

# Public Health Data Science MS

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## COLLEGE OF PUBLIC HEALTH

Learn more about the Master of Science in Public Health Data Science.

### About the Program

The Public Health Data Science master's (MS PHDS) degree program focuses on the intersection of biostatistics, computational biostatistics, epidemiology and public health fundamentals. It is responsive to the national call to address the shortage in data science in the United States. This 36-credit MS is designed to equip graduates to meet the growing demand for public health data scientists who have an in-depth understanding of biostatistical methods and excellent data analytical skills to improve health care and population health. Students learn to conceptualize health problems and use state-of-the-art biostatistical and data-analytical tools and techniques to design, manage and analyze health and health-related data to produce value-adding analytic insights. They also learn how to effectively combine and communicate these insights to inform evidence-based public health decision-making.

The MS PHDS program builds on a strong biostatistical and programming foundation with specialized biostatistics courses aimed to build mastery in targeted data analyses while addressing statistical uncertainty. Our curriculum focuses on specialized data analysis courses such as those arising in randomized or nonrandomized (i.e., observational) studies, inferential investigation of large datasets such as electronic health records, and statistical modeling in the context of public health. Students have a unique opportunity to learn practical data analytical techniques and gain the ability to comfortably use complex data structures in efficient computational fashion while addressing important biostatistical complexities such as sampling design and correlated data in public health and health sciences. They also gain an understanding of the substantive contexts informing statistical analyses with varying challenges.

**Time Limit for Degree Completion:** 4 years

**Campus Location:** Main

**Full-Time/Part-Time Status:** The program is designed to accommodate both full- and part-time students. Full-time students can earn their degree within 2 years, while part-time students typically complete the degree in 3 years.

**Affiliation(s):** Locally, the program has long-standing research affiliations with Fox Chase Cancer Center, Children's Hospital of Philadelphia, Philadelphia Department of Public Health, Public Health Management Corporation (PHMC), Temple University Health System. The program also has numerous other health systems and community health agencies and organizations inside and outside of Philadelphia. These partnerships allow us to offer students a wide range of opportunities to translate skills learned in the classroom to actual practice in the community.

**Accreditation:** The MS in Public Health Data Science is a graduate program in Temple's College of Public Health, which is accredited by the Council on Education for Public Health (CEPH).

**Job Prospects:** Graduates of the MS PHDS program are qualified to work as biostatisticians or data scientists in a wide ranging fields. Examples include but not limited to public health, pharmaceutical, insurance and research institutions, university research centers and departments as data analysts, programmers, research associates, statisticians or biostatisticians. There are growing number of opportunities exist in local or state Departments of Health, or government organizations such as Centers for Disease Control and Prevention. Demand for data scientists with the ability to infer conclusions at the population level and make recommendations for public health and medicine currently exceeds supply by 50-60%. Job growth in the discipline is also projected to have a much faster rate of growth than average at 33% annually.

**Non-Matriculated Student Policy:** Non-matriculated students are required to speak with an advisor before registering for classes and to obtain the permission of the professor, whether the coursework is taken in the on-campus or online format. If accepted to the program, a maximum of three courses (9 credits) may be applied toward the degree program. Course selection should be made in consultation with an advisor, and students should be aware that completion of coursework does not ensure admission into the program.

**Financing Opportunities:** Limited Teaching and Research Assistantships are available in the College of Public Health. The Graduate School website details the types of graduate student support. Assistantships are awarded on a term or annual basis. Students whose Fall applications are complete prior to or at the application deadline are reviewed for eligibility for Teaching Assistant (TA) positions. TAs can work 5 to 20 hours per week in any combination of teaching assignments made by the department and must meet the English Language Proficiency standards set by the University and the College. Students who hold Teaching or Research Assistantships are not permitted to hold other employment without the written prior approval of their advisor, the Director of Graduate Programs, and the Graduate School. Both assistantships carry a minimum stipend and full tuition remission for up to 9 credits per term. To be considered for a Teaching or Research Assistantship, complete an application form that is sent to students upon admission to the program. The completed application must be returned to [cphta@temple.edu](mailto:cphta@temple.edu) to be considered.

### Admission Requirements and Deadlines

**Application Deadline:**

*Fall:* March 1

All applicants to the MS PHDS program must apply via the Centralized Application Service for Public Health (SOPHAS). The system can be accessed at <https://sophas.liaisoncas.com/>.

Applicants should check their application status on the SOPHAS portal often and inquire directly of SOPHAS about receipt of materials. For other questions, please contact the CPH Office of Admissions at [cph@temple.edu](mailto:cph@temple.edu) or 215-204-5200.

**Letters of Reference:**

*Number Required:* 3

*From Whom:* Letters of recommendation, which are completed electronically through the SOPHAS system, should be obtained from college/university faculty members familiar with the applicant's academic competence and, if appropriate, research supervisors or mentors.

**Coursework Required for Admission Consideration:** Proficiency in statistical programming and a minimum of 6 credits of undergraduate quantitative and/or analytical methods (statistics, research design, etc.) are required. It is strongly encouraged to have a working knowledge in Calculus I & II.

**Bachelor's Degree in Discipline/Related Discipline:** All applicants must present credentials that are the equivalent of an accredited baccalaureate degree. The minimum acceptable undergraduate GPA is 3.0.

A WES evaluation is required for applicants who completed their bachelor's degree outside of the United States. This can be requested at <https://www.wes.org> and submitted through SOPHAS.

**Statement of Goals:** Write a well-considered 500- to 1,000-word statement of purpose that articulates your interests in public health and our program. Craft your statement to specifically address the following questions:

- Why are you pursuing this master's degree program, and what are your particular areas of interest in public health?
- How does the MS PHDS within Temple's Department of Epidemiology and Biostatistics best fit your public health interests?
- What are your career goals, and how will this degree help you to achieve these goals?
- What are your plans in the first few years after graduation?

**Standardized Test Scores:**

GRE: Optional.

Standardized tests considered in lieu of the GRE include DAT, GMAT, MCAT, OAT and PCAT.

Applicants who earned their baccalaureate degree from an institution where the language of instruction was other than English, with the exception of those who subsequently earned a master's degree at a U.S. institution, must report scores for a standardized test of English that meet these minimums:

- TOEFL iBT: 79 (send officially to SOPHAS using the SOPHAS-specific TOEFL code 5688)
- IELTS Academic: 6.5
- PTE Academic: 53
- Duolingo: 110

**Resume:** Current resume or CV required.

**Interview:** An interview may be required.

**Laptop:** Laptops are integrated into the College of Public Health curricula, and all students are required to have a laptop for full participation in class activities; online class sessions; online exam proctoring; and the use of special software, which is used to reinforce the learning objectives and program student learning competencies in certain classes. A laptop that meets the minimum device specifications defined below IS REQUIRED for all undergraduate and graduate students in the College of Public Health.

Review the College of Public Health laptop requirement for additional information: <https://cphapps.temple.edu/wiki/it/student/laptop>

**Transfer Credit:** Graduate credits from an accredited institution are considered for transfer into the MS PHDS degree program. Such courses are reviewed by the MS Graduate Program Director to determine whether they are equivalent to coursework offered at Temple and fulfill any degree requirements. The grade must be a "B" or better in order to transfer and have been earned within five years of applying to the program. The maximum number of credits that may be transferred into the MS program is 6.

## Program Requirements

**General Program Requirements:**

*Number of Credits Required to Earn the Degree:* 36

*Required Courses:*

| Code                                                        | Title                                                                        | Credit Hours |
|-------------------------------------------------------------|------------------------------------------------------------------------------|--------------|
| <b>College Core Courses</b>                                 |                                                                              |              |
| HRPR 5001                                                   | Current and Emerging Issues in Public Health and Health Professions          | 0            |
| <b>Public Health Data Science Core Courses</b> <sup>1</sup> |                                                                              |              |
| EPBI 5002                                                   | Biostatistics                                                                | 3            |
| EPBI 5201                                                   | Epidemiological Research Methods I                                           | 3            |
| EPBI 5208                                                   | Data Management and Analysis                                                 | 3            |
| EPBI 8012                                                   | Multivariable Biostatistics                                                  | 3            |
| EPBI 8305                                                   | Big Data Analytics for Health Research                                       | 3            |
| EPBI 8306                                                   | Statistical Inference with Applications in Health                            | 3            |
| <b>Required Programming Course</b> <sup>1</sup>             |                                                                              |              |
| HIM 5102                                                    | Applications of Computer Programming in Health Informatics                   | 3            |
| <b>Electives</b> <sup>2</sup>                               |                                                                              |              |
| Select four (4) from the following:                         |                                                                              | 12           |
| EPBI 5003                                                   | Spatial Analysis in Public Health                                            |              |
| EPBI 8201                                                   | Structural Equation Modeling                                                 |              |
| EPBI 8204                                                   | Multilevel Modeling in Interdisciplinary Research                            |              |
| EPBI 8301                                                   | Clinical Research Methods in Public Health                                   |              |
| EPBI 8302                                                   | Behavioral Measurement                                                       |              |
| EPBI 8304                                                   | Applied Statistical Methods for Incomplete Data Analysis                     |              |
| EPBI 8403                                                   | Applied Concepts and Methods in Health Research                              |              |
| HIM 5299                                                    | Introduction to Language Processing and Text Mining for Health Professionals |              |
| HIM 8216                                                    | Applications of Machine Learning for Health Informatics                      |              |
| <b>Consulting Practicum</b>                                 |                                                                              |              |
| EPBI 9187                                                   | Biostat Cnslt Practicum                                                      | 3            |
| <b>Total Credit Hours</b>                                   |                                                                              | <b>36</b>    |

<sup>1</sup> Core courses may be substituted with other courses with approval.

<sup>2</sup> Other electives may be selected with approval of advisor.

**Minimum Grade to be Earned for All Required Courses: B-****Culminating Event:***Biostatistics Practicum:*

Biostatistics is a field concerned with research subjects motivated by real data and problems in public health, biology and medicine. Through our Biostatistics Core, students gain critical hands-on experience in collaborative projects. EPBI 9187 Biostat Cnslt Practicum is a project-based course that prepares students to collaborate effectively as biostatisticians in the workforce. Emphasis is on providing hands-on experience using statistical techniques on real-life applications and developing communication and problem-solving skills. This course is designed for graduate students to achieve fluency in widely used statistical software, such as R and SAS, for the analyses of data from observational and/or interventional research studies.

**Contacts****Program Web Address:**

<https://www.temple.edu/academics/degree-programs/public-health-data-science-ms-hp-phds-ms>

**Department Information:**

Dept. of Epidemiology and Biostatistics  
 Ritter Hall Annex, 9th Floor (004-09)  
 1301 Cecil B. Moore Avenue  
 Philadelphia, PA 19122-6005  
 epibio@temple.edu  
 215-204-8726

## **Submission Address for Application Materials:**

<https://sophas.liaisoncas.com/>

## **Department Contacts:**

### *Admissions:*

CPH Office of Admissions

[cph@temple.edu](mailto:cph@temple.edu)

215-204-5200

### *Program Director:*

Recai Yucel, PhD

Professor

[recai.yucel@temple.edu](mailto:recai.yucel@temple.edu)

215-204-2055

### *Graduate Program Director:*

Aimee J. Palumbo, PhD, MPH

Associate Professor

[aimee.palumbo@temple.edu](mailto:aimee.palumbo@temple.edu)

215-204-4023

### *Chairperson:*

Resa M. Jones, MPH, PhD

Associate Professor

[resa.jones@temple.edu](mailto:resa.jones@temple.edu)

215-204-7881