

**Winkle College of Pharmacy
Pharmaceutical Sciences Graduate Program
PhD Degree Minimum Requirements**

PhD - Health Outcomes (replaces "Social & Administrative Sciences" track)

Required Didactic & Research Courses	Course Number	Credit Hours
Ethics (<i>choose one of the following courses</i>)		
Ethics in Research (GNTD7003, 1 cr hr)		1
Scientific Integrity & Research Ethics (BE7067, 1 cr hr)		
Pharmaceutical Economics and Policy	PADM7020	2
Pharmcoepidemiology and Drug Safety	PADM7030	2
Evaluation of Pharmacy Administration Research	PADM7040	2
Statistics (<i>choose courses to fulfill requirement</i>)		
Introduction to Biostatistics (BE7022, 3 cr hrs)		
Applied Longitudinal Data Analysis (BE7062, 3 cr hrs)		
Quantitative and Qualitative Data Collection Methods for Health Services Research (BE7070, 2 cr hrs)		
Nonlinear Models for Univariate and Multivariate Data (BE7077, 3 cr hrs)		
Regression Analysis (BE7088, 3 cr hrs)		
Categorical Data Analysis/Logistic Regression (BE7097, 2 cr hrs)		
Advanced Statistical Methods in Biomedical Research (BE8064C, 2 cr hrs)		
Study Design and Analysis (BE8069, 2 cr hrs)		
Structural Equation Modeling (BE8094, 2 cr hrs)		
Meta Analysis (BE9061C, 3 cr hrs)		
Intro to Research Methodology (EDST7000, 3 cr hrs)		
Statistical Data Analysis I (EDST7010, 3 cr hrs)		
Statistical Data Analysis II (EDST7011, 3 cr hrs)		
Multivariate Data Analysis (EDST8041, 3 cr hrs)		
Multilevel, Longitudinal and Structural Modeling (EDST8042, 3 cr hrs)		
Qualitative Research Methods I (EDST8051, 3 cr hrs)		
Qualitative Research Methods II (EDST8052, 3 cr hrs)		
Experimental and Quasi-Experimental Research (EDST8086, 3 cr hrs)		
Business/Economics (<i>choose courses to fulfill requirement</i>)		
Business Economics (FIN7015, 2 cr hrs)		
Global Economics (FIN7025, 2 cr hrs)		
Health Care Marketplace I: Health Economics (ECON7021, 3 cr hrs)		
Microeconomic Theory (ECON8020, 4 cr hrs)		
Industrial Organization (ECON8070, 2 cr hrs)		
Strategic Management (MGMT7012, 2 cr hrs)		
Leadership and Organizations (MGMT7014, 2 cr hrs)		
Marketing for Managers (MKTG7011, 2 cr hrs)		
Journal Club in Pharmaceutical Sciences	PADM7004	4
Seminar in Pharmaceutical Sciences	PADM7005	4
Research in Pharmaceutical Sciences	PHID7001	12
Elective Courses* (see examples below)		8
Required Courses		45
Supplemental Elective Courses* and/or Research in Pharmaceutical Sciences		15
PhD Dissertation Research	PHID9001	30
TOTAL		90

***Examples of Elective Courses**

- Research in Pharmaceutical Sciences (PHID7001, variable 1-12 cr hrs)
- Decision and Cost-effectiveness Analysis (BE7068C, 3 cr hrs)
- Medication Use System Analyses and Improvement (PADM7010, 2 cr hrs)