



# OHSU Student Learning Outcomes Report

## School of Public Health

## Biostatistics (BCRT-BIOS)



### Competency

### Student Learning Outcome

#### Communication

Interpret and summarize analysis results in research reports and papers and communicate them to individuals with varying degrees of statistical knowledge.

#### Evidence-Based Practice

Interpret and summarize analysis results in research reports and papers and communicate them to individuals with varying degrees of statistical knowledge.

#### Lifelong Learning

Conduct analysis for one's own research projects or provide support to collaborative research teams.

#### Professional Knowledge

Perform a broad range of basic and intermediate level applied statistical procedures that are required in basic, clinical, population and translational sciences.

#### Professionalism And Ethics

Conduct analysis for one's own research projects or provide support to collaborative research teams.

#### Reasoning and Judgement

Conduct analysis for one's own research projects or provide support to collaborative research teams.

#### Safety And Quality Improvement

Interpret and summarize analysis results in research reports and papers and communicate them to individuals with varying degrees of statistical knowledge.



Competency

Student Learning Outcome

Systems	Interpret and summarize analysis results in research reports and papers and communicate them to individuals with varying degrees of statistical knowledge.
Teamwork	Conduct analysis for one's own research projects or provide support to collaborative research teams.
Communication	Interpret and summarize results and communicate them to lay and professional audiences, in the context of proper health principles and concepts.
Evidence-Based Practice	Apply appropriate principles of research design and population-based concepts to assess health problems.
Lifelong Learning	Apply descriptive and inferential statistical methods that are appropriate to the different study designs of public health research.
Professional Knowledge	Apply appropriate descriptive and inferential statistical methods to analyze risk determinants of disease and health conditions.
Professionalism And Ethics	Apply basic ethical principles pertaining to the collection, maintenance, use, and dissemination of public health data.
Reasoning and Judgement	Evaluate strengths and weaknesses of alternative research designs and analytic methods, and critically review and assess analysis presented in public health literature.



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Safety And Quality Improvement	Evaluate strenghts and weaknesses of alternative research designs and analytic methods, and critically review and assess analysis presented in public health literatuare.
Systems	Apply basic ethical principles pertaining to the collection, maintenance, use, and dissemination of public health data.
Teamwork	Identify cultural dimensions of conducting research, including culturally sensitive recruitment of study participants, and develop strategies for interpretation of data in the larger cultural context.
Communication	Communicate statistical methods and findings clearly and unambiguously to specialist and non-specialsts audiences.
Evidence-Based Practice	Select and use appropriate statistical analysis software for assessment, decision- making and information- sharing (e.g., Stata, SAS, R or other special programs).
Lifelong Learning	Apply intermediate to advanced biostatistical theory and techniques to design, plan and manage data collection to conduct analysis for own research projects or support collaborative research teams.
Professional Knowledge	Apply intermediate to advanced biostatistical theory and techniques to design, plan and manage data collection to conduct analysis for own research projects or support collaborative research teams.
Professionalism And Ethics	Apply intermediate to advanced biostatistical theory and techniques to design, plan, and manage data collection to conduct analysis for own research projects or support collaborative research teams.



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Professionalism And Ethics	Apply intermediate to advanced biostatistical theory and techniques to design, plan and manage data collection to conduct analysis for own research projects or support collaborative research teams.
Reasoning and Judgement	Translate broad research goals into specifications and procedures for statistical analysis and interpretation of results in basic, clinical, translational and public health research studies.
Safety And Quality Improvement	Select and use appropriate statistical analysis for assessment, decision-making and information-sharing (e.g., Stata, SAS, R or other special programs).
Systems	Apply intermediate to advanced biostatistical theory and techniques to design, plan and manage data collection to conduct analysis for own research projects or support collaborative research teams.
Communication	Identify gaps in the field of Community Health by critically analyzing relevant peer-reviewed literature.  Effectively disseminate community health knowledge and research findings to public, professional, and student audiences using multiple modes of communication.
Evidence-Based Practice	Utilize pertinent research design, analytic methods, and interpretation of results to address timely research questions in the field of Community Health.
Lifelong Learning	Demonstrate ethical conduct and cultural competence in research design, analysis, dissemination, and critique



Competency

Student Learning Outcome

Professional Knowledge

Identify knowledge gaps in the field of community health by critically analyzing relevant peer-reviewed literature.

Apply appropriate theoretical frameworks to topics relevant to the field of community health, including pedagogical theory in the context of teaching.

Professionalism And Ethics

Demonstrate ethical conduct and cultural competence in research design, analysis, dissemination, and critique

Reasoning and Judgement

Utilize pertinent research design, analytic methods, and interpretation of results to address timely research questions in the field of Community Health.

Safety And Quality Improvement

Demonstrate ethical conduct and cultural competence in research design, analysis, dissemination, and critique

Systems

Evaluate the impact of social, cultural, and contextual factors on health outcomes.

Teamwork

Effectively disseminate community health knowledge and research findings to public, professional, and student audiences using multiple modes of communication.

Communication

Explain the general mechanisms of toxicity in eliciting a human health effect in response to various environmental and occupational exposures.

Communicate the relationship between environmental systems and human health, particularly in response to a changing climate.



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Evidence-Based Practice	Evaluate the risk of environmental exposures to human populations through the incorporation of exposure, toxicological, and other relevant data into risk assessment methodology.
Lifelong Learning	Integrate, synthesize, and apply theory to practice in the context of a research study, policy consequences, or environmental exposure.
Professional Knowledge	Assess and interpret relevant literature in the area of public health and environmental hazards.  Specify approaches for assessing, preventing and controlling environmental and occupational hazards that pose risks to human health and safety.
Professionalism And Ethics	Apply ethical principles that govern the practice of environmental risk assessment, management, and communication.
Reasoning and Judgement	Analyze how environmental hazards (chemical, physical and biological) interact with natural and built systems, including the mechanisms of their adverse effects on humans.
Safety And Quality Improvement	Evaluate the risk of environmental exposures to human populations through the incorporation of exposure, toxicological, and other relevant data into risk assessment methodology.
Systems	Discuss how federal and state regulatory programs, guidelines, and authorities impact environmental and occupational health issues.



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Teamwork	Specify approaches for assessing, preventing, and controlling environmental and occupational hazards that pose risks to human health and safety.
Communication	Communicate public health principles and concepts through various strategies across multiple sectors of the community.
Evidence-Based Practice	Apply evidence-based knowledge of health determinants to public health issues.
Lifelong Learning	Apply population-based concepts of epidemiology and risk determination to the assessment of health problems.
Professional Knowledge	Integrate and apply relevant literature in epidemiology to public health issues and policy.
	Apply and interpret a variety of statistical methods commonly used in medical and public health research.
Professionalism And Ethics	Identify ethical principles in problems that arise in public health policy decisions.
Reasoning and Judgement	Propose and test a research hypothesis.
Safety And Quality Improvement	Apply evidence-based knowledge of health determinants to public health issues.



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Systems	Identify ethical principles in problems that arise in public health policy decisions.
Teamwork	Apply knowledge of cultural dimensions in conducting research, including culturally sensitive recruitment of study participants, and develop strategies for interpretation of data in the larger cultural context.
Communication	Demonstrate excellent verbal and communication skills in teaching epidemiologic principles and concepts at appropriate levels to different audiences.
Evidence-Based Practice	Formulate a testable hypothesis and propose a related study design and analytic approach that have the potential for advancing knowledge of the determinants of health and disease.
Lifelong Learning	Evaluate scientific, cultural, and political issues on epidemiologic research, including research goals, recruitment of study participants, and communication of results in the appropriate contexts.
Professional Knowledge	<p>Apply methods for collecting, evaluating, and synthesizing existing evidence of health determinants to research on public health problems.</p> <p>Apply population-based concepts of chronic and infectious disease epidemiology within appropriate biological, pathophysiological, social, and community contexts.</p>
Professionalism And Ethics	Apply ethical principles to problems that arise in epidemiologic research and practice.



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Reasoning and Judgement	Formulate a testable hypothesis and propose a related study design and analytic approach that have potential for advancing knowledge of the determinants of health and disease.
Safety And Quality Improvement	Apply appropriate data quality assurance and statistical methods for the research questions and study designs used in epidemiologic research.
Systems	Formulate a testable hypothesis and propose a related study design and analytic approach that have the potential for advancing knowledge of the determinants of health and disease.
Teamwork	Evaluate scientific, cultural, and political issues on epidemiologic research, including research goals, recruitment of study participants, and communication of results in the appropriate contexts.
Communication	Design and deliver communication materials supporting the practice of health services leadership, management, and policy.
Evidence-Based Practice	Select and employ appropriate qualitative and quantitative techniques to evaluate and manage health system performance.
Lifelong Learning	<p>Evaluate evidence-based public health policy and health systems transformation strategies to identify emerging issues in health systems and policy.</p> <p>Demonstrate critical and self-reflective thinking in the practice of health management and policy.</p>



Competency

Student Learning Outcome

Professional Knowledge

- Apply theory in the development, implementation and evaluation of solutions to challenges in health management and policy.
- Apply policy process knowledge and techniques to support development and implementation of health policy.
- Select and employ appropriate qualitative and quantitative techniques to evaluate and manage health system performance.

Professionalism And Ethics

- Apply ethical principles and behaviors that govern the practice of health management and policy.

Reasoning and Judgement

- Apply ethical principles and behaviors that govern the practice of health management and policy.

Safety And Quality Improvement

- Demonstrate critical and self-reflective thinking in the practice of health management and policy.

Systems

- Design and implement processes to assess and improve organizational and system performance.

Teamwork

- Represent cultural competency with diverse cultures and communities in the practice of health management and policy.

Communication

- Design and deliver health communication messages.



Competency

Student Learning Outcome

Communication	Solicit and integrate input from community and organization stakeholders.
Evidence-Based Practice	Evaluate and interpret results from program evaluations and other research.
Lifelong Learning	Demonstrate cultural competency in health promotion among all social and cultural communities.
Professional Knowledge	Define health problems, frame hypotheses, design research procedures, and outline methods of analysis.  Design and implement strategies to promote health.  Apply theory in the development, implementation, and evaluation of health promotion interventions, programs, and policies.
Professionalism And Ethics	Apply ethical principles that govern the practice of public health promotion.
Reasoning and Judgement	Develop interventions and programs to effect change at multiple levels, including individual, community, organization, and policy.
Safety And Quality Improvement	Evaluate and interpret results from program evaluations and other research.



Competency

Student Learning Outcome

Systems	Develop interventions and programs to effect change at multiple levels, including individual, community, organization, and policy.
Teamwork	Solicit and integrate input from community and organization stakeholders.
Communication	Enact cultural competence and promote diversity in health science research and practice.
Evidence-Based Practice	Demonstrate competence in the design, implementation, ethical conduct, interpretation, and evaluation of health sciences research
Lifelong Learning	Integrate safe exercise techniques and evidence-based strategies to promote health in research and applied settings
Professional Knowledge	Demonstrate competence in the design, implementation, ethical conduct, interpretation, and evaluation of health sciences research
Professionalism And Ethics	Enact cultural competence and promote diversity in health science research and practice.
Reasoning and Judgement	Demonstrate competence in the design, implementation, ethical conduct, interpretation, and evaluation of health sciences research
Safety And Quality Improvement	Integrate safe exercise techniques and evidence-based strategies to promote health in research and applied settings



Competency

Student Learning Outcome

Systems	Demonstrate competence in the design, implementation, ethical conduct, interpretation, and evaluation of health sciences research
Teamwork	Enact cultural competence and promote diversity in health science research and practice.
Communication	Enact cultural competence and promote diversity in health science research and practice.
Evidence-Based Practice	Demonstrate competence in the design, implementation, ethical conduct, interpretation, and evaluation of health sciences research
Lifelong Learning	Integrate safe exercise techniques and evidence-based strategies to promote health in research and applied settings
Professional Knowledge	Demonstrate competence in the design, implementation, ethical conduct, interpretation, and evaluation of health sciences research
Professionalism And Ethics	Enact cultural competence and promote diversity in health science research and practice.
Reasoning and Judgement	Demonstrate competence in the design, implementation, ethical conduct, interpretation, and evaluation of health sciences research
Safety And Quality Improvement	Integrate safe exercise techniques and evidence-based strategies to promote health in research and applied settings



Competency

Student Learning Outcome

Systems	Demonstrate competence in the design, implementation, ethical conduct, interpretation, and evaluation of health sciences research
Teamwork	Enact cultural competence and promote diversity in health science research and practice.
Communication	Create and deliver effective presentations of scholarly activities to academic and lay audiences. TRUE
	Conduct an independent study that demonstrates synthesis of knowledge and application of research skills.
Evidence-Based Practice	Formulate a testable research question and propose a relevant study design and analytic approach that has the potential to advance knowledge of health systems and policy.
Lifelong Learning	Evaluate evidence-based public health policy and health systems transformation strategies to identify emerging issues in health systems and policy.
Professional Knowledge	Conduct an independent study that demonstrates synthesis of knowledge and application of research skills.
	Select and apply appropriate qualitative and quantitative research techniques to identify strategies to improve health system effectiveness.
	Apply relevant theories and frameworks to issues pertaining to health systems and policies.



Competency

Student Learning Outcome

Professionalism And Ethics	Apply principles of ethics and cultural competence when conducting health systems and policy research and education.
Reasoning and Judgement	Select and apply appropriate qualitative and quantitative research techniques to identify strategies to improve health system effectiveness.
Safety And Quality Improvement	Evaluate evidence-based public health policy and health systems transformation to identify emerging issues in health systems and policy.
Systems	Apply relevant theories and frameworks to issues pertaining to health systems and policies.
Teamwork	Evaluate evidence-based public health policy and health systems transformation strategies to identify emerging issues in health systems and policy.
Communication	Communicate theoretical principles, constructs, and models used to understand and affect the behavioral aspects of health.
Evidence-Based Practice	Use principles of statistical inference for critical reading and interpretation of reports of statistical analysis and of public health problems.
Lifelong Learning	Apply epidemiologic methods to identify patterns of disease and injury.
Professional Knowledge	Apply epidemiologic methods to identify patterns of disease and injury.



Competency

Student Learning Outcome

Professionalism And Ethics	Communicate theoretical principles, constructs, and models used to understand and affect the behavioral aspects of health.
Safety And Quality Improvement	Identify and analyze major issues in health services and systems associated with the delivery, quality, and costs of health care.
Systems	Identify and analyze major issues in health services and systems associated with the delivery, quality, and costs of health care.
Teamwork	Identify and analyze major issues in health services and systems associated with the delivery, quality, and costs of health care.
Communication	Lead and participate in interprofessional efforts to address health inequities with community partners.
Evidence-Based Practice	Conduct, participate in, or apply research which improves the health of a population.
Lifelong Learning	Assess and integrate cultural beliefs and practices into public health interventions.
Professional Knowledge	Assess, analyze, and synthesize the health status of vulnerable populations.
	Employ techniques to manage human, fiscal, and other public health resources.



Competency

Student Learning Outcome

Professional Knowledge

- Demonstrate basic skills in the development of a grant proposal.
- Conduct, participate in or apply research which improves the health of a population.
- Identify, develop and manage interventions to promote and protect the health of populations at risk.

Professionalism And Ethics

- Assess and integrate cultural beliefs and practices into public health interventions.

Reasoning and Judgement

- Apply program planning and quality improvement principles in the development, management and/or evaluation of population health services.

Safety And Quality Improvement

- Apply program planning and quality improvement principles in the development, management, and/or evaluation of population health services.

Systems

- Develop and plan interventions utilizing principles of health systems organization and health care finance to address health disparities.

Teamwork

- Lead and participate in inter-professional efforts to address health inequities with community partners.