PhD – Biostatistics Concentration (BIOS) Competencies and Learning Outcomes

COMPETENCY/LEARNING OUTCOME KEY

Introductory (I) - Competency is introduced through basic public health knowledge and principles

Reinforcing (R) - Competency is reinforced through the integrated formulation and synthesis of public health concepts and principles to address complex problems **X**: Learning Outcome (LO) is covered and primarily assessed in the course.

¹PhD Culminating Experience. Students have the opportunity to expand on various core and concentration competencies.

	ndependent research where original/new ical foundations, methodologies or applications	Categorical Data 89 11 Analysis P 50	Biostatistical Research and Consulting Consulting	Longitudinal Data 99 818 Analysis 2 SO	Survival Analysis 900 800 800 800 800 800 800 800 800 800	Database Mgmt. & CG SAS SAS ET G	Probability and Statistical Inference 0 SO	SOIB Sinear Models	Methods of Survey 99 15 Sompling 59 Sampling 50 Sampling 59 Sampling 50 Sampli	Methods of Clinical 99 SO Trials 9 SO	Intermediate C5 Epidemiology OICA	Survey Research & G E E G Questionnaire C E E D Design	PhD 9 B Comprehensive 000I Examination 0 S	Doctoral Dissertation Dissertation
		I		I	I		R	R	R				R	R
LO 1.1	Demonstrate understanding of statistical theory.	X		X	X		X	X	X				Х	X
LO 1.2	Construct deductive mathematical arguments.	X		X	X		X	Х	X				X	Х

Assessment Methods Used: participation, self-assessments, faculty-assessments, projects, community leadership, workshops, reflections, journal club, manuscripts, papers, statistical applications, proposals, teaching, written/oral critiques, NIH Mock Study, comprehensive examination, dissertation, PAD

from a bio	6 C2 Indicate the synthesize literature and proposals critically ostatistical point of view in preparation for erreviewed publications and grant proposals.	Categorical Data 99 SOI8 Analysis	Biostatistical Research and Consulting Consu	Longitudinal 99 Co SO	Survival Analysis 8374	Database Mgmt. CG & SAS & CU	Probability and Statistical Statistical Inference	Rios 6311	Methods of 9212 Survey Sampling 152	Methods of Clinical Trials	Intermediate Epidemiology 01163	Survey Research G H & Questionnaire C H Design		Doctoral Solid Biosertation Dissertation
			R				ı	l	R	R			R	R
LO 2.1	Critically evaluate statistical papers.						X	X					X	Х
LO 2.2	Critique papers in the health sciences for appropriateness of statistical methods.		X						X	X			X	Х

Assessment Methods Used: participation, self-assessments, faculty-assessments, projects, community leadership, workshops, reflections, journal club, manuscripts, papers, statistical applications, proposals, teaching, written/oral critiques, NIH Mock Study, comprehensive examination, dissertation, PAD

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by the nee	S C3 I apply existing statistical methods as dictated eds of a particular study or project as it relates t limited to, study design and analysis.	Categorical Data Pressor Analysis Son	Biostatistical Research and Consulting 0 S	Longitudinal Data 99 80 18 Analysis 20 18	Survival Analysis 99 80 80 80 80 80 80 80 80 80 80 80 80 80	Database Mgmt. & CG SAS CT	Probability and Statistical Inference 0 S	Finear Models Finear Models	Methods of Survey 8ampling Sampling	Methods of Clinical 95099 Trials	Intermediate CS Epidemiology 011	Survey Research & c a Questionnaire ET d Design C D	PhD Comprehensive 0009 examination	SOIB Doctoral Dissertation Dissertation
		I	R	I	I	I			R	R		I	R	R
LO 3.1	Apply appropriate statistical methods.	X	X	Х	X	X				X		X	Х	Х
LO 3.2	Compute power and sample size.		X	Х					X	Х			Х	X

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-	OS C4 y translate biostatistical ideas, methods, and collaborating colleagues.	Categorical Data SOII Analysis	Biostatistical Research and Consulting Consu	Longitudinal Data 99 18 20 2 S 20 2 C	BIOS 6324 Survival Analysis	Database Mgmt. & CC SAS	Probability and 89 Statistical Inference 0 SO	Rios 6311	Methods of Survey Sampling	Methods of Clinical 95 SOI Trials 95 SOI Prials 95 SOI Pri	Intermediate C C C C C C C C C C C C C C C C C C C	Survey Research & C G A Questionnaire C D C Design	PhD Comprehensive 0009 Souringtion cxamination	Doctoral Dissertation Dissertation
		I	R	I	I	I				R	I	I	R	R
LO 4.1	Interpret statistical findings and infer its implications.	Х	Х	Х	Х					Х		X	Х	X
LO 4.2	Present statistical findings in a meaningful way.	Х	X	X	X	X				X	X	X	X	Х

Assessment Methods Used: participation, self-assessments, faculty-assessments, projects, community leadership, workshops, reflections, journal club, manuscripts, papers, statistical applications, proposals, teaching, written/oral critiques, NIH Mock Study, comprehensive examination, dissertation, PAD

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	<u>S C5</u> piostatistical concepts and methods by a specified group of people.	Categorical Data 89 Analysis 45	Biostatistical Research and Consulting Consu	Longitudinal Data 99 18 18 18 18 18 18 18 18 18 18 18 18 18	Survival Analysis 9374	Database Mgmt. & SAS E CI	Probability and Statistical Inference Statistical States	BIOS 6311	Methods of Survey Sampling	Methods of Clinical 900 Prials Trials	Intermediate Epidemiology 0163	Survey Research & 23 Questionnaire Design C G	PhD Comprehensive 0009 examination	SOIB Doctoral Dissertation Dissertation
			R						R	R	I	I	R	R
LO 5.1	Demonstrate an understanding of how statistics is used in various fields and disciplines.		X						X	X	Х	Х	Х	X
	Issessment Methods Used: participation, self-assessments, faculty-assessments, projects, community leadership, workshops, reflections, journal club, manuscripts, papers, statistical applications, proposals, teaching, written/oral critiques, NIH Mock Study, comprehensive examination, dissertation, PAD													

S C5 nate biostatistical concepts and methods ly through lectures and written materials.	Categorical Data Columbia Colu	Biostatistical 89 H Research and Consulting 0 S	ngitudinal Data 99 80 SO	BIOS 632 BIOS 4	iabase Mgmt. & CC GIAS	robability and SOIB stical Inference 0 10 SOIB	BIOS 6311	ethods of Survey Sampling	thods of Clinical Prials	Intermediate C D D D D D D D D D D D D D D D D D D	rvey Research & 2 G A Questionnaire C D D Design	PhD 9 E Comprehensive 00 E examination 0 S	Doctoral 5689 Solg 5689
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	Ca		Lor	ns	Dat	P ₁ Stat	T	Mei		I E	Sur	Culmina	
	j I	R	I Foi	ins I	Dat	P ₁ Stat	Т	Mei	R R	I	Sur		ting Exp.

Assessment Methods Used: participation, self-assessments, faculty-assessments, projects, community leadership, workshops, reflections, journal club, manuscripts, papers, statistical applications, proposals, teaching, written/oral critiques, NIH Mock Study, comprehensive examination, dissertation, PAD