

# INFORMATICS, PH.D.

The Doctor of Philosophy (Ph.D.) in Informatics educates researchers, teachers, and transformational leaders who advance the science of informatics and the development of information technologies and their integration in the workplace. As a multidisciplinary field, Informatics emphasizes convergent research strategies and team-based science that engage diverse perspectives of information technology and computing with business, engineering, and social, behavioral and economic sciences to address a variety of complex problems in health care, business, engineering, and other domains.

## Learning Outcomes

1. At the completion of the program, students will be able to demonstrate the ability to apply advanced informatics principles and solve complex problems.
2. At the completion of the program, students will be able to work in trans-disciplinary teams to analyze problems and develop, integrate and evaluate innovative solutions applying informatics and information technology.
3. At the completion of the program, students will be able to design a rigorous research project in a specific informatics area of interest.
4. At the completion of the program, students will be able to execute a rigorous research or development project in a specific informatics area of interest.
5. At the completion of the program, students will be able to exhibit professional skills such as scientific writing, oral communication, grant writing, teaching, and professional service.
6. At the completion of the program, students will be able to actively contribute to the informatics research through publication or other appropriate avenues of dissemination.

## Degree Requirements (60 Post-Baccalaureate Hours)

Completion of the doctoral degree in Informatics requires a minimum of 60 credits beyond the baccalaureate degree, of which 12 must be ITEC 899. Students having an earned master's degree must complete a minimum of 48 credit hours beyond the master's degree. At least half of the course work must be completed at the 700 level or higher. All programs of study must be approved by the department.

Students enrolled in graduate programs are subject to the academic regulations and degree requirements of The Graduate School and the academic program in which enrolled. The requirements described here pertain specifically to the Ph.D. in Informatics. Please check the Policy and Regulations (<https://academicbulletins.sc.edu/graduate/policies-regulations/>) sections of this Bulletin for university-wide requirements for doctoral degrees.

### Publication Requirement

To demonstrate their ability to effectively communicate research results, Ph.D. candidates are required to submit, based on research performed while at the University of South Carolina, at least one journal article or national conference paper prior to graduation.

## Program Requirements (Total 60 Hours)

Requirements	Credit Hours
Informatics Core Courses	21
Research Methods	12
Dissertation	12
Electives	15

### Informatics Core Courses (21 hours)

Course	Title	Credits
ITEC 742	Enterprise Network Management	3
or ITEC 743	Health Information Privacy and Security	
ITEC 749	Principles of Informatics	3
or ITEC 747	Management of Health Information Systems	
ITEC 754	Analysis and Design of Information Systems and Technology	3
or ITEC 752	Systems Analysis & Design for Health Applications	
ITEC 765	Human Computer Interaction, Usability and Interface Design	3
or ITEC 762	Health Information Technology Usability and Interface Design	
ITEC 766	IT Project Management	3
or ITEC 764	Project Management for Health Information	
ITEC 772	Database Systems	3
or ITEC 770	Health IT Database Systems	
ITEC 785	Enterprise Data Analytics	3
<b>Total Credit Hours</b>		<b>21</b>

### Research Methods (12 hours)

Students must complete four research methods courses at the 700 level or above appropriate for their research focus with approval of the department.

Course	Title	Credits
BIOS 700	Introduction to Biostatistics	3
BIOS 757	Intermediate Biostatistics	3
BIOS 765	Research Design in the Biomedical Sciences (pre-req EPID 741, BIOS 757))	3
STAT 700	Applied Statistics I	3
STAT 701	Applied Statistics II	3
HSPM 716	Quantitative Methods for Health Administration (pre-req HSPM 775 or BIOS 700)	3
HPEB 715	Qualitative Research Methods in Public Health	3
PSYC 702E	Experimental Design	3
PSYC 709	Basic Quantitative Methods in the Analysis of Behavioral Data I	3
PSYC 710	Basic Quantitative Methods in the Analysis of Behavioral Data II (pre-req PSYC 709)	3
PSYC 821	Theory of Psychological Measurement	3
PSYC 823	Multivariate Analysis of Behavioral Data	3
PSYC 824	Special Topics in Quantitative Psychology	3
PSYC 825	Introduction to Statistical Mediation Analysis	3
EDFI 730	Qualitative Epistemologies, Paradigms, & Theories	3
EDFI 731	Qualitative Inquiry	3
EDRM 710	Educational Statistics I	3
EDRM 711	Educational Statistics II (pre-req EDRM 710)	3

EDRM 712	Nonparametric Statistics	3	NURS 734	Conceptual Basis of Health Systems	3
EDRM 718	Research and the Statistical Packages (pre-req EDRM 710 & EDRM 711)	1-3	HSPM 730	Financing of Health Care	3
EDRM 810	Design and Analysis of Experiments (pre-req EDRM 711 or equivalent)	3	or NURS 738	Financing of Health Care	
EDRM 816	Correlational and Multivariate Methods (pre-req EDRM 711)	3	HSPM 769	Organizational Behavior	3
Other approved courses in quantitative research taught outside the department approved by the department			BIOS 710	Effective Data Management for Public Health	3
<b>Dissertation (12 hours)</b>			HSPM 711	Health Politics	3
<b>Course</b>	<b>Title</b>	<b>Credits</b>	HSPM 712	Health Economics	3
ITEC 899	Dissertation Preparation	1-12	HSPM 726	Applied Public Health Law for Administrators	3
			HSPM 777	Healthcare Policy and Principles of Health Insurance	3
			HSPM 791	Selected Topics	1-6
			HSPM 768	Health Services Administration II	3

### Electives (15 hours)

In addition to the above requirements, students must complete 15 hours in ITEC courses numbered 500 or above. Courses listed as Informatics Core, Research Methods, and Dissertation may not be used to satisfy an elective requirement. Courses from other departments may satisfy an elective requirement with approval of the department. Electives include:

Course	Title	Credits
ITEC 544	Training Systems	3
ITEC 545	Telecommunications	3
ITEC 552	Linux Programming and Administration	3
ITEC 562	Advanced Web Support Systems	3
ITEC 590	Special Topics in Integrated Information Technology	3
ITEC 790	Special Topics in Informatics	3
ITEC 760	Cyberinfrastructure and Information Assurance	3
ITEC 761	Management of Cyberinfrastructure	3
ITEC 787	Advanced Data Analytics Tools	3
ITEC 786	Advanced Enterprise Data Analytics	3
ITEC 781	Artificial Intelligence and Informatics I	3
ITEC 782	Artificial Intelligence and Informatics II	3
ITEC 775	Large-Scale Health and Information Systems	3
ITEC 745	Telecommunications for Health Information Technology	3
ITEC 795	Independent Study in Health Information Technology	1-3

Courses from other departments with approval of the IIT Department.

### Optional Concentration in Health Informatics

Completing the Health Informatics concentration satisfies the Electives requirement. Students taking the Health Informatics Concentration also are advised to take the health-related core courses and research methods courses.

Course	Title	Credits
Required:		
ITEC 776	Health Information Technology and Clinical Transformation	3
ITEC 775	Large-Scale Health and Information Systems	3
Select three of the following:		
ITEC 748	Internship in Information Technology	1-6
Any 700 level ITEC course from the electives listed above		
HSPM 765	Leadership in Health Care Organizations	1