

DEPARTMENT OF BIostatISTICS GRADUATE PROGRAMS
STUDENT HANDBOOK
2018-19

Contact Information.....	2
Policies	3
Degree Programs	5
Doctor of Philosophy (PhD) in Biostatistics	5
Admission.....	5
Program Objectives.....	5
Requirements.....	6
Coursework.....	6
PhD Student Schedule.....	8
Preliminary (Qualifying) Examination	9
Doctoral Dissertation	10
Graduation	12
Statute of Limitations.....	12
Master of Science (MS) in Biostatistics.....	13
Admission.....	13
Program Objectives.....	13
Requirements.....	13
Coursework.....	13
MS Student Schedules	15
Eighteen Month Schedule.....	15
Two Year Schedule	16
Master’s Comprehensive Examination	17
Master’s Thesis	17
Graduation	19
Statute of Limitations.....	19
Course Descriptions	20
Course Offering Schedule 2018-2019	20
PhD Degree Requirement Worksheet	21
MS Degree Requirement Worksheet.....	25

Welcome to the Department of Biostatistics! The Student Handbook outlines the requirements, policies, and procedures for the operation of our graduate programs. Please keep in mind that policies may change. The department will make every effort to communicate changes in requirements, procedures, or policies.

CONTACT INFORMATION

For all inquiries, please contact

biostat@pitt.edu

412-624-3023

412-624-0184 (fax)

University of Pittsburgh
Graduate School of Public Health
Department of Biostatistics
7135 PUBHL
130 DeSoto Street
Pittsburgh, PA 15261

IF YOU ARE A STUDENT EXPERIENCING A CRISIS, PLEASE CALL 412-648-7930 OR VISIT THE [UNIVERSITY COUNSELING CENTER](#) (NORDENBERG HALL-WELLNESS CENTER, 119 UNIVERSITY PLACE) AND STATE THAT YOU ARE IN CRISIS.

More information on services provided by the University of Pittsburgh please visit the [University of Pittsburgh Office of Student Affairs](#).

POLICIES

All Biostatistics students are bound by the policies and regulations below. Students should consult the [Graduate and Professional Studies Catalog](#), [Graduate Studies Policies and Regulations of the University of Pittsburgh](#), and [Pitt Public Health Academic Handbook](#) for a complete listing of all policies and regulations.

Independent Development Plan (IDP)

A Graduate Student Career Development Plan, also known as an [Independent Development Plan \(IDP\)](#), is a tool for helping students and advisors outline and discuss short-term and long-term objectives to guide the student's professional development. Biostatistics graduate students and advisors are required to complete an IDP at least annually. The Doctoral Report on Requirements Form for the PhD preliminary (qualifying) examination and dissertation overview includes a checkbox that the committee must use to certify that an IDP has been completed within six months. If an IDP hasn't been completed within six months, students and advisors must complete a new IDP.

Academic Integrity

All students are expected to adhere to the school's standards of academic honesty. Any work submitted by a student for evaluation must represent his/her own intellectual contribution and efforts. The Graduate School of Public Health's policy on academic integrity, approved by EPCC on 10/14/08, which is based on the University policy, is available online in the [Pitt Public Health Academic Handbook](#). The policy includes obligations for faculty and students, procedures for adjudicating violations, and other critical information. Please take the time to read this policy.

Students committing acts of academic dishonesty, including plagiarism, unauthorized collaboration on assignments, cheating on exams, misrepresentation of data, and facilitating dishonesty by others, will receive sanctions appropriate to the violation(s) committed. Sanctions include, but are not limited to, reduction of a grade for an assignment or a course, failure of a course, and dismissal from the school.

All student violations of academic integrity must be documented by the appropriate faculty member; this documentation will be kept in a confidential student file maintained by the Office of Student Affairs. If a sanction for a violation is agreed upon by the student and instructor, the record of this agreement will be expunged from the student file upon the student's graduation. If the case is referred to the Pitt Public Health Academic Integrity Hearing Board, a record will remain in the student's permanent file.

The Graduate School of Public Health requires all enrolled students to complete the [Pitt Public Health Student Academic Integrity Module](#). The deadline for new students starting in fall 2018 is October 5, 2018. Students should consult the [Guidelines on Academic Integrity](#) for more information on student and faculty obligations and hearing procedures.

Disabilities

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 prohibit discrimination on the basis of disability and require the University to make reasonable accommodations for those otherwise qualified individuals with a disability who request accommodations. Students requesting reasonable accommodations must do so by registering with [Disability Resources and Services](#) as early as possible in the term. Please contact Disability Resources and Services at 412-648-7890, or visit their offices at 140 William Pitt Union.

Nondiscrimination

The University of Pittsburgh, as an educational institution and as an employer, does not discriminate on the basis of disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity and expression in its programs and activities.

The University does not tolerate discrimination, harassment, or retaliation on these bases and takes steps to ensure that students, employees, and third parties are not subject to a hostile environment in University programs or activities.

The University responds promptly and equitably to allegations of discrimination, harassment, and retaliation. It promptly conducts investigations and takes appropriate action, including disciplinary action, against individuals found to have violated its policies, as well as provides appropriate remedies to complainants and the campus community. The University is committed to taking prompt action to end a hostile environment if one has been created, prevent its recurrence, and remedy the effects of any hostile environment on affected members of the campus community.

For complete details on the University's policies, procedures, and practices which relate to diversity and inclusion please visit <https://diversity.pitt.edu/affirmative-action/policies-procedures-and-practices>.

DEGREE PROGRAMS

The Department of Biostatistics offers the following graduate programs:

Doctor of Philosophy (PhD) in Biostatistics
Master of Science (MS) in Biostatistics

Requirements for each program are described in on the following pages.

Doctor of Philosophy (PhD) in Biostatistics

The PhD in Biostatistics degree program is for students with a background in mathematics and a strong interest in biology and public health. The program emphasizes statistical theory and methods so that students are prepared to be effective statistical collaborators in interdisciplinary studies; lead the design and execution of studies; and develop biostatistics methodology.

Admission

Application for admission must be made through the Graduate School of Public Health Office of Student Affairs. Prospective students should visit the Graduate School of Public Health admissions page for [school-wide admission requirements](#) and the Department of Biostatistics admissions page for [department-specific admission requirements](#). PhD candidates normally complete graduation requirements in four to five years.

Program Objectives

Students successfully completing the PhD Program in Biostatistics will be able to:

- Quantitatively address a novel or complex health problem by developing an innovative statistical methodology or adapting existing methods to a new problem
- Demonstrate mastery of advanced statistical theory and applications
- Understand and implement innovative statistical approaches emerging in the literature to biomedical and public health issues
- Communicate the results of biostatistical analyses to individuals with varying degrees of statistical knowledge
- Recognize strengths and weaknesses of proposed approaches, including alternative designs, data sources, and analytic methods
- Determine the data best suited to address public health issues, program planning, and program evaluation
- Contribute to the body of knowledge in the field of biostatistics by submitting an article for publication in peer-reviewed journal, or preparing a book chapter or book for publication

Requirements

Coursework

A minimum total of 72 credits are required.

Core Courses

BIOST 2025	Biostatistics Seminar	1 credit	(3 terms required)
BIOST 2039	Biostatistical Methods	3 credits	
BIOST 2043	Introduction to Statistical Theory I	3 credits	
BIOST 2044	Introduction to Statistical Theory II	3 credits	
BIOST 2049	Applied Regression Analysis	3 credits	
BIOST 2050	Longitudinal and Clustered Data Analysis	2 credits	
BIOST 2051	Statistical Estimation Theory	3 credits	
BIOST 2054	Survival Analysis	3 credits	
BIOST 2061	Likelihood Theory & Applications	2 credits	
BIOST 2083	Linear Models	3 credits	
BIOST 2086	Applied Mixed Models Analysis	3 credits	
BIOST 2087	Biostatistics Consulting Practicum	1 credit	
BIOST 2093	SAS for Data Management & Analysis	2 credits	
EPIDEM 2110*	Principles of Epidemiology	3 credits	
PUBHLT 2011*	Essentials of Public Health	3 credits	
PUBHLT 2022*	Public Health Grand Rounds	0 credits	(2 terms required)

* GSPH Core Course

Electives

In situations where a student's special interests or needs indicate an alternative course is more appropriate it may be substituted with the permission of the student's academic advisor and department chair.

Department Electives

Students must complete six of the following courses:

BIOST TBD	Constrained Inference	3 credits	
BIOST TBD	Bayesian Data Science	3 credits	
BIOST 2016	Sampling Design & Analysis	2 credits	
BIOST 2040	Elements of Stochastic Processes	3 credits	
BIOST 2052	Multivariate Analysis	3 credits	
BIOST 2055	Introductory High-Throughput Genomic Data Analysis I: Data Mining & Applications	3 credits	
BIOST 2056	Introduction to Diagnostic Test Evaluation & ROC Analysis	3 credits	
BIOST 2058	Scientific Communication Skills	2 credits	
BIOST 2062	Clinical Trials: Methods & Practice	3 credits	
BIOST 2065	Analysis of Incomplete Data	3 credits	
BIOST 2078	Statistical Learning in High-Dimensional Data with Omics Applications	2 credits	
BIOST 2094	Advanced R Computing	2 credits	
BIOST 2096	Numerical Methods in Biostatistics	3 credits	

Outside Electives

Students must complete at least three credits outside of the Department of Biostatistics. In special circumstances, undergraduate credits may be applied to a Pitt Public Health degree with the permission of the advisor. The undergraduate courses must be upper-level courses (1000-1999), with a limit of 6 total credits. It must be clear that these credits are taken as a graduate student while enrolled at Pitt Public Health and cannot have been taken as an undergraduate or as a non-degree student.

Dissertation Research Credits

Students must complete three credits of BIOST 3010 or one term of FTDR 3999. Please see guidelines for both courses below.

Independent Study (BIOST 2021/3010) Guidelines

It is recommended that students should give priority to completing core and elective coursework before registering for independent study (BIOST 2021/3010). Specifically, no more than 3 credits of independent study (BIOST 2021/3010) should be taken in terms when core and elective courses are offered that a student needs take to complete coursework requirements.

Before passing the dissertation overview and comprehensive examination, a doctoral student can register for BIOST 2021 for his/her independent PhD level research. After passing the dissertation overview and comprehensive examination, a student is permitted to take BIOST 3010 which can fulfill the dissertation research credit requirement while providing credits toward the 72 credit requirement for the PhD degree.

In situations where a student's special interests or needs indicate more credits of independent study (BIOST 2021/3010) appropriate approval must be obtained from the student's academic advisor and department chair.

FTDR 3999 Guidelines

Upon enrollment in 72 credits and successful completion of all required coursework, PhD students are required to register for Full-time Dissertation Study (FTDR 3999). FTDR 3999 carries no credits or letter grade, but provides students with full-time status. Students enrolled in FTDR 3999 are assessed a special tuition fee.

Advanced Standing and Credit Transfer

PhD students with previous graduate experience in Biostatistics or a related field may apply to transfer up to 24 credits for graduate-level coursework successfully completed with a grade of B or better. The course credits to be transferred must be reviewed by the student's academic advisor and approved by the Department Chair and Assistant Dean for Student Affairs. Students who receive transfer credits for GSPH Core Courses must complete the GSPH Core Course Exemption Form in addition to the credit transfer paperwork to exempt out of those classes. Students who receive transfer credits for BIOST 2087 must complete the BIOST Course Exemption Form in addition to the credit transfer paperwork to exempt out of those classes. All transfer credit paperwork must be complete by the end of a student's first term.

Biostatistics Course Exemption

Students with sufficient background are allowed to exempt out of required core courses and electives by completing the BIOST Course Exemption Form and obtaining approval of the student's advisor, the course instructor and department chair. Courses that are exempted do not carry any credits.

PHD Student Schedule

This schedule is typical for PhD students who enter the program without a previous graduate degree. Students who obtain a relevant graduate degree from another institution should be advised accordingly to make sure he/she takes two terms of PUBHLT 2022 (0), PUBHLT 2011 (3), and three terms of BIOST 2025 (1) within the first two years.

FALL	SPRING
FIRST YEAR	
BIOST 2025 (1)	BIOST 2025 (1)
BIOST 2039 (3)	BIOST 2044 (3)
BIOST 2043 (3)	BIOST 2049 (3)
EPIDEM 2110 (3)	BIOST 2093 (2)
PUBHLT 2022 (0)	PUBHLT 2022 (0)
ELECTIVE	ELECTIVE
SECOND YEAR	
BIOST 2025 (1)	PUBHLT 2011 (3)
BIOST 2050 (2)	BIOST 2054 (3)
BIOST 2051 (3)	BIOST 2061 (2)
BIOST 2083 (3)	BIOST 2086 (3)
<i>PHD QUALIFYING EXAM</i>	
THIRD YEAR	
BIOST 2087 (1)	ELECTIVE
ELECTIVE	ELECTIVE
ELECTIVE	ELECTIVE
ELECTIVE	ELECTIVE
ELECTIVE	ELECTIVE

Remaining year(s) can be used to complete electives and full-time dissertation study.

Preliminary (Qualifying) Examination

The preliminary examination is designed to assess the breadth of the student's knowledge of the discipline, the student's achievement during the first year(s) of graduate study, and the potential to apply research methods independently. The preliminary examination is used to identify those students who may be expected to complete the doctoral program successfully and also to reveal areas for improvement in the student's preparation.

The Biostatistics PhD preliminary examination is typically offered annually in June. The examination consists of three separate components: applications, theory, and public health based on epidemiology. In order to pass the preliminary examination, students must receive passing scores for all three components of the examination. Eligible students are permitted to retake the portions of the examination they did not pass when the examination is offered again the following year. Students who do not pass the examination on the second attempt will be dismissed from the PhD Program in accordance with the [Pitt Public Health Probation and Dismissal Guidelines](#).

Once a student passes the preliminary examination, the student may begin working on his/her dissertation. Students should not begin dissertation work before they pass the preliminary examination.

Eligibility

A student is eligible to take the preliminary examination if the student:

1. is enrolled in the Department of Biostatistics PhD Program with good standing (3.00 QPA or greater);
2. did not fail the preliminary examination more than once; and
3. completed the required courses (listed below), or equivalent coursework which the student has obtained transfer credits or exemption for.

Required Coursework

Application (Part 1 of 3)

BIOST 2039	Biostatistical Methods
BIOST 2049	Applied Regression Analysis
BIOST 2050	Longitudinal and Clustered Data Analysis
BIOST 2086	Applied Mixed Models Analysis

Theory (Part 2 of 3)

BIOST 2043	Introduction to Statistical Theory I
BIOST 2044	Introduction to Statistical Theory II
BIOST 2051	Statistical Estimation Theory
BIOST 2061	Likelihood Theory & Applications
BIOST 2083	Linear Models

Public Health (Part 3 of 3)

EPIDEM 2110	Principles of Epidemiology
-------------	----------------------------

Doctoral Dissertation

Students must write a dissertation that presents the results of a research project carried out by the student. An appropriate research project involves a substantive piece of original and independent research grounded in an appropriate body of literature. The PhD dissertation should consist of material sufficient for at least two publications in peer-reviewed journals. At least one of the manuscripts, based on the dissertation and first authored by the student, must be submitted before the PhD dissertation defense. For PhD students matriculated prior to fall 2015, it is recommended that at least one of the manuscripts be submitted before the PhD dissertation defense. It is the responsibility of the student's dissertation committee to evaluate the dissertation in these terms and to recommend the awarding of the doctoral degree only if the dissertation is judged to demonstrate these qualities.

Before the student's dissertation overview and comprehensive examination, the student's dissertation advisor proposes for the approval of the Department Chair and Assistant Dean for Student Affairs, a doctoral dissertation committee.

Rules for PhD Dissertation Committee Composition:

- The committee must consist of at least four University of Pittsburgh faculty members
- At least two members must be on the [core faculty list](#) of some GSPH department
- The majority of members must have [graduate faculty](#) status
- One of the University of Pittsburgh faculty on the committee must not be on the [core faculty list](#) from the student's department
- If thesis work includes internship/practica experience, including data and policies, from the Allegheny County Health Department the committee must include a preceptor from the Allegheny County Health Department. If the preceptor is an adjunct faculty member, they count as a faculty member. If they do not hold an adjunct appointment, they must be added in addition to all faculty on the committee.

Dissertation Overview & Comprehensive Examination

Doctoral students must prepare and present a dissertation proposal. The dissertation proposal consists of two parts: (i) a presentation of a dissertation overview to members of the student's doctoral committee and all interested members of the Department of Biostatistics and (ii) a comprehensive examination attended only by the student and his/her doctoral committee. The purposes of the overview and the comprehensive exam are for a student to demonstrate that he/she is prepared to complete a dissertation by showing a general breadth of biostatistical knowledge and deep understanding of particular area(s) of biostatistics, demonstrating the ability to use biostatistical research methods and presenting a carefully formulated plan of novel dissertation research. An announcement advertising the time and location of the dissertation overview should be disseminated to the Department at least one week prior to the presentation. The doctoral committee must unanimously approve the dissertation topic and research plan before the student is admitted to candidacy for the doctoral degree. Approval of the overview does not imply either the acceptance of a dissertation prepared in accord with the overview or the restriction of the dissertation to its original overview. The dissertation overview and comprehensive examination should be passed at least one academic term before scheduling the dissertation defense.

Admission to Candidacy

Admission to candidacy for a doctoral degree constitutes a promotion of the student to the most advanced stage of graduate study and provides formal approval to devote essentially exclusive attention to the research and the writing of the dissertation.

Eligibility

To qualify for admission to candidacy a student must:

1. be in full graduate status
2. have satisfied the requirement of preliminary examination
3. have completed all required coursework with a minimum quality point average (QPA) of 3.00
4. shown proficiency in a research or investigative tool
5. have received approval of the proposed dissertation subject and plan following successful completion of the dissertation overview and comprehensive examination requirements

Students are informed of admission to candidacy by written notification from the Assistant Dean for Student Affairs.

Admission to candidacy should occur at least one academic term before the defense of the dissertation in order to provide an opportunity for the dissertation committee members to review, criticize, and monitor the proposed research.

Meetings of the dissertation committee and student must occur at least annually from the time the student gains admission to doctoral candidacy. During these meetings, the dissertation committee should assess the student's progress toward the completion of degree requirements and discuss objectives for the following year and a timetable for completing degree requirements.

Doctoral Dissertation Defense

The final oral examination in defense of the doctoral dissertation is conducted by the student's dissertation committee. One copy of the dissertation must be submitted to each member of the dissertation committee at least two weeks before the scheduled doctoral defense. The defense may not be scheduled earlier than two weeks following submission of the dissertation, but must be held at least two weeks before the degree is conferred.

At least one month before the scheduled defense, the student must provide the department registrar with the defense time, date, place, dissertation title and abstract for school-wide advertisement. The student must also provide these details to the University Times for advertisement at least one month before the scheduled defense. More information on defense announcement guidelines can be found by viewing the [complete instructions for announcing your defense](#).

The final copy of the dissertation must be prepared and submitted according to [Format Instructions for Pitt Public Health Essays, Theses, and Dissertations](#). Additional information regarding dissertations can be found by visiting the [essays, theses, and dissertations](#) section of the Pitt Public Health graduation site.

Defense Scheduling and Meeting Procedures

1. Students should schedule a date and time (typically 2 hours) for their defense
2. Once a date and time have been set students should contact [Renee Valenti](#) for room scheduling
3. Students are required to provide their dissertation title and abstract to [Renee Valenti](#) at least one month before the scheduled defense
4. The department registrar will provide the Committee Chair the Report on Requirement Form for completion
5. Students are responsible for bringing all other required paperwork as outlined on the [Pitt Public Health Graduation](#) page to their defense
6. Please note that all paperwork require original signatures – students are responsible for obtaining non-Pitt faculty signatures in a timely manner

Graduation

All PhD students must register for at least one credit during the term in which they intend to graduate.

Please visit the [Pitt Public Health Graduation](#) page for detailed information on applying for graduation and graduation requirements.

Statute of Limitations

The purpose of the statute of limitations is to ensure that a graduate degree from the University of Pittsburgh represents mastery of current knowledge in the field of study.

From the student's initial registration for graduate study, all requirements for the PhD degree must be completed within a period of ten years or eight years if the student has received credit for a master's degree appropriate to the field of study. Please note that the statute of limitations is the same for both full- and part-time students.

Under exceptional circumstances, a candidate for an advanced degree may apply for an extension of the statute of limitations. The request must be approved by the department or departmental doctoral monitoring committee and submitted to the dean for final action. Requests for an extension of the statute of limitations must be accompanied by a departmental assessment of the work required of the student to complete the degree as well as documented evidence of the extenuating circumstances leading to the requested extension. Students who request an extension of the statute of limitations must demonstrate proper preparation for the completion of all current degree requirements.

Master of Science (MS) in Biostatistics

The MS in biostatistics degree program is for students with a background in mathematics and a strong interest in biology and public health. The program emphasizes statistical theory and methods so that students are prepared to be effective statistical collaborators in interdisciplinary studies; and lead the design and execution of studies.

Admission

Application for admission must be made through the Graduate School of Public Health Office of Student Affairs. Prospective students should visit the Graduate School of Public Health admissions page for [school-wide admission requirements](#) and the Department of Biostatistics admissions page for [department-specific admission requirements](#). Full-time students normally complete graduation requirements for the MS degree within three to five terms (18 to 24 months).

Program Objectives

Students successfully completing the MS Program in Biostatistics will be able to:

- Address health problems by appropriate problem definition, study design, data collection, data management, statistical analysis, and interpretation of results
- Demonstrate mastery of the theory underlying statistical methods
- Understand and implement innovative statistical approaches
- Communicate biostatistical analyses to individuals with varying degrees of statistical knowledge
- Apply research design principles to problems in public health
- Recognize strengths and weaknesses of approaches, including alternative designs, data sources, and analytic methods
- Determine the data best suited to address public health issues, program planning, and program evaluation

Requirements

Coursework

A minimum of 40 credits are required.

Core Courses

BIOST 2021	Special Studies	variable	(2 credits required)
BIOST 2025	Biostatistics Seminar	1 credit	
BIOST 2039	Biostatistical Methods	3 credits	
BIOST 2043	Introduction to Statistical Theory I	3 credits	
BIOST 2044	Introduction to Statistical Theory II	3 credits	
BIOST 2049	Applied Regression Analysis	3 credits	
BIOST 2050	Longitudinal and Clustered Data Analysis	2 credits	
BIOST 2066	Applied Survival Analysis	2 credits	
BIOST 2081	Mathematical Methods for Statistics	3 credits	
BIOST 2087	Biostatistics Consulting Practicum	1 credit	
BIOST 2093	SAS for Data Management & Analysis	2 credits	
EPIDEM 2110*	Principles of Epidemiology	3 credits	
PUBHLT 2011*	Essentials of Public Health	3 credits	
PUBHLT 2022*	Public Health Grand Rounds	0 credits	(2 terms required)

* GSPH Core Course

Electives

Students must complete BIOST elective credits to bring the total number of course credits to 40. In situations where a student's special interests or needs indicate an alternative non-BIOST course is more appropriate it may be substituted with the permission of the student's academic advisor and department chair.

Special Studies – BIOST 2021

MS students are required to register for two credits of Special Studies (BIOST 2021) upon successful completion of the MS Comprehensive Examination requirement. Special Studies (BIOST 2021) credits cannot be used to fulfill elective credit requirements.

Biostatistics Seminar – BIOST 2025

MS students are required to register for one term of Biostatistics Seminar (BIOST 2025). Biostatistics Seminar (BIOST 2025) credits cannot be used to fulfill elective credit requirements.

Advanced Standing and Credit Transfer

MS students with previous graduate experience in Biostatistics or a related field may apply to transfer up to 6 credits for graduate-level coursework successfully completed with a grade of B or better. The course credits to be transferred must be reviewed by the student's academic advisor and approved by the Department Chair and Assistant Dean for Student Affairs. Students who receive transfer credits for GSPH Core Courses must complete the GSPH Core Course Exemption Form in addition to the credit transfer paperwork to exempt out of those classes. Students who receive transfer credits for BIOST 2087 must complete the BIOST Course Exemption Form in addition to the credit transfer paperwork to exempt out of the class. All transfer credit paperwork must be complete by the end of a student's first term.

In special circumstances, undergraduate credits may be applied to a Pitt Public Health degree with the permission of the advisor. The undergraduate courses must be upper-level courses (1000-1999), with a limit of 6 total credits. It must be clear that these credits are taken as a graduate student while enrolled at Pitt Public Health and cannot have been taken as an undergraduate or as a non-degree student.

Biostatistics Course Exemption

Students with sufficient background are allowed to exempt out of required core courses and electives by completing the BIOST Course Exemption Form and obtaining approval of the student's advisor, the course instructor and department chair. Courses that are exempted do not carry any credits.

MS Student Schedules

Eighteen Month Schedule

Fall 1st Year

BIOST 2039	Biostatistical Methods	3 credits
BIOST 2043	Introduction to Statistical Theory I	3 credits
BIOST 2081	Mathematical Methods for Statistics	3 credits
EPIDEM 2110	Principles of Epidemiology	3 credits
PUBHLT 2022	Public Health Grand Rounds	0 credits

Spring 1st Year

BIOST 2044	Introduction to Statistical Theory II	3 credits
BIOST 2049	Applied Regression Analysis	3 credits
BIOST 2093	SAS for Data Management & Analysis	2 credits
PUBHLT 2011	Essentials of Public Health	3 credits
PUBHLT 2022	Public Health Grand Rounds	0 credits
ELECTIVE(S)		

May of 1st Year *MS Comprehensive Exam*

Fall 2nd Year

BIOST 2021	Special Studies	2 credits
BIOST 2025	Biostatistics Seminar	1 credit
BIOST 2050	Longitudinal and Clustered Data Analysis	2 credits
BIOST 2066	Applied Survival Analysis	2 credits
BIOST 2087	Biostatistics Consulting Practicum	1 credit
ELECTIVE(S)		

Thesis Defense

Two Year Schedule

Fall 1st Year

BIOST 2039	Biostatistical Methods	3 credits
BIOST 2043	Introduction to Statistical Theory I	3 credits
BIOST 2081	Mathematical Methods for Statistics	3 credits
EPIDEM 2110	Principles of Epidemiology	3 credits
PUBHLT 2022	Public Health Grand Rounds	0 credits

Spring 1st Year

BIOST 2044	Introduction to Statistical Theory II	3 credits
BIOST 2049	Applied Regression Analysis	3 credits
BIOST 2093	SAS for Data Management & Analysis	2 credits
PUBHLT 2011	Essentials of Public Health	3 credits
PUBHLT 2022	Public Health Grand Rounds	0 credits

May of 1st Year *MS Comprehensive Exam*

Fall 2nd Year

BIOST 2025	Biostatistics Seminar	1 credit
BIOST 2050	Longitudinal and Clustered Data Analysis	2 credits
BIOST 2066	Applied Survival Analysis	2 credits
ELECTIVE(S)		

Spring 2nd Year

BIOST 2021	Special Studies	2 credits
BIOST 2087	Biostatistics Consulting Practicum	1 credit
ELECTIVE(S)		

Thesis Defense

Master's Comprehensive Examination

MS students must pass a written comprehensive examination that is given annually at the end of the first year of study in early May. The MS comprehensive examination consists of two short answer components: one for theory and one for applied methods. The examination is a proctored closed book exam.

Eligible students who fail either part of the examination on the first attempt will be permitted to take that part of the examination a second time during the summer. The summer examination is only for eligible first-year students who did not pass the examination on the first attempt in order not to delay graduation or decisions about continuation in the program. Eligible students who fail the examination on the first attempt may also choose to wait until the following May to retake the exam. Students who do not pass the examination on the second attempt will be dismissed from the MS Program in accordance with the [Pitt Public Health Probation and Dismissal Guidelines](#).

Once a student passes the preliminary examination, the student may begin working on his/her thesis. Students should not begin thesis work before they pass the comprehensive examination.

Eligibility

A student is eligible to take the comprehensive examination if the student:

1. is enrolled in the Department of Biostatistics MS Program with good standing (3.00 QPA or greater)
2. did not fail the comprehensive examination more than once
3. completed the required courses (listed below) with a B or better, or equivalent coursework which the student has obtained transfer credits or exemption for

Required Coursework

BIOST 2039	Biostatistical Methods
BIOST 2043	Introduction to Statistical Theory I
BIOST 2044	Introduction to Statistical Theory II
BIOST 2049	Applied Regression Analysis
EPIDEM 2110	Principles of Epidemiology

Master's Thesis

MS students can begin work on his/her thesis only after successful completion of the MS Comprehensive Examination requirement. MS students must register for a minimum of two Special Studies (BIOST 2021) credits (these credits DO NOT count toward the elective credit requirement) and meet the master's thesis requirement.

MS students are required to write and defend a master's thesis. The master's thesis must be in accord with specifications stipulated in the [Format Instructions for Pitt Public Health Essays, Theses, and Dissertations](#).

Before the student's thesis defense, the student's thesis advisor proposes for the approval of the Department Chair and Assistant Dean for Student Affairs, a master's thesis committee.

Rules for MS Thesis Committee Composition:

- The committee must consist of at least three University of Pittsburgh faculty members
- Half or more of the members must be on the [core faculty list](#) of at least one GSPH department
- One of the University of Pittsburgh faculty on the committee must not be on the [core faculty list](#) from the student's department
- If thesis work includes internship/practica experience, including data and policies, from the Allegheny County Health Department the committee must include a preceptor from the Allegheny County Health Department. If the preceptor is an adjunct faculty member, they count as a faculty member. If they do not hold an adjunct appointment, they must be added in addition to all faculty on the committee.

The thesis committee chair need not be on the core list of the student's department.

While not required, it is highly recommended that the student hold a proposal meeting with his/her committee shortly after starting the thesis work. The purpose of this meeting would be to discuss the topic and scope of the thesis project and to allow the committee to be familiar with the student's work prior to the defense. It is highly recommended that all students follow the [format instructions for Pitt Public Health essays, theses, and dissertations](#) and work in the ETD template when they start to write their thesis.

All students who plan to graduate in a certain term MUST check the [Pitt Public Health Graduation](#) page at the beginning of that term. This page lists the deadlines for graduation requirements including thesis formatting checks and upload deadlines. The defense MUST be scheduled no later than one week prior to the formal upload deadline for the thesis ETD document. The defense will not be schedule with less than one week before the deadline. In accordance with the [Pitt Public Health School-Wide MPH Essay/Thesis Completion Policy](#), a complete final draft of the thesis MUST be submitted to the committee no later than two weeks prior to the date of the defense. If less than two weeks are given, the committee will cancel the thesis defense and graduation will be delayed.

The MS thesis committee will judge the adequacy of the MS thesis by an open oral examination covering the subject of the thesis. Successful completion of the MS thesis requires unanimous agreement by the MS thesis committee.

The final copy of the thesis must be prepared and submitted according to [University Guidelines for Electronic Theses and Dissertations \(ETD\)](#). Detailed information on requirements can be found on the [Pitt Public Health Graduation](#) page.

Defense Scheduling and Meeting Procedures

1. Students should schedule a date and time (typically 2 hours) for their defense
2. Once a date and time have been set students should contact [Renee Valenti](#) for room scheduling
3. Students are required to provide their thesis title to [Renee Valenti](#) at least two weeks before the scheduled defense
4. The department registrar will provide the Committee Chair the Report on Requirement Form for completion
5. Students are responsible for bringing all other required paperwork as outlined on the [Pitt Public Health Graduation](#) page to their defense
6. Please note that all paperwork require original signatures – students are responsible for obtaining non-Pitt faculty signatures in a timely manner

Graduation

All MS students must register for at least one credit during the term in which they intend to graduate.

Please visit the [Pitt Public Health Graduation](#) page for detailed information on applying for graduation and graduation requirements.

Statute of Limitations

The purpose of the statute of limitations is to ensure that a graduate degree from the University of Pittsburgh represents mastery of current knowledge in the field of study.

All requirements for MS degrees must be completed within a period of four consecutive calendar years from the student's initial registration for graduate study. Please note that the statute of limitations is the same for both full- and part-time students.

Under exceptional circumstances, a candidate for an advanced degree may apply for an extension of the statute of limitations. The request must be approved by the department and submitted to the dean for final approval and action. Requests for an extension of the statute of limitations must be accompanied by a departmental assessment of the work required of the student to complete the degree as well as documented evidence of the extenuating circumstances leading to the requested extension. Students who request an extension of the statute of limitations must demonstrate proper preparation for the completion of all current degree requirements.

Course Descriptions

Please visit the [Biostatistics Course Listing](#) for detailed course descriptions, credits and pre/co-requisites.

Course Offering Schedule

Please note that this schedule is subject to change. Please visit the [Biostatistics Class Schedule](#) for the most current course schedules filtered by term.

FALL 2018

BIOST 2016	Sampling Design and Analysis	2 credits
BIOST 2021	Special Studies	variable
BIOST 2025	Biostatistics Seminar	1 credit
BIOST 2039	Biostatistical Methods	3 credits
BIOST 2043	Introduction to Statistical Theory I	3 credits
BIOST 2050	Longitudinal and Clustered Data Analysis	2 credits
BIOST 2051	Statistical Estimation Theory	3 credits
BIOST 2056	Introduction to Diagnostic Test Evaluation and ROC Analysis	3 credits
BIOST 2058	Scientific Communication Skills	2 credits
BIOST 2066	Applied Survival Analysis	2 credits
BIOST 2081	Mathematical Methods for Stat	3 credits
BIOST 2083	Linear Models	3 credits
BIOST 2087	Biostatistics Consulting Practicum	1 credit
BIOST 3010	Research and Dissertation PhD	variable
FTDR 3999	Full-Time Dissertation Research	0 credits

SPRING 2019

BIOST TBD	Constrained Inference	3 credits
BIOST TBD	Bayesian Data Science	3 credits
BIOST 2021	Special Studies	variable
BIOST 2025	Biostatistics Seminar	1 credit
BIOST 2044	Introduction to Statistical Theory II	3 credits
BIOST 2049	Applied Regression Analysis	3 credits
BIOST 2052	Multivariate Analysis	3 credits
BIOST 2054	Survival Analysis	3 credits
BIOST 2061	Likelihood Theory & Applications	2 credits
BIOST 2062	Clinical Trials: Methods & Practice	3 credits
BIOST 2086	Applied Mixed Models Analysis	3 credits
BIOST 2087	Biostatistics Consulting Practicum	1 credit
BIOST 2093	SAS for Data Management & Analysis	2 credits
BIOST 2094	Advanced R Computing	2 credits
BIOST 3010	Research and Dissertation PhD	variable
FTDR 3999	Full-Time Dissertation Research	0 credits

**DEPARTMENT OF BIOSTATISTICS
PHD DEGREE REQUIREMENT WORKSHEET**

Student Name:

PeopleSoft #:

Entered Program:

Statute of Limitation:

Advisor:

Degree Awarded	Major	Year	Institution

REQUIRED COURSES

A minimum of 72 credits are required

Completed	Course #	Course Name	Credits	Grade	Credit Transfer	Waiver	Alt. Course Taken
	BIOST 2025	Biostatistics Seminar	1				
			1				
			1				
	BIOST 2039	Biostatistical Methods	3				
	BIOST 2043	Introduction to Statistical Theory I	3				
	BIOST 2044	Introduction to Statistical Theory II	3				
	BIOST 2049	Applied Regression Analysis	3				
	BIOST 2050	Longitudinal and Clustered Data Analysis	2				
	BIOST 2051	Statistical Estimation Theory	3				
	BIOST 2054	Survival Analysis	3				
	BIOST 2061	Likelihood Theory & Applications	2				
	BIOST 2083	Linear Models	3				
	BIOST 2086	Applied Mixed Models Analysis	3				
	BIOST 2087	Biostatistics Consulting Practicum	1				
	BIOST 2093	SAS for Data Management & Analysis	2				
	EPIDEM 2110	Principles of Epidemiology	3				
	PUBHLT 2011	Essentials of Public Health	3				
	PUBHLT 2022	Public Health Grand Rounds	0				
			0				

ELECTIVE BIOST COURSES

In situations where a student's special interests or needs indicate an alternative course is more appropriate it may be substituted with the permission of the primary academic advisor.

6 of the following courses:

Completed	Course #	Course Name	Credits	Grade	Credit Transfer	Waiver	Alt. Course Taken
	BIOST TBD	Constrained Inference	3				
	BIOST TBD	Bayesian Data Science	3				
	BIOST 2016	Sampling Design & Analysis	2				
	BIOST 2040	Elements of Stochastic Processes	3				
	BIOST 2052	Multivariate Analysis	3				
	BIOST 2055	Introductory High-Throughput Genomic Data Analysis 1: Data Mining & Applications	3				
	BIOST 2056	Introduction to Diagnostic Test Evaluation & ROC Analysis	3				
	BIOST 2058	Scientific Communication Skills	2				
	BIOST 2062	Clinical Trials: Methods & Practice	3				
	BIOST 2065	Analysis of Incomplete Data	3				
	BIOST 2078	Statistical Learning in High-Dimensional Data with Omics Applications	2				
	BIOST 2094	Advanced R Computing	2				
	BIOST 2096	Numerical Methods in Biostatistics	3				

ELECTIVE COURSES

At least 3 credits taken outside BIOST

Completed	Course #	Course Name	Credits	Grade	Credit Transfer	Waiver	Alt. Course Taken

ALTERNATE COURSES

Completed	Course #	Course Name	Credits	Grade	Required Course #

RESEARCH/DISSERTATION COURSES

3 credits of *BIOST 3010* or 1 term of *FTDR 3999*

- BIOST 3010
- FTDR 3999

MILESTONES

1. Doctoral Preliminary Evaluation (Qualifying Exam)

Exam Committee Approved _____

	Theory	Applied	Public Health	Overall	Date
Attempt 1					
Attempt 2 <i>(if applicable)</i>					

2. Doctoral Overview/Prospectus _____

3. Doctoral Comprehensive Exam _____

4. Admission Doctoral Candidacy _____

5. Manuscript Submitted _____

At least one of the manuscripts, based on the dissertation and first authored by the student, must be submitted before the PhD dissertation defense.

6. Dissertation Defense

Advertised University Times _____

Passed _____

7. Exit Survey _____

**Department of Biostatistics
MS Degree Requirement Worksheet**

Student:

PeopleSoft #:

Start Date:

Statute of Limitations:

Academic Advisor:

Provisional Requirements

For students accepted provisionally

Completed	Provision	Credits	Grade	Term

Course Requirements

A minimum of 40 credits are required

Core Courses

Completed	Course	Credits	Grade	Credit Transfer	Waiver
	BIOST 2025: Biostatistics Seminar	1			
	BIOST 2039: Biostatistical Methods	3			
	BIOST 2043: Intro to Statistical Theory I	3			
	BIOST 2044: Intro to Statistical Theory II	3			
	BIOST 2049: Applied Regression Analysis	3			
	BIOST 2050: Longitudinal and Clustered Data Analysis	2			
	BIOST 2066: Applied Survival Analysis	2			
	BIOST 2081: Mathematical Methods for Statistics	3			
	BIOST 2087: Biostatistics Consulting Practicum	1			
	BIOST 2093: Introduction to SAS Computing	2			
	EPIDEM 2110: Principles of Epidemiology	3			
	PUBHLT 2011: Essentials of Public Health	3			
	PUBHLT 2022: Public Health Grand Rounds – 1 st term – 2 nd term	0 0			
	BIOST 2021: Special Studies* – 1st term – 2nd term				

** MS students are required to register for two credits of Special Studies (BIOST 2021) upon successful completion of the MS Comprehensive Examination requirement. Special Studies (BIOST 2021) thesis credits cannot be used to fulfill elective credit requirements.*

Department Electives

Students must complete BIOST elective credits to bring the total number of course credits to 40. BIOST 2025 cannot be used to fulfill elective credits. In situations where a student's special interests or needs indicate an alternative non-BIOST course is more appropriate it may be substituted with the permission of the student's academic advisor and department chair.

Completed	Course	Credits	Grade	Credit Transfer

Comprehensive Examination

Attempt	Date	Theory	Applied	Overall Result
First Sitting				
Second Sitting				

Thesis Defense

Thesis work CANNOT begin until successful completion of the comprehensive examination requirement.

Attempt	Date	Result
First Defense		
Second Defense		

Term	Term GPA	Term Credits	CUM. GPA	CUM. Credits

Notes