



**THE OHIO STATE UNIVERSITY**

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# PROGRAM GUIDE FOR THE INTERDISCIPLINARY PHD PROGRAM IN BIostatISTICS

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## CURRICULUM OVERVIEW

The Interdisciplinary Biostatistics PhD require at least 60 credit hours of coursework. The program is a mix of core statistics courses, public health related coursework, and electives in biostatistics and statistics. The remainder of the minimum of 80 credits required for the PhD comprise individual reading and research related to developing the dissertation or other courses.

Complete information about advising, the program requirements, suggested plan of study, and associated forms is at <http://biostatprograms.osu.edu/>.

All students are expected to be familiar with the Graduate School Handbook (available at <https://gradsch.osu.edu/handbook> )

### REQUIRED COURSEWORK

| Area/Course   | Title  | Credits         |
|---|--|-----------------|
| <b>Foundational Math</b>  |  | <b>6 total</b>  |
| *STAT 6111  | Foundations of Statistical Theory I  | 3               |
| *STAT 6112  | Foundations of Statistical Theory II   | 3               |
| <b>Biostatistics Core</b>   |  | <b>35 total</b> |
| STAT 6570   | Applied Bayesian Analysis  | 2               |
| *STAT 6801  | Statistical Theory I   | 4               |
| *STAT 6802  | Statistical Theory II  | 4               |
| *STAT 6910  | Applied Statistics II  | 4               |
| *STAT 6950  | Applied Statistics I   | 4               |
| *STAT 7301  | Advanced Statistical Theory  | 3               |
| *STAT 7410  | Linear Models  | 3               |
| *STAT 7430  | Generalized Linear Models  | 3               |
| STAT 7730   | Advanced Computational Statistics  | 3               |
| *PUBHBIO 7245   | Biostatistical Collaboration   | 2               |
| *PUBHBIO 8235/STAT 7605 or<br>STAT 8605   | Advanced Regression Modeling for Time-to-Event Data<br>or Advanced Survival Analysis | 3               |
| <b>Public Health Courses</b>  |  | <b>8 total</b>  |
| PUBHEPI 6410  | Principles of Epidemiology   | 3               |
| PUBHLTH 6010  | Essentials of Public Health  | 3               |
| PUBHBIO 6260  | Ethics in Biostatistics  | 1               |
| PUBHBIO 8899  | Doctoral Seminar in Biostatistics  | 1               |
| <b>Statistics and Biostatistics Electives</b>   |  | <b>11 total</b> |
| Elective credits can be from any 6000-level or higher STAT or 7000-level or higher PUBHBIO didactic course or other related courses as approved by the student's Candidacy Exam Committee and the Graduate Studies Chair. |  |                 |
| <b>Total Credit Hours</b>   |  | <b>60 total</b> |

\*Starred courses are pre-requisites for the Biostatistics PhD QII Exam.

Program Guide for the Interdisciplinary PhD Program in Biostatistics

SAMPLE PROGRAM

|                               | <b>Autumn Semester</b>  | <b>Spring Semester</b>  |
|-------------------------------|---|---|
| <b>First Year</b>             | STAT 6111 (Foundations I)<br>STAT 6801 (Stat Theory I)<br>STAT 6950 (Appl Stat I)   | STAT 6112 (Foundations II)<br>STAT 6802 (Stat Theory II)<br>STAT 6910 (Appl Stat II)                                |
| <b>Second Year</b>            | STAT 7301 (Adv Stat Theory)<br>STAT 7410 (Lin Mod)<br>PUBHBIO 8899 (Doctoral Seminar)<br>PUBHBIO 6260 (Ethics in Biostat) | STAT 7430 (GLM)<br>PUBHBIO 8235/STAT 7605/STAT<br>8605 (Adv Survival)<br>PUBHBIO 7245/STAT 7755 (Biostat<br>Collab) |
| <b>Third Year</b>             | PUBHEPI 6410 (Principles of<br>Epidemiology)<br>Public Health or Elective Courses   | STAT 7730 (Stat Computing)<br>STAT 6570 (Applied Bayes)^<br>PUBHLTH 6010 (Essentials of Public<br>Health)           |
| <b>Fourth Year and Beyond</b> | Public Health or Elective Courses   | Public Health or Elective Courses   |

^Students are encouraged to consider taking STAT 6570 in the spring of their first year

TOTAL COURSE HOUR REQUIREMENTS

The doctoral program requires a minimum of 80 credits, including the 60 credits of required courses listed above. Note that the required curriculum leaves a maximum of 20 of the required 80 hours available for individual reading and research related to developing the dissertation. However, students may exceed the 80 required hours. A maximum of 30 credits of master’s degree work may be applied to PhD requirements if approved by the Graduate Studies Committee. (See the Policies, Rules and Procedures for information about transferring credit from other universities.) A grade of B- or better is required in all courses in the PhD program. Students should be familiar with and follow any additional Graduate School enrollment rules and procedures.

## EXAMINATIONS, DISSERTATION AND GRADUATION

In addition to required coursework, students in the Biostatistics PhD program must pass examinations as described below. None of these examinations may be taken more than twice except by petition for extenuating circumstances.

### MS EXAM

This written examination covers material from the first year of coursework (STAT 6801, 6802, 6950, 6910). This exam is administered by the Department of Statistics and is the same as the exam for their PhD and MS degree programs. Students who take these courses in their first year are expected to take the exam in May, and are also expected to request and take the subsequent August offering in the event of a failure on the May exam, as part of maintaining reasonable progress toward their degree. Those who pass the exam at the MS level are considered making satisfactory progress and are qualified to continue in the Biostatistics Ph.D. program. Students are encouraged to apply to graduate with an MS in Statistics at the end of their second year in the program.

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### PHD QUALIFIER

This written examination tests knowledge acquired in the Foundational and core courses and the ability to integrate and apply such knowledge. The exam will consist of one in-class session and two computer lab sessions, administered by the Interdisciplinary Biostatistics Program. Students who fail the PhD Qualifier for the second time are no longer making adequate progress toward their degree and will be dismissed from the program.

### CANDIDACY EXAMINATION

All Candidacy Examinations are subject to the general policies and procedures established by the Graduate School regarding the scheduling, conduct, and result of the examination. For more details regarding Graduate School requirements and rules for the Candidacy Examination see <https://gradsch.osu.edu/graduate-school-handbook-gsh/gsh-section-7-doctoral-degrees>.

The candidacy examination is a single examination consisting of two portions, written and oral, administered and graded by the student's Candidacy Examination Committee (CEC); see the next paragraph for details. The student must have passed the Second Qualifying Examination (QII). The student will need to submit an Application for Candidacy form to the Graduate School via <http://gradforms.osu.edu> at least two weeks before the proposed date of the oral portion of the Candidacy Exam.

Within one year of passing QII, the student forms a PhD Candidacy Examination Committee (CEC). The CEC consists of the student's dissertation advisor, who must be a P-status faculty member of the Interdisciplinary PhD Program in Biostatistics, and at least three other graduate faculty members, two of whom must be P-status faculty of the program.

The written portion of the candidacy exam is essentially a thesis proposal, which should contain the following components: description of research problem, literature review, work already accomplished, work in progress, and future directions. The CEC will meet to discuss and approve the Outline of the

Written Portion and the Plan of Study at least three months prior to the oral portion of the exam. The form will then be submitted to the Graduate Studies Chair in Biostatistics for approval.

The student is expected to continue to communicate with his/her CEC on the status of the proposal. All members should agree that the proposal is sufficiently developed (i.e., that if the research were undertaken as written in the proposal the student would be reasonably likely to have created a body of original work sufficient for a PhD degree) before the oral exam is scheduled. The written portion of the exam should be submitted to each committee member at least three weeks prior to the scheduled date of the oral exam. The oral portion will last for approximately two hours, which consists of questions and answers and deliberation. The entire oral examination will be closed to the public.

## FINAL ORAL EXAMINATION/DISSERTATION DOCUMENT

All Final Oral Examinations (Dissertation Defenses) are subject to the general policies and procedures established by the Graduate School regarding the scheduling, conduct, and result of the examination. For more details regarding Graduate School requirements and rules for the Final Oral Examination see <https://gradsch.osu.edu/completing-your-degree/examinations/doctoral-examinations>.

Once the student has made sufficient progress (as judged by the dissertation committee) on his/her dissertation to warrant holding the Final Oral Examination, the student electronically submits an Application for Final Examination to the Graduate School via <http://gradforms.osu.edu>. The application must be approved by each dissertation committee member at least two weeks before the proposed defense date. The Final Examination Committee (FEC), consisting of the dissertation committee and a graduate faculty representative, then conducts and grades the Oral Examination. The Oral Examination consists of two components: (1) a public seminar-style presentation of his/her dissertation research of approximately 30 minutes followed by questions/answers, and (2) a closed-session of questions/answers and deliberation by the FEC lasting at least one hour. The entire exam will last no more than two hours. The student is considered to have completed the Oral Examination successfully only when the decision of the FEC is unanimously affirmative. After passing the Oral Exam, the student revises the dissertation document to the dissertation committee's satisfaction, verifies that all dissertation committee members have approved the electronic Report on Final Document, and submits the final dissertation document to the Graduate School (see the Graduate School website for submission instructions). The student must pass the Final Oral Examination and submit a final, approved copy of the dissertation to the Graduate School within five years of being admitted to candidacy.

## GRADUATION

The student must electronically submit the Application to Graduate to the Graduate School by the published deadline. Students should consult the Graduate School website for the appropriate deadline and procedure, and submit their applications in ample time for their dissertation committee to review their completed coursework prior to the application approval deadline.

## POLICIES, RULES AND PROCEDURES

In addition to the Ohio State University Graduate School rules and policies, as presented in the Graduate School Handbook, the Interdisciplinary PhD Program in Biostatistics Graduate Studies Committee has adopted the following policies, rules and procedures.

### ADEQUATE PROGRESS TOWARD DEGREE

Full-time PhD students are expected to take the MS Exam in the summer term of their first year, and the Phd Qualifier within 15 months of passing MS Exam. Students are expected to re-take failed exams at the next exam offering. Full-time PhD students are expected to complete their candidacy exam within two years of passing the PhD Qualifier. Students are expected to re-take failed candidacy exams within two semesters of the failed exam. PhD students are expected to complete their degree within 2 years of admission to candidacy, and must complete their degree within 5 years of admission to candidacy. Alterations to this schedule may be requested in writing to the Graduate Studies Chair and will be considered by the Graduate Studies Committee on a case by case basis. Note that extensions to the 5-year post-candidacy timeframe must be requested from the Graduate School (as per Section 12 of the Graduate Handbook), and so for these cases the Graduate Studies Chair will write a letter that communicates the committee's recommendation. Part-time PhD students should establish progress toward degree expectations with the Graduate Studies Chair upon program enrollment. Students who are not making adequate progress toward degree may be placed on probation by the Graduate School.

### COURSE WAIVERS AND SUBSTITUTIONS

Students may request a course waiver or substitution by completing a Petition for Course Waiver or Course Substitution form. The form must be approved and assigned by the instructor of the course and the Graduate Studies Chair. Students interested in waiving Math 4545 must pass a waiver exam offered at the beginning of Autumn semester. Students must inform the Graduate Studies Chair of their intention to take the exam prior to the start of Autumn semester.

### DISSERTATION ADVISING

Once adequate progress has been made towards the degree, usually after passing the PhD Qualifier, students should select an advisor who is willing to direct their dissertation research. The advisor must have Category P graduate status in Biostatistics. The selection must be communicated in writing to the Graduate Studies Chair, who will advise the Graduate School of the advisor assignment.

Although infrequent, situations do arise that make it necessary to change advisors after a dissertation advisor has been selected. Open and regular communication between student and advisor will avoid such situations in most cases. In the event that a student deems that it is not possible to continue with a particular advisor, he/she should directly contact the Graduate Studies Chair or Vice-Chair concerning the situation. The Chair or Vice-Chair will attempt to resolve any problems that have occurred. In the event that resolution is not possible, the Chair or Vice-Chair will work with the student to identify a new advisor if the student has not done so. Students must notify the Graduate Studies Committee in writing that they wish to change advisors and that this change is agreeable with both the previous and the new advisor. If consent of one or both advisors cannot be obtained, the student must petition the Graduate Studies Committee in writing for a change of advisor. Action of the Graduate Studies Committee will be based on consultation with the student and the advisors. If the problem cannot be resolved, the Graduate School has established grievance procedures (see the Graduate School Handbook). Students must recognize that the length of time required to complete the requirements for the degree and financial support might be affected by a change in advisor.

## PROGRAM GUIDE CHANGES

Students may choose to follow the current program guide or the program guide in effect when they matriculated, but not a combination of the two. Students may request exceptions to the curriculum, policies and procedures by submitting such requests in writing to the Graduate Studies Committee.

## REINSTATEMENT

Students who have been inactive for one year (three consecutive semesters/terms) or more must petition the Graduate Studies Committee to renew their status in the PhD program. The committee urges students to discuss their situation with the Graduate Studies Chair prior to, or as soon as possible after initiating, any period of inactivity.

## REVISIONS TO PLAN OF STUDY

If an unforeseen circumstance such as the cancellation of a course requires a student to modify an already approved plan of study, the student must complete an Amendment to Plan of Study form. The form must be approved and signed by the Candidacy Exam Committee and Graduate Studies Chair.

## TRANSFER CREDIT

Any student who has completed a Master's degree at other universities may request the transfer of up to 30 graduate credits by initiating a Transfer of Graduate Credit form via [gradforms.osu.edu](http://gradforms.osu.edu) (follow the provided help instructions, paying particular attention to Step 5) and providing an official graduate transcript to the Graduate Studies Chair. The Graduate Studies Committee will review each request to determine if the University qualifies under Ohio State Graduate School policy, and if the coursework is sufficiently relevant to the Biostatistics PhD to warrant such a transfer. Typically, MS degrees in Statistics or Biostatistics earned in the United States are deemed sufficiently relevant.

## TRAVEL POLICIES

This policy outlines the expectations and approval procedures for all graduate students holding Graduate Research Associate (GRA), Graduate Teaching Associate (GTA), or Fellowship appointments. Students who are not currently receiving funding from the university do not need formal permission for travel as outlined below, but should maintain any visa-related in-person required coursework.

This policy applies only to students' compensated responsibilities. Approval via this policy does not imply approval related to absence from academic responsibilities such as course attendance.

## ON-DUTY PERIODS

Graduate students are considered on duty and are expected to be available to fulfill their professional responsibilities during the following windows:

- **Term Start:** Duties begin at 8:00 AM on Wednesday prior to the first day of classes each semester.
- **Term Conclusion:** Duties end at 5:00 PM on the Monday following the last day of final exams.

## GENERAL EXPECTATIONS AND COMMUNICATION

Maintaining the continuity of the university's mission is vital. If a GTA or GRA is unable to complete their assigned duties for any length of time, they must contact their immediate supervisor (PI or Faculty

Instructor) and communicate the circumstances as soon as practically possible to ensure that research and instruction continue with minimal disruption.

### TRAVEL APPROVAL PROCEDURES

Travel outside of Ohio during on-duty periods requires formal pre-approval secured prior to departure. Except in rare circumstances, requests should be submitted at least two weeks in advance. Pre-approval is required even if duties can be performed remotely.

- **Travel only during off duty periods, weekends, or breaks or holidays** announced by the registrar to have no classes (e.g., Autumn Break and Veterans Day): Pre-approval is not required.
- **Under 5 consecutive business days:** Students must receive approval from their immediate supervisor (Instructor for GTAs, research supervisor for GRAs, or Graduate Studies Chairs for fellows).
- **More than 5 consecutive business days to 29 consecutive days (weekends inclusive):** Students must receive pre-approval from their advisor, immediate supervisor, and the Graduate Studies Committee.
- **30 or More Days:** Students must receive pre-approval from the Graduate School. Such requests are typically only granted when the travel provides a clear academic benefit.

### IMPORTANT CONSIDERATIONS

- **Financial Risk:** If permission is denied, the student will need to cancel any travel arrangements already made at their own expense.
- **Inclusive Dates:** When calculating travel duration for trips spanning more than 5 consecutive business days, students must count all calendar days, including weekends and university holidays.
- **Remote Work:** The ability to work remotely does not waive the requirement for Supervisor, Chair and/or Graduate School pre-approval for absences from the state.
- **Academic Benefit:** For trips of 30 or more days, students should be prepared to demonstrate how the travel supports their specific research goals, professional development, or degree progress.