
CPH 575	Environmental and Occupational Health**(3)
	Service Learning Course (approved by Advisor) (1)

Second Year

Fall Semester (6 -12 units)

CPH 577	Sociocultural & Behavioral Aspects of Public Health* (3)
CPH 594	Practicum (3-6)***
	Planning/Evaluation Course OR in Spring (3)

Spring Semester (3-9 credits)

CPH 909	Master's Report "Internship" (3)
CPH 594	Practicum (0-3)***
	Planning/Evaluation Course OR in Fall (3)

* Offered on-line and in-person in Tucson

Offered **only online during **this term**

† Offered online

§ Offered in-person in Phoenix and Tucson using interactive television (ITV) session

***Prerequisites for **CPH 594 – Practicum**: at least 3 MPH core courses (which should include EPID 573A or EPID 576A), CPH 569 and CPH 572.

DUAL DEGREE PROGRAMS

The Mel and Enid Zuckerman College of Public Health (MEZCOPH) has partnered with the College of Medicine, the College of Law, the Eller College of Management, and the College of Social and Behavioral Sciences to administer five dual degree programs:

MEZCOPH Dual Degree Programs:

- MPH/MD
- MPH/JD
- MPH/MBA
- MPH/MA-LATIN AMERICAN STUDIES
- MPH/MS-MEXICAN AMERICAN STUDIES

Dual degree programs are excellent programs for individuals with a wide range of interests, diverse education, and multiple talents to gain expertise in both public health and other disciplines such as medicine, law, business and the social sciences. Students have the opportunity to earn two complementary degrees simultaneously. Dual degree applicants are required to meet the application deadlines, testing requirements, and submit program fees to each program independently. Academically, students are expected to fulfill the basic requirements of each program with the inclusion of course work that satisfies the requirements of both programs. Dual-degree students work with academic advisors in both programs to determine their specific course requirements. Information regarding the requirements for each dual degree program follows.

Medicine

The MD/MPH Dual Degree program is offered jointly with the University of Arizona College of Medicine and the Mel and Enid Zuckerman College of Public Health at both Tucson and Phoenix campuses. The dual degree program allows a student to earn a Doctor of Medicine (MD) and a Master of Public Health (MPH). The emphasis of the MD/MPH Dual Degree is on Clinical Leadership; it is anticipated that graduates will be leaders in a wide variety of clinical and public health settings. The MD/MPH program is designed to give students exposure to the public health, prevention and clinical issues they will face, and provide a framework for problem solving and implementing effective health programs.

The MD/MPH curriculum includes the five “core” MPH classes; Epidemiology, Health Administration and Policy, Biostatistics, and Environmental and Occupational Health and Social and Behavioral Sciences. One public health class is taken each semester during the first two years of medical school in addition to the medical school curriculum. During the third year, MD/MPH students continue to remain enrolled as medical students while they take remaining MPH core and elective classes during the first semester, and complete their MPH internship during the second semester. Students then return to the traditional medical school rotation curriculum for their last two years. The MD/MPH Program is typically a 5 year program; however, some students, particularly those with previous public health courses at The University of Arizona, have chosen to accelerate the program.

Total Minimum MPH Degree Credit Requirements = 42 units to complete the MPH degree in the Clinical Leadership concentration - *(in addition to the medical school curriculum)*. The MPH requirements are summarized below:

Required MD/MPH Courses (MPH Curriculum) - Tucson and Phoenix campuses

CPH 570	Issues and Trends in Public Health (3)
CPH 573A	Basic Principles of Epidemiology (3)
CPH 574	Public Health Policy and Management (3)
CPH 575	Environmental and Occupational Health (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 577	Sociocultural and Behavioral Aspects of Public Health (3)
	Internship Preparation Tutorial (required; non-credit)
CPH 896I	Clinical Leadership and Administration (4)
CPH 909	Master's Report “Internship” (12)

Electives (minimum 8 units)

Latin American Studies

The MPH/MA Dual Degree Program allows students to earn a Master of Public Health and a Master of Arts degree in Latin American Studies (LAS). This dual degree program offers students the opportunity for interdisciplinary study allowing them to customize their dual degree by selecting **any one of seven MPH concentration areas** and by taking electives addressing issues relevant to Latin American populations. The minimum number of required units varies based on the MPH concentration. A minimum of 50% of credit hours must be unique to each degree and cannot be used for dual credit. Students work with academic advisors in both programs to determine their specific course requirements.

Latin American Studies (LAS) MA Requirements (36+ graduate units)

- LAS 500 Introduction to Latin American Studies (3 units)
- LAS Interdisciplinary Seminar - approved by LAS Director (3 units)
- Primary discipline or thematic area, including 3 units of a research methods course if doing a thesis (15 units)
- International public health courses with assignments focusing on Latin America or U.S. – Mexico border (9 units)
- Language requirement met by Spanish 330 and Portuguese 305 *or* Spanish 251 and Portuguese 325 *or* equivalency exam.
- Thesis or Public Health/LAS Internship – 6 units to be completed through: 6 unit thesis or 3 – 6 units Public Health/LAS Master’s Report “Internship” and/or approved elective course work. (6 units)

Master in Public Health Requirements (42 – 46 units)

Core Courses (15 units)

- CPH 573A Basic Principles of Epidemiology (3)
CPH 574 Public Health Policy and Management (3)
CPH 575 Environmental and Occupational Health (3)
CPH 576A Biostatistics for Public Health (3)
CPH 577 Sociocultural and Behavioral Aspects of Public Health (3)
Internship Preparation Tutorial (required; non-credit)

Internship (3-6 units)

- CPH 909 Master’s Report “Internship” (3-6 units)

Required Concentration Courses (18 - 29 units)*

The list of required courses can be found in this catalog listed under each of the MPH disciplines. These requirements may change from year to year and are specific to the year of acceptance into the MPH program.

Electives (6-12 units)* – approved by Advisor)

*The number of units varies based on the MPH concentration. A minimum of 50% of credit hours must be unique to each degree and cannot be used for dual credit.

Mexican American Studies

The MPH/MS Dual Degree Program allows students to earn a Master of Public Health and a Master of Science degree in Mexican American Studies. Students gain an advanced understanding of the Mexican American and Latino populations in the United States that prepares them to develop culturally-competent public health programs and policies targeting Latinos. This program provides subject and research competency on Mexican Americans as well as applied skills for working professionals and graduate students interested in better serving the Mexican American population of the Southwest. This dual degree program offers students the opportunity for interdisciplinary study allowing them to customize their dual degree by selecting any one of **seven MPH concentration areas** and by taking electives addressing issues relevant to Mexican American and Latino populations. The minimum number of required units varies based on the MPH concentration. A minimum of 50% of credit hours must be unique to each degree and cannot be used for dual credit. Students work with academic advisors in both programs to determine their specific course requirements.

Mexican American Studies Requirements:

Thirty-four (34) units are required for the MS in Mexican American Studies: a minimum of 19 core units, 9 elective units from the Latino Health Strand, and the choice of a 6 unit thesis or 6 units of electives and an oral examination.

Required Core Courses (19 units)

MAS 508	The Mexican American: A Cultural Perspective (3)
MAS 509	Mexican Immigration (3)
MAS 520	Racial and Ethnic Health Disparities: A Comparative Approach (3)
MAS 525	Topics in Latino Health (3)
MAS 580A	Advanced Research Methods (3)
MAS 587	Chicana Gender Perspectives (3)
MAS 595A	MAS Graduate Colloquium (1)

Elective Courses (minimum 9 units – approved by Advisor)

Thesis or Examination Option (6)

Master of Public Health Requirements (42 – 46 units)

Core Courses (15 units)

CPH 573A	Basic Principles of Epidemiology (3)
CPH 574	Public Health Policy and Management (3)
CPH 575	Environmental and Occupational Health (3)
CPH 576A	Biostatistics for Public Health (3)
CPH 577	Sociocultural and Behavioral Aspects of Public Health (3)
	Internship Preparation Tutorial (required; non-credit)

Internship **(3-6 units)**
CPH 909 Master's Report "Internship" (3-6)

Required Concentration Courses (18-29 units)*

The list of required courses can be found in this catalog listed under each of the MPH disciplines. These requirements may change from year to year and are specific to the year of acceptance into the MPH program.

Electives (6-12 units)* – approved by Advisor)

*The number of units varies based on the MPH concentration. A minimum of 50% of credit hours must be unique to each degree and cannot be used for dual credit.

Law

The JD/MPH Dual Degree Program is offered jointly by the University of Arizona College of Law and the Mel and Enid Zuckerman College of Public Health. The dual degree program allows a student to earn a Juris Doctor degree (JD) and a Master of Public Health (MPH). The objective of the program is to support and encourage individuals with an interest in public health studies in the development of interdisciplinary knowledge and skills in preparation for a career in health law, public health policy, or a related field. The Law and Public Health (JD/MPH) dual degree is designed to train leaders in the field of public health law.

This dual degree program offers students the opportunity for interdisciplinary study allowing them to customize their dual degree by selecting any one of **seven MPH concentration areas** and by taking electives addressing issues relevant to public health law. Graduates are prepared for positions in a variety of settings, including work in a health law or environmental section of a law firm; positions in local, state, and federal government; research or advocacy jobs in nongovernmental organizations; or posts in academia.

Students in the program fulfill all requirements necessary to earn a JD from the College of Law and an MPH from MEZCOPH and complete the separate requirements for the JD and MPH degrees in four years. (The program is open only to full-time students). The preferred sequence of courses would be to have dual degree students to be full time in the College of Law for the first year, then complete the first year of the Master of Public Health program during the second year, or vice-versa, before taking courses from both programs simultaneously. Following completion of the first year of study of each program, a student may take both law and Master of Public Health courses simultaneously, to complete both degrees. Students will have to work with their advisors to determine how they can coordinate their class schedules to meet both degree requirements. This will vary by the student's concentration area of study.

Master of Public Health (MPH) Requirements

The Mel and Enid Zuckerman College of Public Health offers an interdisciplinary Master's program in Public Health. Students need a minimum of 42-46 units, depending on the area of concentration selected to complete the MPH degree (*in addition to the law school curriculum*).

Core Courses (15 units)

- CPH 573A Basic Principles of Epidemiology (3)
- CPH 574 Public Health Policy and Management (3)
- CPH 575 Environmental and Occupational Health (3)
- CPH 576A Biostatistics for Public Health (3)
- CPH 577 Sociocultural and Behavioral Aspects of Public Health (3)
- Internship Preparation Tutorial (required; non-credit)

Internship (3-6 units)
CPH 909 Master's Report "Internship" (3-6)

Required Concentration Courses (18-29 units)*

The list of required courses can be found in this catalog listed under each of the MPH disciplines. These requirements may change from year to year and are specific to the year of acceptance into the MPH program.

Electives (6-12 units)* – approved by Advisor)

*The number of units varies based on the MPH concentration. A minimum of 50% of credit hours must be unique to each degree and cannot be used for dual credit.

Juris Doctor (J.D.) Requirements:

The College of Law offers an interdisciplinary Juris Doctor degree. Students will need a total of 85 graduate units to successfully complete the program. Students must be enrolled for a minimum of four semesters as a law student.

Tuition and Fees:

Tuition and fees vary by program. Each semester, you will pay fees to one college — the college in which you are taking the majority of that semester's classes (your "resident" program for that semester). The program manager for the student's first program/year will be responsible for informing the bursar's office regarding the appropriate tuition/fees to charge the student.

Business

The MPH/MBA Dual Degree Program is offered jointly by the University of Arizona Mel and Enid Zuckerman College of Public Health and the Eller College of Management. The MPH/MBA dual degree program allows students to earn a Master of Public Health (MPH) and a Master of Business Administration (MBA) degree aimed to provide leadership and management training for the health services industry at the local, national and international levels.

This dual degree program offers students the opportunity for interdisciplinary study by allowing them to customize their dual degree by selecting **any one of seven MPH concentration areas** which offer comprehensive knowledge and competencies in the public health sciences (health behavior and health promotion, family and child health, public health policy and management, biostatistics, epidemiology, environmental health sciences) and state-of-the-art business practices (finance, accounting and marketing combined with strategic thinking, entrepreneurship and value-based management). The program prepares graduates to transfer strategic thinking, scientific know-how and leadership and managerial skills to rapidly changing environments and global health challenges in the 21st century. Graduates are prepared for work in health industry leadership positions, including health care marketing, healthcare consulting, hospital administration, managed care, biotechnology, healthcare related non-profit work or positions in academia.

Students in the MPH/MBA dual degree program complete the separate requirements for the MPH and MBA degrees in three years upon the completion of a minimum of 75-79 units in Public Health and Business. (The program is open only to full-time students). The preferred sequence of courses would be to have dual degree students to be full time in the Eller College of Management for the first year, then complete the first year of the Master of Public Health program during the second year, before taking courses from both programs simultaneously. Following completion of the first year of study of each program, a student may take both MPH and MBA courses simultaneously, to complete both degrees. Students will have to work with their advisors to determine how they can coordinate their class schedules to meet both degree requirements. This will vary by the student's concentration area of study within the MPH Program.

Master of Public Health (MPH) Requirements:

The Mel and Enid Zuckerman College of Public Health offers an interdisciplinary Master's program in Public Health. Students need a minimum of 42-46 units, depending on the area of concentration selected, to complete the MPH degree. (*in addition to the required MBA curriculum*).

Core Courses (15 units)

CPH 573A	Basic Principles of Epidemiology (3)
CPH 574	Public Health Policy and Management (3)
CPH 575	Environmental and Occupational Health (3)
CPH 576A	Biostatistics for Public Health (3)
CPH 577	Sociocultural and Behavioral Aspects of Public Health (3)
	Internship Preparation Tutorial (required; non-credit)

Internship (3-6 units)

CPH 909	Master's Report "Internship" (3-6)
---------	------------------------------------

Required Concentration Courses (18-29 units)*

The list of required courses can be found in this catalog listed under each of the MPH disciplines. These requirements may change from year to year and are specific to the year of acceptance into the MPH program.

Electives (6-12 units)* – approved by Advisor)

*The number of units varies based on the MPH concentration. A minimum of 50% of credit hours must be unique to each degree and cannot be used for dual credit. In summary, a student enrolled in the dual degree program may count a maximum of 23 units toward both degrees.

Master of Business Administration (MBA) Requirements:

The Eller College of Management offers a Master of Business Administration degree. Students will need a total of 56 graduate units to successfully complete the MBA degree program. Students must be enrolled for a minimum of two semesters as an MBA student.

Tuition and Fees

Tuition and fees vary by program. Each semester, you will pay tuition and fees to one college — the college in which you are taking the majority of that semester's classes (your "resident" program for that semester). The program manager for the student's first program/year will be responsible for informing the bursar's office regarding the appropriate tuition/fees to charge the student.

MASTER OF SCIENCE IN EPIDEMIOLOGY

Faculty: Robin Harris, PhD, MPH – *Section Chair*; Zhao Chen, PhD, MPH; Kacey Ernst, PhD; Janet Foote, PhD; Elizabeth Jacobs, PhD; M. Elena Martinez, PhD, MPH; Sydney Pettygrove, PhD; Eyal Shahar, MD, MPH; Patricia Thompson, PhD.

The Master of Science in Epidemiology is offered by the Division of Epidemiology and Biostatistics. The Master of Science degree in Epidemiology is designed for individuals who wish to pursue training in epidemiological research. It is anticipated that graduates will occupy positions as research administrators, program managers, analysts, and evaluators in universities, health departments, governmental agencies, and similar organizations. Students have the option of either a general MS degree in Epidemiology or a specialization in clinical epidemiology. The requirements for these two MS degrees vary slightly. Students who are interested in clinical epidemiology should contact the Epidemiology Section Chair for additional information.

The overall course of study for the MS degree will be developed by the student and the advisor and approved by the student's Graduate Committee and Chair of the Epidemiology Section. On average, the MS program requires approximately two years for completion. The first year is usually devoted to core coursework and completion of the qualifying exam. The second year is focused on remaining coursework and development of the master's thesis research. Please refer to the Epidemiology Student Handbook for additional information. See the UA catalog for further details on the current course schedule and specific course requirements.

MS Epidemiology Total Minimum Credit Requirements = 40 units

Master of Science in Epidemiology Curriculum

Required Major Courses (25 units)

EPID 573A	Basic Principles of Epidemiology (3)
EPID 573B	Epidemiologic Methods (3)
EPID 573C	Advanced Epidemiology (3)
EPID 576A	Biostatistics for Public Health (3)
EPID 576B	Biostatistics for Research (3)
EPID 660	Infectious Disease Epidemiology (3)
EPID 670	Chronic Disease Epidemiology (3) OR select from: EPID 615a Cancer Epidemiology and Prevention (3) or EPID 673 Epidemiology of Aging (3)
EPID 696A	Epidemiology Seminar (1 unit - 4 times)

Epidemiology Courses or Approved Electives (9 or more units – see Advisor)

There is a maximum of 6 units from Independent Study/Research Credit (EPID 599, 699.)

Required Master's Thesis, EPID 910 (6 units)

MASTER OF SCIENCE IN EPIDEMIOLOGY

Clinical Epidemiology Track

This MS degree is an option for clinically-based researchers seeking to improve their ability to conduct research. The expectation is that students seeking this track will be physicians seeking to conduct clinical research. The overall course of study for this Clinical Epidemiology MS track will be developed by the student and the advisor and approved by the student's Graduate Committee and Chair of the Epidemiology Section. On average, the MS program requires approximately two years for completion. The first year is usually devoted to core coursework and completion of the qualifying exam. The second year is focused on remaining coursework and development of the master's thesis research. Please refer to the Epidemiology Student Handbook for additional information. See the UA catalog for further details on the current course schedule and specific course requirements.

MS Epidemiology – Clinical Track - Total Minimum Credit Requirements = 40 units

Master of Science in Epidemiology – Clinical Track Curriculum

Required Major Courses (25 units)

EPID 573A	Basic Principles of Epidemiology (3)
EPID 573B	Epidemiologic Methods (3)
EPID 573C	Advanced Epidemiology (3)
EPID 576A	Biostatistics in Public Health (3)
EPID 576B	Biostatistics for Research (3)
EPID 651	Bioethics & Regulation (2)
EPID 652	Grantsmanship for a Winning Proposal (2)
EPID 675	Clinical Trials & Intervention Studies (3)
EPID 696A	Epidemiology Seminar (or equivalent approved by Advisor) (1 unit - 3 times)

Epidemiology Courses or Approved Electives (minimum 9 units – approved by Advisor)
There is a maximum of 6 units from Independent Study/Research Credit (EPID 599, 699).

Required Master's Thesis, EPID 910 (minimum 6 units)

MASTER OF SCIENCE/ DOCTOR OF PHILOSOPHY ENVIRONMENTAL HEALTH SCIENCES

Faculty: Mary Kay O'Rourke, PhD – *Section Chair*; Paloma Beamer, PhD;
Jeff Burgess, MD, MS, MPH; Miranda Loh, ; Eric Lutz, PhD; Kelly Reynolds, MSPH, PhD;
Terry Stobbe, PhD, CIH, CSP, CPE

The MS/PhD in Environmental Health Sciences is offered by the Division of Community, Environment and Policy. Environmental Health Sciences is the scientific discipline concerned with the behaviors and environmental conditions linked to human injury or disease. Through the use of applied research in a multi- and interdisciplinary approach, Environmental Health Sciences provide the critical link between the environment and human health impacts.

The degree prepares individuals to evaluate and control health risks posed by chemical and biological contaminants and physical exposures (noise, heat and radiation) in occupational and non-occupational environments. Students will receive advanced systematic training in epidemiological and community-based research methods, biostatistical analysis, environmental health sciences, prevention sciences and behavioral sciences. Graduates of this program will have a strong base of skills in these areas and will be able to apply the major theories and methods from these areas to public health research, evaluation, analysis and decision-making. The overall goal will be to specify approaches for assessing, preventing and controlling environmental hazards to human health and safety. Advanced courses are available in a variety of specialty areas tailored to the student's interests: Climate and Health; Environmental Contaminant Modeling; and Occupational Health and Safety.

The Master of Science/Doctorate in Environmental Health Sciences is designed for individuals who seek training for leadership roles in environmental health research. It is anticipated that graduates will occupy positions as project leaders, program developers, and academicians. Students will be admitted to the MS/PhD program and are expected to complete a Master's degree prior to admission to the PhD program. Only those students who have completed a related Master's degree program will be admitted directly to the PhD program.

On average, the MS/PhD program requires approximately four to five years for completion. The first two years of this time are usually devoted to coursework, and the master's research thesis followed by the comprehensive doctoral examinations, and development of doctoral research. Graduate students in the EHS degree programs with a worker protection or industrial hygiene focus may be eligible for funds provided by the National Institute of Occupational Safety and Health (NIOSH). These training funds are administered through the Director of the Office of Student and Alumni Affairs with EHS faculty review.

For the MS, at least 43 credits are required for the major (including up to 13 units of selectives and a minimum of 6 thesis units).

For the MS/PhD, at least 72 credits are required for the major (including up to 20 units of electives and a minimum of 18 thesis/dissertation units, and at least 9 units minimum for the minor)* See the course listings for further details on the specific course requirements and schedule.

The overall course of study will be developed by the student and the advisor and approved by the student's Graduate Committee and Chair of the Environmental Health Sciences Section.

Required MS/PhD in EHS Curriculum

Required Major Courses:

(minimum of 29 units for the MS; minimum 43 units MS/PhD)

CPH 573A	Basic Principles of Epidemiology (3)
CPH 575	Environmental and Occupational Health (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 576B	Biostatistics for Research (3)
CPH 584	Fundamentals of Industrial and Environmental Health (3)
CPH 502	Environmental Monitoring and Analysis (3)
CPH 653	Applied Exposure Assessment (3)
CPH 696R	Environmental Health Seminar (1 each; MS (2) or MS/PhD (4)
CPH 910	Thesis/Dissertation Research (6/18)

ELECTIVE COURSES: Minimum 13 units for the **MS**; minimum **20** units for the MS/PhD (approved by Advisor). Students select courses in areas of emphasis: Climate and Health; Environmental Contaminant Modeling; and Occupational Health and Safety.

Minor Courses = minimum of 9 units*

Environmental Health Sciences students must complete a minor of at least 9 units from another area of study. Minors that may interest students in this program include Biostatistics, Epidemiology, Water Quality, Global Climate Change, Environmental Planning, Applied Mathematics, Engineering, Atmospheric Science, and Soil, Water and Environmental Science, just to name a few. With committee approval, a minor may be selected from any program of study at the University of Arizona that offers a doctoral degree.

*Requirements for a PhD minor in individual departments may vary. Required elective hours will be reduced if the minor exceeds 9 units.

PHD MINOR IN ENVIRONMENTAL HEALTH SCIENCES

The PhD minor in Environmental Health Sciences is for majors outside Environmental Health Sciences and is administered by the Environmental Health Sciences Section in MEZCOPH. **A total of 15 course units are required** as well as successful completion of written and oral questions during the PhD Comprehensive exam and successful defense of the dissertation. See the course listings for further details on the specific course requirements and schedule.

PHD Minor in Environmental Health Sciences Requirements:

Total Minimum Credit Requirements: 15 units, including:

- CPH 502 Environmental Monitoring Methods (3)
- CPH 518 Introduction to Human Health Risk Assessment (3)
- CPH 584 Fundamentals of Industrial and Environmental Health (3)
- 2 additional courses (3 units each) approved by the EHS minor advisor (6)

A list of EHS courses can be found obtained from the EHS Section Chair and are listed in the UA catalog under the College of Public Health (CPH).

Transfer of Credits for the PhD Minor

Graduate credit earned at other approved institutions may be counted toward fulfilling the PhD Minor requirements, if approved by the minor Faculty Advisor, the Program Chair of the Environmental Health Sciences Section and the student's Graduate Committee. All transferred credit must be at the graduate level with a grade of A or B. The Doctoral Plan of Study requires a listing of all courses the student seeks to transfer from another institution. See the Graduate College website for further details.

Declaration of Minor

Meet with the Chair of the Environmental Health Sciences Section to discuss the minor. Complete the Declaration of the Minor Form (MEZCOPH Website under Student Resources....Forms and Handbooks), identify an Environmental Health Sciences minor and seek EHS Faculty Approval through the Section Chair. The form must be filed with the MEZCOPH Academic Progress Coordinator in the Office of Student Services and Alumni Affairs (Drachman Hall Room A302).

DOCTORAL PROGRAMS

The UA Zuckerman College of Public Health is committed to offering professional and academic doctoral degree programs designed to prepare individuals for challenging careers in public health at the local, national and international level. These programs are adept at integrating academic learning with public health practice to ensure a diverse and well-rounded educational experience.

DOCTORATE IN PUBLIC HEALTH (DrPH)

The DrPH is an advanced, professional degree program designed for the student who has a Master of Public Health (MPH) degree or its equivalent and who intends to pursue a leadership career as a public health professional. The DrPH program is unique as it focuses on developing future leaders in public health practice, who will advance the public's health through the integration and application of a broad range of knowledge and analytical skills in leadership, practice, policy analysis, research, program management and professional communication.

The DrPH program prepares these individuals to translate scientific knowledge into community-based programs that improve the health status of communities, identify solutions to community health problems, and provide leadership in public health policy and management within both academic and nonacademic settings, as well as in public-agency or private-sector settings that emphasize improving the health of the public. It follows that public health workers from the state and region with the requisite experience and subsequent training will be best suited and prepared for creating the administrative infrastructure necessary for promotion of a healthy public and amelioration of current public health issues in the region.

There are three key examinations associated with the DrPH program that indicate a student's progress toward obtaining the degree. The DrPH program requires students to complete (1) a qualifying examination, (2) a written and oral comprehensive examination and (3) a dissertation defense.

DRPH DEGREE OPTIONS

There are two areas of study available to DrPH candidates. Students are required to select either Maternal and Child Health or Public Health Policy and Management. A description of each area is included on the following pages.

DrPH – Maternal and Child Health

Faculty: – *Francisco Garcia, MD, - Section Chair*; Christina Cutshaw, PhD;
John Ehiri, PhD, MPH, MSc; Lynn Gerald, PhD, MSPH; Iman Hakim, MBBCh, PhD, MPH;
Mary Koss, PhD; Douglas Taren, PhD; Nicolette Teufel-Shone, PhD; Ronald Watson, PhD.

The DrPH in Maternal and Child Health is offered by the Division of Health Promotion Sciences. The DrPH program in Maternal and Child Health (MCH) focuses on the population-based study of health and health care of women of child-bearing age, infants, children, adolescents, and families. The program is designed to prepare students for advanced administrative, research and teaching positions. Upon completion of the program, graduates will be able to assume academic positions, to be employed as MCH epidemiologists, policy analysts, and evaluation specialists or to be program directors. Graduates may also assume senior administrative positions in health care organizations serving families or in MCH-related advocacy programs. These positions may be in the public or private sector at the local, state, federal, or global level.

The doctoral program typically requires four to five years for completion. The first two to three years are usually devoted to coursework, the qualifying examination, the written and oral comprehensive doctoral examinations, and the development of doctoral research. The overall course of study is developed by the student and the advisor, and is approved by the student's Graduate committee and the Chair of the Maternal and Child Health Graduate Program. Students will be required to defend their dissertation through a public presentation and oral examination with their committee.

DrPH Admissions Criteria:

The program is designed for students who have been awarded a Master's degree, preferably a Master of Public Health, and at least two years of public health work experience. Additionally, applicants with a Bachelor's degree and five years of public health work experience may be considered for admission into the program.

Required Courses

Of the 37 credit hours in the major, 22 will be from required DrPH courses and the remaining 15 units will be course work specific to the area of concentration and electives approved by the major advisor. All students are required to designate a minor area of study that will be outside of the courses required for the DrPH. Students without an MPH degree will be required to take the five core MPH courses. These units are in addition to the DrPH unit requirements.

DrPH Required Courses (22 units)

CPH 516	Ethics, Values and Public Health Policy (3)
CPH 642	Public Health Communications (3)
CPH 652	Grantsmanship for a Winning Proposal (2)
CPH 628	Public Health Research and Evaluation (3)
	MEZCOPH Field Courses * (2)
	Higher Levels Methods Course* (3)
	Community and Cultural Sensitivity Course* (3)
CPH 696J	DrPH Seminar (3)

*approval from advisor

Of the remaining 15 units in the major, 9 units will be specific to the area of concentration, and 6 units will be from electives approved by the major advisor.

Maternal and Child Health Required Courses (9 units)

CPH 586	Maternal and Child Health (3)
CPH 630	Maternal and Child Epidemiology (3)
CPH 682	Women and Children Health Policy (3)

Concentration Electives (minimum 6 units – approved by Advisor)

Minor (minimum 9 units) The minor area of study can be in other academic doctoral programs in Public Health, or in other doctoral programs throughout the university. The minor area of study specifies the number of required minor units (minimum = 9 units).

Dissertation (minimum 18 units) The dissertation is expected to analyze and propose solutions to health management or policy issues by applying new theoretical or analytic advances to current problems in health care.

DrPH in Maternal and Child Health - Total Minimum Credit Requirements = 64 units

DrPH – Public Health Policy and Management

Faculty: – Joe Gerald, MD, PhD - *Interim Section Chair*; Gail Barker, PhD;
Merrill Eisenberg, PhD; Howard Eng, DrPH; Ralph Renger, PhD;
Cecilia Rosales, MD; Kenneth Schachter, MD, MBA; Ernest Schloss, PhD

The DrPH program in Public Health Policy and Management is offered by the Division of Community, Environment and Policy. The doctoral degree program in public health develops leaders and managers of public and private sectors who have proficiency in public health analysis, management, critical thinking, teaching and the translation of research into policy and practice. Our graduates will have the skills to work with diverse populations, building on extensive collaboration at the community level.

The doctoral program typically requires four to five years for completion. The first two to three years are usually devoted to coursework, the qualifying examination, the written and oral comprehensive doctoral examinations, and the development of doctoral research. The overall course of study is developed by the student and the advisor, and is approved by the student's Graduate committee and the Chair of the Policy and Management Graduate Program. Students will be required to defend their dissertation through a public presentation and oral examination with their committee.

DrPH Admissions Criteria:

The program is designed for students who have been awarded a Master's degree, preferably a Master of Public Health, and at least two years of public health work experience. Applicants with a Bachelor's degree and five years of public health work experience also will be considered for admission.

Required Courses

Of the 37 credit hours in the major, 22 will be from required DrPH courses and the remaining 15 units will be course work specific to the area of concentration and electives approved by the major advisor. All students are required to designate a minor area of study that will be outside of the courses required for the DrPH. Students without an MPH degree will be required to take the five core MPH courses. These units are in addition to the DrPH unit requirements.

DrPH Required Courses (22 units)

CPH 516	Ethics, Values and Public Health Policy (3)
CPH 642	Public Health Communications (3)
CPH 652	Grantsmanship for a Winning Proposal (2)
CPH 544	Fundamentals of Evaluation (3)
	MEZCOPH Field Courses * (2)
	Higher Levels Methods Course* (3)
	Community and Cultural Sensitivity Course* (3)
CPH 696J	DrPH Seminar (3)

*approval from advisor

Of the remaining 15 units in the major, 9 units will be specific to the area of concentration, and 6 units will be from electives approved by the major advisor.

Public Health Policy and Management Required Courses (9 units)

CPH 617	Advanced Public Health Policy Analysis (3)
CPH 641	Advanced Health Care Administration (3)
CPH 569	Fundamentals of Health Budgeting and Financial Management (3)

Concentration Electives (minimum 6 units - approved by Advisor)

Minor (minimum 9 units)

The minor area of study can be in other academic doctoral programs in Public Health, or in other doctoral programs throughout the university. The minor area of study specifies the number of required minor units (minimum = 9 units).

Dissertation (minimum 18 units)

The dissertation is expected to analyze and propose solutions to health management or policy issues by applying new theoretical or analytic advances to current problems in health care.

DrPH in Public Health Policy and Management
Total Minimum Credit Requirements = 64 units

PHD MINOR IN PUBLIC HEALTH

The PhD minor in Public Health is designed for individuals from other University of Arizona doctoral degree programs who wish to obtain graduate training in Public Health. The student identifies at least one faculty member with a primary appointment in MEZCOPH to serve on his or her committee. The student should hold a Planning Committee meeting where the committee faculty can provide advisement to the student regarding coursework.

The Public Health minor consists of a minimum of three Master of Public Health Core courses and two concentration specific courses agreed to by the student and his or her minor advisor. At the time the selections are made, the minor advisor and the student will define how competency will be determined. The demonstration may take several forms consistent with the practices of the home department. The minor member may contribute to the formulation of the comprehensive exam; the minor member may submit a specific written question; the minor may require participation in an active public health experience with a written summary to cite only a few examples. Other approaches are permissible with the consent of the student's graduate committee.

PhD Minor in Public Health: Total Minimum Credit Requirements = 15 units

In addition to the PhD minor in Public Health, The University of Arizona Mel and Enid Zuckerman College of Public Health (MEZCOPH) offers a **Master of Public Health (MPH)** degree featuring seven concentration areas. Students can apply to the **MPH Program** within any of the concentrations areas. The MPH can also serve as the students PhD minor, although the MPH requirements must be completed prior to completion of the PhD. For more information regarding the MPH program in general, please refer to the following website:
<http://publichealth.arizona.edu/AcademicPrograms/MasterPublicHealth.aspx>.

DOCTORATE IN BIOSTATISTICS (PhD)

Faculty: Denise Roe, DrPH – Section Chair; Angelika Gruessner, PhD; Paul Hsu, PhD; Chengcheng Hu, PhD; Bonnie LaFleur, PhD, MPH; Duane Sherrill, PhD.

The PhD in Biostatistics is offered by the Division of Epidemiology and Biostatistics. The doctoral degree program in Biostatistics will have an emphasis on the foundations of statistical reasoning and will require its graduates to complete rigorous training in applied probability and statistical analyses. This program prepares students who have demonstrated excellence in mathematics and the sciences to become research biostatisticians in academia, industry, or government.

The PhD program in Biostatistics is designed for individuals having strong quantitative skills with a background or interest in the biological, medical, or health sciences, and potential to become effective researchers in biostatistics. Applicants for the PhD in Biostatistics must have a prior Bachelor's degree. Applicants with a Master's degree in biostatistics, statistics, or applied mathematics will be given preference for admission and financial support. To the extent possible, the curriculum of each student will be tailored to his or her background and interests. A competitive applicant to the PhD in Biostatistics will have a strong quantitative background; at least three semesters of college-level calculus through multivariable/vector calculus is required; in addition, one semester of linear algebra is strongly recommended.

The doctoral program requires approximately four to five years for completion. The first two years of this time are usually devoted to coursework, the comprehensive doctoral examinations, and development of doctoral research. The program is research oriented and centers on a major research project. The overall course of study is developed by the student and the advisor, and is approved by the student's Graduate committee and the Chair the Biostatistics Section. Students will be required to defend their dissertation through a public presentation and oral examination with their committee.

Credit Hours

The curriculum requires a minimum of 47 units of course work in the major, of which 32 units are from required courses and 15 are electives. Students are required to select a minor and complete 9 semester hours or more (depending on requirements of the minor department) in their area of interest, and a minimum of 18 units of dissertation credit.

Students entering the program with a Bachelor's degree and limited undergraduate biology course work will be required to take "Biology in Public Health Research and Practice" (CPH 505).

Students, who enter the Biostatistics PhD program after completion of an MPH with a concentration in Biostatistics from MEZCOPH, may use 23 units towards the Biostatistics PhD. Thus, students with an MPH must complete a minimum of 18 additional units of course work, 6 units of seminar, 9 units or more in a minor subject, and 18 dissertation units. They will be allowed to substitute more advanced courses for any required courses already completed.

PhD in Biostatistics Curriculum

Required Courses (32 units)

MATH 564	Theory of Probability (3)
MATH 566	Theory of Statistics (3)
CPH 573A	Basic Principles of Epidemiology (3)
CPH 576A	Biostatistics in Public Health (3)
CPH 576B	Biostatistics for Research (3)
CPH 688	Statistical Consulting (3)
CPH 687	Theory of Linear Models (3)
STAT 571B	Design of Experiments (3)
STAT 675	Statistical Computing (3)
PHCL 595B	Scientific Writing Strategies, Skills and Ethics (2)
CPH 696S	Biostatistics Seminar (1 unit – 3 times)

Elective Courses (15 units)

CPH 576C	Applied Biostatistics Analysis (3)
CPH 576D	Data Management and the SAS Programming Language (3)
CPH 647	Analysis of Categorical Data (3)
CPH 648	Analysis of High Dimensional Data (3)
CPH 675	Clinical Trials and Intervention Studies (3)
CPH 677	Genetic Association Studies (3)
CPH 686	Survival Analysis (3)

Electives may also be chosen from other Statistics or Mathematics courses with approval of the Biostatistics Faculty.

Minor (minimum 9 units)

Each PhD student must complete a minimum of 9 credit hours of course work in a minor area. The minor area of study specifies the number of required minor units. This should consist of a coherent set of courses in an area (or in related areas) of application of biostatistics; the courses may be from more than one program. Minor courses should be primarily applied as opposed to mathematics/statistical in nature.

Dissertation (18 units)

PhD in Biostatistics Total Minimum Credit Requirements = 74 units

PHD MINOR IN BIOSTATISTICS

The PhD minor in Biostatistics is administered by the Biostatistics Section in MEZCOPH. A total of **15 course credits** are required. Admission to the minor must be approved by the Biostatistics minor faculty representative and the Biostatistics Section Chair, no later than enrollment in the second minor course. Selection of courses must be performed in consultation with the Biostatistics minor faculty representative.

PhD Minor in Biostatistics Requirements:

Minor Courses (*minimum of 15 units*)

CPH 576C	Applied Biostatistics Analysis (3)
CPH 576D	Data Management and the SAS Programming Language (3)
CPH 647	Analysis of Categorical Data (3)
CPH 648	Analysis of High Dimensional Data (3)
CPH 675	Clinical Trials and Intervention Studies (3)
CPH 677	Genetic Association Studies (3)
EPID 684	General Linear and Mixed Effects Models (3)
CPH 688	Statistical Consulting (3)
CPH 686	Survival Analysis (3)
CPH 687	Theory of Linear Models (3)
MATH 564	Theory of Probability (3)
MATH 566	Theory of Statistics (3)
STAT 571B	Design of Experiments (3)
STAT 675	Statistical Computing (3)

It is the responsibility of the student to have met prerequisites (if not already required for the student's Major), such as:

EPID 576A	Biostatistics in Public Health
EPID 576B	Biostatistics for Research

DOCTORATE IN EPIDEMIOLOGY (PhD)

Faculty: Robin Harris, PhD, MPH – Section Chair; Zhao Chen, PhD, MPH; Kacey Ernst, PhD; Janet Foote, PhD; Elizabeth Jacobs, PhD; M. Elena Martinez, PhD, MPH; Sydney Pettygrove, PhD; Eyal Shahar, MD, MPH; Patricia Thompson, PhD.

The PhD in Epidemiology is offered by the Division of Epidemiology and Biostatistics. Epidemiology is the scientific discipline concerned with the causes and prevention of human disease. Epidemiology focuses on the occurrence of disease among human populations, considering changes within populations over time and differences among and between populations in disease risk. Epidemiologists today are involved in attempts to understand the causes and means of controlling AIDS and other infectious diseases, as well as chronic diseases including cancer and coronary heart disease. Much of our understanding of the links between sexual practices and AIDS risk, of smoking and cancer, of serum cholesterol and coronary heart disease, of obesity and mortality risk and of air pollution and chronic lung disease derives from epidemiologic studies.

The PhD in Epidemiology trains individuals for careers in research and teaching in academic settings, research institutes, government agencies and industry. It has been designed for students whose careers will focus on conducting investigator-initiated and collaborative epidemiologic research. On average, the doctoral program requires approximately four to five years for completion. The first two years of this time are usually devoted to coursework, the qualifying exam, the comprehensive doctoral examinations, and development of doctoral research. The program is research oriented and centers on a major research project.

PhD Course Requirements

At least 46 units are required for the major (including up to 10 units of independent study), plus a minimum of 18 dissertation units, and at least 9 units minimum for the minor (depending on minor department requirements). See the course listings for further details on the specific course requirements and schedule. The overall course of study will be developed by the student and the advisor and approved by the student's Graduate Committee and Chair of the Epidemiology Section. Students will be required to defend their dissertation through a public presentation and oral examination with their committee. Please refer to the Epidemiology Student Handbook for additional information.

PhD in Epidemiology Curriculum

Required Major Courses (29 units)

EPID 573A	Basic Principles of Epidemiology (3)
EPID 573B	Epidemiologic Methods (3)
EPID 573C	Advanced Epidemiology (3)
EPID 576A	Biostatistics in Public Health (3)
EPID 576B	Biostatistics for Research (3)
EPID 651	Bioethics, Regulations, & Repercussions in Research (2) or PHCL 595B Scientific Writing Strategies, Skills and Ethics (2)
EPID 660	Infectious Disease Epidemiology (3)
EPID 670	Chronic Disease Epidemiology (3)
EPID 696A	Epidemiology Seminar (1 unit – 4 times) (<i>or equivalent approved by Advisor</i>)
EPID 796A	Epidemiology Doctoral Seminar (1 unit – 2 times)

Electives (17 or more units, 12 of which must be in Epidemiology/Biostatistics)

Note: maximum of 10 units of Independent Study/Research Credit (EPID 599, 699, 799, 900).

Minor Courses - According to Graduate College Policy, PhD students must choose at least one supporting minor subject, in addition to the major subject. The selection of a minor subject area is the responsibility of the student, in consultation with their advisor and/or Graduate Committee Chair. The minor area of study specifies the number of required minor units and examinations (minimum = 9 units).

Dissertation – minimum of 18 units

PhD in Epidemiology Total Minimum Credit Requirements = 73 units

PHD MINOR IN EPIDEMIOLOGY

The PhD minor in Epidemiology is designed for individuals from other University of Arizona doctoral degree programs who wish to obtain graduate training in Epidemiology. A member of the primary Epidemiology faculty will serve as the Minor Advisor and sit on the student's graduate committee.

The PhD minor in Epidemiology is administered by the Epidemiology Graduate Program. A total of **15 course units** are required as well as successful completion of the Epidemiology Qualifying Exam. See the course listings for further details on the specific course requirements and schedule.

Required PhD Minor in Epidemiology Courses (at least 15 units)

EPID 573A	Basic Principles of Epidemiology (3)
EPID 573B	Epidemiologic Methods (3)
EPID 576A	Biostatistics for Public Health (3)
EPID 576B	Biostatistics for Research (3)
Elective	(to be approved by Epidemiology Faculty Advisor)