

COLLEGE OF PUBLIC HEALTH AND HUMAN SCIENCES

Biostatistics

MPH Handbook

2016-2017



Oregon State
UNIVERSITY

MPH Biostatistics Option

Student Handbook

2016-2017

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Welcome to the College of Public Health and Human Sciences. Built on a strong foundation of public health – biostatistics, epidemiology, social and behavioral sciences, health policy and management, and environmental health sciences – the College takes a holistic approach to disease prevention and health promotion.

Our College Vision

To ensure lifelong health and well-being for every person, every family, every community.

Our College Mission

Inspired by our mission as a leading land-grant university, we create synergy in teaching, research and outreach to develop the next generation of globally minded public health and human sciences professionals. Through interdisciplinary research and innovative curricula, we advance knowledge, policies and practices that improve population health in communities across Oregon and beyond.

Our College Values

We share the values that guide Oregon State University: Accountability, Diversity, Respect, Responsibility and Truth. To these values, we add our dedication to:

- **Health:** We are committed to advancing lifelong health and well-being for all.
- **Care and Compassion:** With compassion and understanding, we commit to caring for ourselves and others.
- **Innovation:** We embrace innovative approaches to addressing challenges and opportunities.
- **Continuous Improvement:** We continually strive toward high standards by optimizing individual and collective strengths.
- **Cooperation and Collaboration:** We promote a collegial learning and work environment that encourages cooperation, collaboration and active participation.

The Biostatistics option will train students in statistics applied to public health and healthcare settings. Graduates will be able to work in health departments, medical schools, nongovernmental agencies, and CDC and WHO field programs.

IMPORTANT: In addition to this handbook, MPH students must reference the MPH Student General Handbook for information pertaining to policies which apply to ALL students.

GRADUATE SCHOOL: As an MPH student, you must also follow the guidelines and policies of OSU's Graduate School. You will obtain your program of study form from the Graduate School. Additionally, the Graduate School offers many activities and enrichment opportunities to further your professional development. (<http://gradschool.oregonstate.edu/>)

Biostatistics Specific Requirements

The Biostatistics program trains students in statistics applied to public health and healthcare settings. Graduates will be able to work in health departments, medical schools, nongovernmental agencies, CDC and WHO field programs, and pharmaceutical companies. This program serves as a basis for doctoral training in statistics or biostatistics.

Applicants must possess a baccalaureate degree in any field from an accredited college or university with minimum required GPA of 3.0. Biostatistics applicants must have successfully completed a calculus sequence including differential and integral calculus, infinite series and sequences, and vector calculus. Students who have not successfully completed requisite coursework prior to admission will be required to take prerequisite coursework during their first year.

A. Option Competencies

Upon satisfactory completion of the MPH Biostatistics, students should be able to:

1. Describe the roles biostatistics serves in the discipline of public health.
2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions.
3. Describe preferred methodological alternatives to commonly used statistical methods when assumptions are not met.

4. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.
5. Apply descriptive and graphical techniques commonly used to summarize public health data.
6. Apply common statistical methods for inference.
7. Apply descriptive and basic inferential methodologies according to the type of study design for answering a particular research question.
8. Interpret results of statistical analyses found in public health studies.
9. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.

B. Degree Requirements

To complete the MPH degree in the Biostatistics option, students must have a total of at least 61 approved credit hours and successfully complete a final oral exam. These credits include:

- | | |
|---------------------------------|----|
| • Public Health Core Courses | 17 |
| • Required Option Courses | 25 |
| • Electives | 13 |
| • Field Experience (Internship) | 6 |

C. Suggested Course Sequence

Course #	Title	Recommended Sequence	Credit
Public Health Required Core Courses			17
H 512	Introduction to Environmental & Occupational Health Sciences	Fall / Yr 1	3
H 524	Introduction to Biostatistics	Fall / Yr 1	4
H 525	Principles of Epidemiology	Fall / Yr 1	4
H 533	Health Systems Organization	Spring / Yr 1 or Fall / Yr 2	3
H 571	Principles of Health Behavior	Fall / Yr 2	3
Required Option Courses			25
H 526	Epidemiologic Methods	Winter / Yr 1	3
H 580	Linear Regression and Analysis of Time to Event Data	Winter / Yr 1	4

H 581	Generalized Linear Models and Categorical Data Analysis	Spring / Yr 1	4
H 582	Analysis of Correlated Health Data	Fall / Yr 2	3
H 584	Analysis of Intervention Studies and Clinical Trials	Winter / Yr 1 or 2	3
ST 521	Introduction to Mathematical Statistics	Fall / Yr 1 or 2	4
ST 522	Introduction to Mathematical Statistics	Winter / Yr 1 or 2	4

Electives	select 13
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Other graduate courses can also be selected as electives with the permission of your advisor and the track coordinator

H 547	GIS and Public Health		3
	Applied Epidemiological Analysis of Secondary Data		3
H 551	Data		
H 553	Applied Epidemiologic Methods		3
H 564	Computing Tools and Health Data Analysis		3
H 566	Data Mining in Public Health		3
H 573	Introduction to Multilevel/Hierarchical Models		3
H 578	Introduction to Molecular Epidemiology I		3
H 579	Molecular Epidemiology II		3
H 586	Bayesian Biostatistics in Public Health		3
H 587	Time to Event Analysis of Health Data		3
H 592	Spatial Epidemiology		3
ST 507	Seminar: Section 1 - Consulting Practicum (Students must take Section 1)	Winter Yr 2	1
ST 515	Design and Analysis of Planned Experiments		3
ST 531	Sampling Methods	Fall Yr 2	3
ST 539	Survey Methods		3
H 651	Advanced Epidemiological Methods		3
H 652	Causal Inference in Epidemiology		3

Field Experience	6
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H510	Internship (Field Experience)	Yr 2	6
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Final Oral Exam	
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Final Oral Exam	Spring / Yr 2
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D. Program of Study

As a graduate student, you must file a Program of Study with the Graduate School. The program of study is developed under the guidance of the

advisor. The form is available online in the Graduate School:
http://oregonstate.edu/dept/grad_school/forms.php.

By the end of your first term, meet with your advisor to discuss your chosen area of focus and plan your elective courses to be taken in subsequent terms. At least 15 weeks before your Final Oral Examination, complete your entire program of study, and have it approved and signed by your advisor and School Head before submitting to the Graduate School.

E. Field Experience (H510)

The field experience internship is a 200-hour professional internship where knowledge from coursework is applied in a real-world setting. This is your opportunity to apply your existing skills and learn new ones by working within the field of biostatistics.

The MPH Internship Coordinator has a database that contains data on field experience sites utilized by students. The database contains information about different opportunities including: agency background information, contact information, specialty option(s) served, and the number of students placed each year.

The internship planning process is described in detail at:
<http://health.oregonstate.edu/degrees/graduate/public-health/h510-mph-internship>.

Andy Chuinard is the MPH Internship Coordinator (Telephone: 541-737-4891 Email: Andrew.Chuinard@oregonstate.edu). You will work with him and your advisor as you prepare for your internship.

MPH Program Minimum Standards for Internship

In addition to meeting the professional experience criteria, all MPH internship experiences must meet the following:

- Preceptor experience: Preceptor may not be program faculty member or advisor. Preceptors must have public health credentials or appropriate health related credentials and experience to provide appropriate mentorship/supervision in your learning experience. All site preceptors and sites will be assessed on a case by case basis.

- Competency-based: Internship must meet option and student-specified competencies. Competencies and scope of the internship are pre-approved by advisor and MPH Internship Coordinator. Competency mastery is evaluated by both student and preceptor.
- Community or population focus: Internship experience is a professional experience within a public or private sector organization that can influence workplace, community or population health.
- Duration: Minimum of 200 practice hours (6 units)

F. Minimum Standards for Internship

In addition to meeting the MPH Program Minimum Standards for internships, students in the Biostatistics option must meet the following requirements:

- Students will have completed all or most of the required courses before beginning an internship and have written consent from their faculty advisor.
- Students must complete an Application and Learning Contract, Advisor Approval Form, Internship Coordinator Signature Form, Preceptor Signature Form, and Request for "To Be Arranged" Course Form which must be received by the MPH Internship Coordinator prior to the start of internship.

As part of their internship applications, students work with the MPH Internship Coordinator to:

- develop appropriate learning competencies for the internship and document them in the internship application,
- describe how their area of emphasis, internship, and career objectives are connected,
- demonstrate that the placement is competency-based including opportunities to develop option competencies, and
- seek placements in public and/or private sector organizations with qualified preceptors in the area of biostatistics.

Students must maintain an ongoing internship/organizational experience journal, submit bi-weekly progress reports, a final summary of their work in the practice setting, and an evaluation of the internship site. These reports must be submitted to the MPH Internship Coordinator.

Preceptors must evaluate the degree to which students accomplished the stated individual and option learning competencies, using a Likert-scale instrument provided in the MPH Student General Handbook. This evaluation form must be submitted to the MPH Internship Coordinator.

G. Culminating Experience - Final Oral Exam

Upon completion of all required coursework and the internship experience, all MPH students must schedule a final oral presentation. The student's Program of Study must be filed with the Graduate School, all required coursework and the internship must be completed before taking the exam. Students must receive approval to take the exam from their academic advisors. All deviations from policy must be approved by the Program Coordinator.

All Biostatistics MPH students are encouraged to attend the oral presentations of their peers.

Purpose

The Graduate School at Oregon State University requires all students in a graduate degree-seeking program to participate in a final oral examination. The purpose of the oral examination is to provide students with an opportunity to integrate their educational experiences and draw from coursework and the internship to respond to substantive, methodological, and theory-based questions. In conjunction with the internship, the exam is designed to test the option competencies and to provide the student an opportunity to assess their mastery of the competencies.

Committee

The exam committee will be comprised of three faculty members, including the student's advisor, a second member from the Biostatistics faculty, and a third committee member from Biostatistics or other faculty of the College or University. Students should discuss the procedure for creating committees with their faculty advisor or the Program Coordinator.

Presentation/Oral Exam Format

The student will give a 20-30 minute oral presentation of their internship experience, which is open to the public and followed by questions from audience members.

At the conclusion of the presentation all visitors will be asked to leave and the oral examination will continue with only the committee members and the student present. Questions will be on any aspect of the students' MPH training, including the internship, all coursework in the program of study, and the option competencies.

The entire culminating experience will last approximately 2 hours.

Assigning Grade

Students will be assigned a "pass" or "fail" grade. A grade of "pass" means that the student has responded to the exam questions satisfactorily. If the student receives a grade of "fail" on the examination, faculty must provide specific comments, feedback, and suggestions for improvement. Failure of the examination may result in additional coursework, remedial assignments or readings, prior to retaking the examination. Students will be allowed one retake of the examination, which will include new questions and follow the same procedures as above. The examination may be retaken no sooner than 10 weeks after the date of the failed exam. If the student fails the second oral examination, the student will be terminated from the MPH program.

Contact Information

Biostatistics Faculty Coordinator

John Molitor, PhD

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MPH Program Manager

Amanda Armington, MPH

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541-737-3825

Biostatistics MPH Student Advising Sheet

Student Name _____ Today's Date _____

Term Matriculated _____ Expected Graduation _____

Student ID _____ ONID e-mail _____

MPH Core Requirements (17)	Credits	Term	Grade
H 512 Introduction to Environmental & Occupational Health Sciences	3		
H 524 Introduction to Biostatistics	4		
H 525 Principles of Epidemiology	4		
H 533 Health Systems Organization	3		
H 571 Principles of Health Behavior	3		
Option Required Courses (25)	Credits	Term	Grade
H 526 Epidemiologic Methods	3		
H 580 Linear Regression and Analysis of Time to Event Data	4		
H 581 Generalized Linear Models and Categorical Data Analysis	4		
H 582 Analysis of Correlated Health Data	3		
H 584 Analysis of Intervention Studies and Clinical Trials	3		
ST 521 Introduction to Mathematical Statistics	4		
ST 522 Introduction to Mathematical Statistics	4		
Option Electives (13)	Credits	Term	Grade
Field Experience (6)	Credits	Term	Grade
H 510 Internship (Field Experience)	6		

Total Credits _____

Please use the space below to note any special arrangements where course substitutes have been approved: