

Competencies

Biostatistics – Academic MHS Department of Biostatistics

			Evaluation Opportunities		
			Course Work/Exam	Written Comps	Masters Essay
1. Design research studies of human health and disease					
Specific Competencies	Learning Opportunities				
Acquire knowledge and skills in research methodologies to collaborate with substantive investigators	140.646-9 140.651-4 260.600 306.665 340.751-3 550.860 Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV Introduction to the Biomedical Sciences Research Ethics and Integrity Epidemiologic Methods 1-3 Research Ethics	X	X	X
Choose appropriate health outcomes, risk factors, and covariates	140.651-4 260.600 340.751-3 Biostatistics Grand Rounds and Seminar Series Masters Essay	Methods in Biostatistics I-IV Introduction to the Biomedical Sciences Epidemiologic Methods 1-3	X	X	X
Make sample size estimates so that studies have sufficient power to achieve their aims	140.646-9 140.651-4 Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV	X	X	X

			Evaluation Opportunities		
			Course Work/Exam	Written Comps	Masters Essay
2. Gain facility with one or more statistical packages					
Specific Competencies	Learning Opportunities				
Have facility with one or more major statistical packages (SAS, R, or Stata)	140.646-9 140.651-4 140.776 Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV Statistical Computing	X	X	X

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			Evaluation Opportunities		
			Course Work/Exam	Written Comps	Masters Essay
3. Design and implement tabular and graphical displays if quantitative information					
Specific Competencies	Learning Opportunities				
Use statistical software to generate efficient and appropriate visual and tabular displays of data	140.646-9 140.651-4 140.776 Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV Statistical Computing	X	X	X
Recognize good graphical displays and poor graphical displays of data	140.651-4 340.751-3 Biostatistics Grand Rounds and Seminar Series Masters Essay	Methods in Biostatistics I-IV Epidemiologic Methods 1-3 Biostatistics Grand Rounds and Seminar Series	X	X	X

			Evaluation Opportunities		
			Course Work/Exam	Written Comps	Masters Essay
4. Draw inferences from quantitative data					
Specific Competencies	Learning Opportunities				
Correctly use biostatistical reasoning and methods	140.646-9 140.651-4 Biostatistics Grand Rounds and Seminar Series Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV Biostatistics Grand Rounds and Seminar Series	X	X	X
Use linear and generalized linear models for regression analysis	140.646-9 140.651-4 Biostatistics Grand Rounds and Seminar Series Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV Biostatistics Grand Rounds and Seminar Series	X	X	X
Present oral and written reports of results of statistical analyses	140.646-9 140.651-4 Biostatistics Grand Rounds and Seminar Series Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV Biostatistics Grand Rounds and Seminar Series	X	X	X

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			Course Work/Exam	Written Comps	Masters Essay
5. Use statistical reasoning and theory to deal effectively with non-standard statistical problems					
Specific Competencies	Learning Opportunities				
Solve new statistical problems by analogy to other problems with known solutions	140.646-9 140.651-4 Biostatistics Grand Rounds and Seminar Series Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV	X	X	X
Determine statistical properties of a novel estimator using delta method or nonparametric methods such as bootstrapping	140.646-9 140.651-4 Biostatistics Grand Rounds and Seminar Series Masters Essay	Essentials of Probability and Statistical Inference I-IV Methods in Biostatistics I-IV	X	X	X

			Evaluation Opportunities		
			Course Work/Exam	Written Comps	Masters Essay
6. Develop a public health perspective on research					
Specific Competencies	Learning Opportunities				
Identify the development of human health across the lifespan; the major root and proximate cause of morbidity and mortality; and the most effective strategies for promoting health and preventing disease and disability in a population	260.600 550.865	Introduction to the Biomedical Sciences Public Health Perspectives on Research	X		
Identify the scientific methods used in public health research and practice	260.600 340.751-3 550.865 Masters Essay	Introduction to the Biomedical Sciences Epidemiologic Methods 1-3 Public Health Perspectives on Research	X	X	X

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6. Develop a public health perspective on research, continued

		Evaluation Opportunities		
Specific Competencies	Learning Opportunities	Course Work/Exam	Written Comps	Masters Essay
Effectively translate statistical ideas and concepts to public health collaborators	140.651-4 Methods in Biostatistics I-IV 260.600 Introduction to the Biomedical Sciences 306.665 Research Ethics and Integrity 340.751-3 Epidemiologic Methods 1-3 550.860 Research Ethics 550.865 Public Health Perspectives on Research Masters Essay	X		X