

# Richard M. Fairbanks School of Public Health

## PUBLIC HEALTH

Whether your interests are in community health, disease prevention, data analysis, hospitals, or the quality of our environment, the work is here to be done. The Fairbanks School of Public Health connects students with opportunities to make a significant impact.

The Fairbanks School of Public Health is proud to be offering the following degrees on our IU Fort Wayne campus:

### **BSPH in Community Health**

Learn how to tackle real world problems so that you can improve the health of communities of people.

### **BS in Health Data Science**

This degree features an interdisciplinary curriculum that integrates biostatistics, computer science and informatics.

## Admission Standards and Procedures

Fort Wayne is the perfect place to start thinking about public health. Here you can learn to strengthen communities by assessing health problems, preventing disease and using big data to improve health on a local, national or global scale.

## Admission Standards

### Admission Requirements

#### For current IUFW students:

- 2.5 previous term GPA
- 2.5 Cumulative GPA
- 12 hours completed at IUFW
- Completion of ENGL 13100 with a grade of "C" or better

#### For Intercampus Transfer students:

- Must have earned a 2.5 undergraduate cumulative and previous semester GPA
- Must maintain at least a 2.5 semester and cumulative grade point average (GPA) to remain in good academic standing and graduate from this program

## Accreditation

The IU Richard M. Fairbanks School of Public Health is proud to be fully accredited by the Council on Education for Public Health (CEPH). Accreditation is the culmination of a rigorous multi-year process involving an extensive self-study and a site visit by an accreditation team. The school's official accreditation report can be sent upon request by contacting Carole Kacius at kacius@iu.edu.

## Student Learning Outcomes

Fairbanks School of Public Health Student Learning Outcomes

### Bachelor of Science in Public Health (BSPH)

#### Competencies

The BSPH major in Community Health will prepare students to work in entry-level positions in public health agencies, non-governmental organizations (NGOs), hospitals and health care centers, and other organizations focused on the health and well-being of groups of individuals. It also provides excellent preparation for the Master's in Public Health degree program. Students in the BSPH in Community Health program will be prepared to become Certified Health Education Specialists (CHES)."

Specific program outcomes include:

1. Recognize the social determinants of health that impact individuals and communities.
2. Explain and apply the principles of epidemiology, biostatistics, environmental health, health care systems, and health policy in public and community health.
3. Describe the historical role of public health nationally and globally, and identify and understand current and future public health challenges faced by the U.S. and the world.
4. Select, collect, correctly interpret, and apply quality data for assessment and planning in individual and public health.
5. Plan, administer, manage, and evaluate community health promotion interventions and programs.
6. Implement community health promotion interventions and programs.
7. Conduct evaluation and research related to community health promotion.
8. Communicate effectively while serving as a resource person to individuals, communities and stakeholders.
9. Based on evidence and data, advocate for practices, programming, and policies that address health issues.
10. Demonstrate an understanding of cultural competency and ethical decision making.
11. Communicate the role of fairness and justice in health equity.

### Bachelor of Science in Health Data Science

#### Competencies

Upon completing the Bachelor of Science in Health Data Science, you will be able to:

- Demonstrate computing knowledge and "hacking" skills (data capture and visualization)
- Analyze results using appropriate biostatistical methods (analytical skills)
- Think critically and creatively to solve problems and discover meaning in large data (open-mindedness, curiosity)

- Conduct data analyses in an ethical and responsible manner (professionalism)
- Effectively communicate results of analyses to non-experts (communication, “story telling”, presentation skills).

## Academic Policies

### Policies for Good Academic Standing, Dismissal and

#### Reinstatement:

#### Good Academic Standing

Students are in good academic standing when their semester and their IU cumulative grade point averages are 2.5 or above. Students must be in good academic standing to graduate.

#### Academic Warning

A student will be placed on academic warning if his/her semester grade point average is below 2.5.

#### Academic Probation

A student will be placed on academic probation if his/her IU cumulative grade point average is below 2.5. The student must follow strict conditions as established by the Undergraduate Academic Progress Committee during this probation period.

#### Final Academic Probation

A student will be placed on final academic probation if his/her cumulative is below 2.5 for a second time. The student must follow strict conditions as established by the Undergraduate Academic Progress Committee during this final probation period. Students who fail to return to good academic standing at the conclusion of the final probation may be dismissed from the academic program.

#### Dismissal

If in the opinion of the Undergraduate Academic Progress Committee, a student is not making satisfactory progress toward his/her degree by the end of their final probation, he/she may be dismissed. Dismissed students will be required to withdraw from their upcoming semester courses. Students who have been formally dismissed may appeal their dismissal.

#### Reinstatement

Students who have been formally dismissed must apply to the Undergraduate Academic Progress Committee for reinstatement. Students who have been dismissed are not eligible for reinstatement until at least one full regular semester (spring or fall) has passed since the dismissal.

#### Applicability of Degree, Certificate and Minor Requirements

Students may choose to complete either the specific degree, certificate, or minor requirements published in the appropriate bulletin at the time of admission to Fairbanks School of Public Health or those in the bulletin current at the time of graduation.

#### Grade Replacement

The School of Public Health students who have retaken a course (must be same department and course number)

may request to have only the last grade computed in their grade point average. If a student earns the same or a higher grade after repeating a course, only the second grade will be counted in the GPA. Students may replace a total of 15 credit hours. Replacement does not occur automatically. Students must notify their School of Public Health academic advisor that the course has been taken a second time and that they wish to use grade replacement for the course.

#### Grade Appeal

A student may appeal a course grade at the completion of a course to resolve a grade discrepancy or a grade dispute. The appeal must be made within 90 days of the date when the grade was issued. In those rare instances when a student is unable to contact the professor who issued the grade, the student must give a notice of intent to appeal the grade within 90 days of the date when the grade was issued. The appeal should be made to the Associate Dean of Education and Training.

#### Degree Completion

Students are expected to complete the requirements for their undergraduate degree within 10 years of admission to the School of Public Health. Students are allowed to continue beyond this time period only at the Program Director. If a student has not taken classes for two or more major semesters (fall/spring), he/she must satisfy program requirements of the School of Public Health in effect at the time of reactivation. Requests for deviation from requirements listed in the bulletin must be approved in writing by the Program Director, whose decision is final. If a student has been out of college for more than 3 years, any course older than 10 years will not count toward degree progression.

## School of Public Health

### Earn Your Bachelor's Degree in Public Health

A career in public health or health administration offers:

The opportunity to improve the health of individuals and communities;

Interesting work that is always challenging and meaningful;

Above average job growth.

With an undergraduate degree in public health, you can achieve these goals and so many more. The Fairbanks School of Public Health offers two different undergraduate degree options.

### Bachelor of Science in Public Health

#### Bachelor of Science in Public Health

#### First Year - Fall Semester

Subject	Course	Title	Cr Hrs	Min Grade
FWHS	H101	Introduction1 to Health Sciences		

ENGL	13100	Reading, Writing, & Inquiry I	3	C
		Also meets: Core Communication - Writing General Education		
BIOL	20300	Human Anatomy and Physiology	4	C
MA	21300	Finite Mathematics I	3	C
		Also meets: Analytical Reasoning List A General Education		
PBHL	S120	Introduction to Community Health	3	C
		Total Credits	14	
		Cumulative Total	14	

**First Year - Spring Semester**

Subject	Course	Title	Cr Hrs	Min Grade
COM	11400	Fundamentals of Speech	3	
		Also meets: Core Communication - Speaking & Listening General Education		
BIOL	20400	Human Anatomy and Physiology	3	
PBHL	S220	Navigating the Maze of Healthy Living	3	
PBHL	B300	Introduction to Biostatistics	3	C
		General Education	3	

	Core Elective: Arts and Humanities	
Total Credits		16
Cumulative Total		30

**Second Year - Fall Semester**

Subject	Course	Title	Cr Hrs	Min Grade
		General Education Core: Cultural Understanding	3	
ENGL	23301	Intermediate Expository Writing	3	
PBHL	S315	Community Health	3	C
		Community Health Elective	3	
		Open Elective	3	
		Total Credits	15	
		Cumulative Total	45	

**Second Year - Spring Semester**

Subject	Course	Title	Cr Hrs	Min Grade
		General Education Core: Social Sciences OR Arts and Humanities	3	
PBHL	S305	Careers in Public Health	3	
		Community Health Elective	3	
		Community Health Elective	3	
		Open Elective	3	
		Total Credits	15	
		Cumulative Total	60	

**Third Year - Fall Semester**

Subject	Course	Title	Cr Hrs	Min Grade
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PPOL	31600	Environmental Health Science	3	
PBHL	S340	Cultural Considerations in the Promotion of Health	3	
		Community 3 Health Elective		
		Community 3 Health Elective		
		Community 3 Health Elective		
		Total Credits	15	
		Cumulative Total	75	

**Third Year - Spring Semester**

Subject	Course	Title	Cr Hrs	Min Grade
PBHL	H220	Public Health Systems Policy	3	
PBHL	E322	Principles of Epidemiology	3	
PBHL	S330	Theoretical Foundations of Community Health	3	
		Community 3 Health Elective		
		Community 3 Health Elective		
		Total Credits	15	
		Cumulative Total	90	

**Fourth Year - Fall Semester**

Subject	Course	Title	Cr Hrs	Min Grade
PBHL	S339	Introduction to Research Methods in Public Health	3	
PBHL	S415	Applied Health Promotion Methods	3	

		Community 3 Health Elective		
		Open Elective	3	
		Open Elective	3	
		Total Credits	15	
		Cumulative Total	105	

**Fourth Year - Spring Semester**

Subject	Course	Title	Cr Hrs	Min Grade
PBHL	S425	A Public Health Journey Through the Social Determinants of Health	3	
PBHL	S460	Community 3 Capacity in a Global Health Context	3	
PBHL	S499	Community 3 Health Elective	3	
		Open Elective	3	
		Total Credits	15	
		Cumulative Total	120	

**Bachelor of Science in Health Data Science**

**Bachelor of Science in Health Data Science**

**First Year - Fall Semester**

Subject	Course	Title	Cr Hrs	Min Grade
FWHS	H101	Introduction to Health Sciences		
ENGL	13100	Reading, Writing, & Inquiry I	3	C
		Also meets: Core Communication - Writing General Education		
MA	15300	College Algebra	3	C-
		General Education Core:	3	

		Life and Physical Sciences		
PBHL	P109	Introduction to Public Health	3	
		Open Elective	2	
		Total Credits	15	
		Cumulative Total	15	

**First Year - Spring Semester**

Subject	Course	Title	Cr Hrs	Min Grade
COM	11400	Fundamentals of Speech	3	
		Also meets: Core Communication - Speaking & Listening		
		General Education	3	
MA	15400	Algebra and Trigonometry II	3	
		General Education Core: Life and Physical Sciences	3	
		General Education Core: Social Sciences or Arts and Humanities	3	
		General Education Core Elective: Arts and Humanities	3	
		Total Credits	15	
		Cumulative Total	30	

**Second Year - Fall Semester**

Subject	Course	Title	Cr Hrs	Min Grade
MA	16500	Analytic Geometry and Calculus I	3	
OR				

MA	22900	Calculus for the Managerial, Social, and Biological Science I		
PPOL	32200	Principles of Epidemiology	3	
CS	16000	Introduction to Computer Science I	4	C
PBHL	B275	Probability without Tears and Without Calculus	3	C
		General Education Core: Cultural Understanding	3	
		Total Credits	16	
		Cumulative Total	46	

**Second Year - Spring Semester**

Subject	Course	Title	Cr Hrs	Min Grade
MA	16600	Analytic Geometry and Calculus II	4	
OR				
MA	23000	Calculus for the Managerial, Social, and Biological Science II		
ENGL	23401	Technical Report Writing	3	
OR				
ENGL	23301	Intermediate Expository Writing		
PBHL	B280	Biostatistics for Health Data Scientists a computational Approach	3	
CS	16100	Introduction to	4	C

	Computer Science II		
	Open Elective	3	
Total Credits		1	
Cumulative Total		63	

### Third Year - Fall Semester

Subject	Course	Title	Cr Hrs	Min Grade
MA	17500	Introductory Discrete Mathematics	3	C
PBHL	B285	Classical Biostatistical Regression Methods	3	C
PBHL	B481	Introduction to Biostatistical Computing	3	
		CS Elective	3	
		Open Elective	3	
Total Credits			15	
Cumulative Total			78	

### Third Year - Spring Semester

Subject	Course	Title	Cr Hrs	Min Grade
CS	26000	Data Structures	3	C
PBHL	B385	Contemporary Biostatistical Regression Methods	3	
		CS Elective	3	
		Open Elective	3	
		Open Elective	3	
Total Credits			15	
Cumulative Total			93	

### Fourth Year - Fall Semester

Subject	Course	Title	Cr Hrs	Min Grade
PBHL	B401	Health Data Science Internship I	3	
		CS Elective	3	

	CS Elective	3
	Open Elective	3
	Open Elective	3
Total Credits		15
Cumulative Total		108

### Fourth Year - Spring Semester

Subject	Course	Title	Cr Hrs	Min Grade
PBHL	B402	Health Data Science Internship II	3	
PBHL	B420	Introduction to Statistical Learning	3	
PBHL	B490	Advanced Biostatistical Computing	3	
		Open Elective	3	
Total Credits			12	
Cumulative Total			120	

## Courses

### Undergraduate

**PBHL-B 275 PROBABILITY WITHOUT TEARS AND WITHOUT CALCULUS (3 cr.)** This is a course teaching fundamental concepts in biostatistics through computer simulation. While this is a self-contained course, working knowledge of R or another computer language is desirable.

**PBHL-B 280 BIOSTATISTICS FOR HEALTH DATA SCIENTISTIS A COMPUTATIONAL APPROACH (3 cr.)** This course introduces students to the fundamental concepts of biostatistics through computational methods. Topics such as exploratory analysis of health data, probability and probability distributions, and the basics of inference from both the frequentist and Bayesian perspective will be presented.

**PBHL-B 285 CLASSICAL BIostatistical REGRESSION METHODS (3 cr.)** This is the first course in a two-semester sequence teaching fundamental concepts of classical regression methods in biostatistics, both linear (i.e., least squares) and non-linear (e.g., logistic, Poisson, etc.). While this is a self-contained course, working knowledge of the R statistical environment is desirable.

**PBHL-B 300 INTRODUCTION TO BIostatISTICS (3 cr.)** This is an introductory survey of statistical reasoning and analysis.

**PBHL-B 385 CONTEMPORARY BIOSTATISTICAL REGRESSION METHODS (3 cr.)** This is the second course in a two-semester sequence teaching fundamental concepts of contemporary regression methods in biostatistics, linear and non-linear. Advanced topics like shrinkage methods (principal components, ridge regression, Lasso, etc.), random effects and repeated measures, non-parametric regression (smoothing) and additive models will be presented. Pre-requisites are PBHL B-285 (Classical biostatistical regression methods) or permission of instructor. While this is a self-contained course, working knowledge of the R statistical environment is desirable.

**PBHL-B 401 HEALTH DATA SCIENCE INTERNSHIP I (3 cr.)** This course provides real-world experience applying data science techniques in the form of an internship within the university or industry setting. Students in the Bachelor of Science program in Health Data Science will be matched with internship supervisors or organizations and undertake projects geared towards applying skills they have acquired from the BS in Health Data Science curriculum.

**PBHL-B 402 HEALTH DATA SCIENCE INTERNSHIP II (3 cr.)** This course provides real-world experience applying data science techniques in the form of an internship within the university or industry setting. Students in the Bachelor of Science program in Health Data Science will be matched with internship supervisors or organizations and undertake projects geared towards applying skills they have acquired from the BS in Health Data Science curriculum. Satisfactory completion of the course will be determined jointly by internship supervisor and HDS Faculty. Students should expect to submit a final project and oral report to either the organization internship supervisor, appointed HDS Faculty, or both.

**PBHL-B 420 INTRODUCTION TO STATISTICAL LEARNING (3 cr.)** This is a course teaching fundamental concepts of statistical learning, a broad set of methods which refers to making sense of complex data. Such methods include, but are not limited to, the sparse regression (e.g. LASSO), classification and regression trees (CART) and support vector machines. This course is intended for students starting out in this area who perhaps lack the mathematical training to absorb a very technical treatment of these topics. For this reason, this course focuses on the application with less focus on the mathematical details.

**PBHL-B 481 INTRODUCTION TO BIOSTATISTICAL COMPUTING (3 cr.)** This is a course teaching fundamental concepts of biostatistical computing, a broad set of skills required for data acquisition, processing and visualization. At the end of the course the student will be able to analyze and manage statistical data, use reproducible reporting functionality, write their own functions, apply string and document processing techniques, have an understanding of object oriented programming in R, use non-standard evaluation (NSE) techniques within the R language, and create reproducible software in package form for the R language.

**PBHL-B 490 ADVANCED BIOSTATISTICAL COMPUTING (3 cr.)** This is a second course in biostatistical computing covering advanced concepts including understanding the basics of statistical algorithms

and creating data products. At the end of the course the student will understand object oriented systems available in the R programming language.

**PBHL-E 322 PRINCIPLES OF EPIDEMIOLOGY (3 cr.)** This course will introduce students to basic epidemiologic concepts including determinants of health and patterns of disease in populations, population health descriptive techniques, use of health indicators and secondary data sources. Students will gain an understanding of the role of Epidemiology in developing prevention strategies and policy. Among the topics to be covered are measures of mortality and morbidity, design and analysis of observational studies, community health assessment and program evaluation

**PBHL-H 220 PUBLIC HEALTH SYSTEMS POLICY (3 cr.)** This course will examine the concepts of health policy and management and its impact on social behavioral and environmental public health sciences. Content covered will include fundamental characteristics and organizational structure of the public health system.

**PBHL-P 109 INTRODUCTION TO PUBLIC HEALTH (3 cr.)** Introduction to public health using Indianapolis as case study. Well-being, illness, injury, education, violence, housing, work, cultural and neighborhood variability will be examined to demonstrate the public health perspective on any situation and to see how the state of health in our city connects to the nation and the world.

**PBHL-S 120 INTRODUCTION TO COMMUNITY HEALTH (3 cr.)** This course offers students a basic introduction to community health. The class will present health issues with a focus on a community, not individual perspective; as a result, students will learn about public health approaches to health assessment, health promotion and disease prevention.

**PBHL-S 220 NAVIGATING THE MAZE OF HEALTHY LIVING (3 cr.)** This course provides students with knowledge and understanding of factors influencing personal health, health behaviors, health promotion, and disease prevention. The course emphasizes lifestyles and personal decision making as a consumer of health and health care services.

**PBHL-S 330 THEORETICAL FOUNDATIONS OF COMMUNITY HEALTH (3 cr.)** This course will explore the theories of health behavior change that are used to develop health interventions for individuals and communities. Students will learn the different theories, how to put them into practice, and how useful and practical they are for various populations.

**PBHL-S 340 CULTURAL CONSIDERATIONS IN THE PROMOTION OF HEALTH (3 cr.)** In this course we will examine what is meant by culture, the ways in which culture intersects with health issues, and how public health efforts (domestic and global) can benefit by understanding and working with cultural processes.

**PBHL-S 399 INTRODUCTION TO RESEARCH METHODS IN PUBLIC HEALTH (3 cr.)** Course examines fundamental research methods used in the field of public health. The focus is on understanding how community and clinical data are collected in scientifically valid methods and how study results are interpreted.

**PBHL-S 415 APPLIED HEALTH PROMOTION**

**METHODS (3 cr.)** This course provides students with understanding, application, and practice of key methods in community health promotion including health communication, health education, health policy, and community mobilization strategies. Application of theory and implementation of methods at individual and community levels are addressed.

**PBHL-S 425 A PUBLIC HEALTH JOURNEY THROUGH THE SOCIAL DETERMINANTS OF HEALTH (3 cr.)**

This course is designed to introduce students to an ecological perspective of health, going beyond biology and individual factors to investigate the influence on health of the social systems in which individuals live, work, and play.

**PBHL-S 460 BIOSOCIAL APPROACH TO GLOBAL HEALTH (3 cr.)**

The course will provide students with an opportunity to examine key global health issues using a biosocial justice perspective. Students will participate in authentic global health work as they will partner with MPH students from a university global partner to develop a strategic plan to address a global health issue. The course will require students to engage in analytical reading and discussions, and produce and deliver impactful written and oral communications.

**PBHL-S 499 CAPSTONE EXPERIENCE BSPH**

**COMMUNITY HEALTH (3 cr.)** This course integrates public health theory and practice in an applied practice setting. The capstone experience is tailored to students' expected post-baccalaureate goals. A variety of public health experiences are available, including an internship, a service-learning project, a portfolio project, a research paper, and an honors thesis.