

**School of Nursing
University of Minnesota**

Informatics Competencies across the Curriculum

Data - basic elements & related standards	BSN	DNP	PhD	Resources	Course	Assignment
Describe the value of using standardized terminologies and messaging standards to support the documentation, use, and exchange of clinical information	x					
Apply principles of data and information to selected information systems.		x	x		5115	
Describe the data and data standards required to support clinical and public health nursing.	x				3115	
Describe the role of standards organizations to build a national electronic health record, including vocabularies and classification systems, and health record architecture.	x				5115	
Examine consumer preferences, information needs, and information use.	x				3116	
Describe the importance of consumer information technologies, including telehealth, home monitoring/ alert equipment, medication aides/ reminders, discussion lists, news groups, chat rooms, e-mail, and other virtual spaces	x					
Examine current and future trends in the development of standardized consumer language		x	x			
Relate the essential functions of public health, the intervention wheel and the data necessary to support public health informatics.	x					
Identify public health data standards and the value of these.	x					
Advocate for nursing data within public health information systems	x	x	x			

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Information - collection of data that is organized or structured	BSN	DNP	PhD	Resources	Course	Assignment
Use existing health and nursing information systems to manage practice (i.e. identify, collect and record data relevant to the nursing care of clients).	x					
Recognize the value of clinicians' involvement in the workflow analysis, design, selection, implementation, and evaluation across the life cycle of information systems.	x					
Recognize the value of clinicians' involvement in the design, selection, implementation, and evaluation of applications and systems in health care.	x					
Evaluate information and knowledge resources using an informatics framework.					5115	
Discuss issues associated with implementing an electronic health record/ management information system.	x				5115	
Understands cost-effectiveness, cost-benefit, and cost utility analyses		x				
Applies all relevant procedures (policies) and technical means (security) to ensure that confidential information is appropriately protected						
Participate in the development of functional requirements for information systems that support nursing and are consistent with national and international standards		x				
Recommend information system features based on knowledge of human - computer interface interactions		x				
Create research repositories used to support knowledge discovery.			x			
Explore the relationship between public health business processes and information systems.	x					

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Information - collection of data that is organized or structured	BSN	DNP	PhD	Resources	Course	Assignment
Interpret information regarding risks and benefits of of what? to the community		x				
Collaborate with information technology specialists as well as public health colleagues regarding proven information technologies and their potential application to public health practice		x				
Utilize appropriately the state-of-the-art software tools in support of public health data acquisition, entry, management, analysis, planning, and reporting		x	x			
Participate in the development of new and enhanced databases for public health applying principles of database design		x				
Evaluate effectiveness of technology resources to meet population information needs.		x	x			
Develop strategies to support consumers in obtaining and using health information	x					
Examine personal health record applications to support individual, family, and community information needs.		x			3116	
Evaluate applications to support consumers in obtaining and using health information		x				
Evaluate the quality of the information delivered on the Internet and recommend strategies for ensuring information quality	x					
Describe the issues and challenges of healthcare delivery using telehealth approaches.		x				
Critique one Web-based consumer informatics application (e-health portals, discussion lists, chat rooms) and formulate several hypotheses regarding the impact on consumer participants			x			
Collaborate with an organization to support the implementation or use of a consumer health informatics strategies.					3116	

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Knowledge - results from the formalized relationship of information to provide interpretation, integration or understanding	BSN	DNP	PhD	Resources	Course	Assignment
Examine knowledge based on research and how it can be integrated into information systems.	x				3115	
Articulate strategies for changing a practice culture to effectively use nursing and/or multi-disciplinary evidence-based guidelines integrated into information systems		x				
Relate informatics with evidence-based practice and quality improvement to provide safe, quality patient care.		x			5115	
Apply innovation and change theory in understanding informatics innovations into practice arena		x				
Examine principles, theories, applications and technological trends related to informatics.	x				3115	
Examine theories and frameworks for nursing, public health, and healthcare informatics.			x		5115	
Synthesize state-of-the-science research initiatives in nursing and health informatics;					8115	
Develop strategies to meet organizational challenges in the selection, integration, and implementation of clinical information systems			x			
Merge clinical, administrative and other data sources to conduct quality improvement for safe, quality patient care.		x	x			
Critically appraise health informatics research			x		8115	
Analyze the nursing informatics leadership role in the delivery of clinical services across the healthcare enterprise		x				
Conduct research using data management and data mining techniques			x			
Conduct a collaborative [informatics research] project across at least two universities			x		8115	

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Knowledge - results from the formalized relationship of information to provide interpretation, integration or understanding	BSN	DNP	PhD	Resources	Course	Assignment
Apply evaluation methodologies to support design, development, and implementation of clinical information systems			x			
Examine how research can inform evidence-based practice for populations in public health information systems.	x					
Merge data from multiple sources to conduct a community public health assessment		x	x			
Partner with communities to interpret qualitative and quantative community assessment data		x	x			
Utilize current techniques in decision analysis and health planning		x	x			
Apply public health informatics research findings to public health practice		x	x			
Manage the information of the public health organization as a key strategic resource and mission tool		x	x			
Explore the ways in which the internet and electronic communication tools can be used to provide support for patients and their families at home.	x					
Investigate the effects of personal health records on public health, the patient-professional relationship and society.		x	x			
Conduct research to evaluate the effects of consumer informatics on the future of healthcare delivery to consumers.			x			
Examine the impact of technology-based information on consumer healthcare decision-making			x			

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Wisdom - based on experience and the appropriate use of when and how to use knowledge to solve human problems within the context of social, political, legal, ethical, and financial issues, evaluation of system impact	BSN	DNP	PhD	Resources	Course	Assignment
Relate the impact of technical, legal, political, ethical issues influencing clinical health informatics	x				3115	
Evaluate how cultural variations might impact nursing informatics practices		x	x			
Describe methods for influencing the political and legal structures affecting the adoption of information systems		x				
Describe policy ramifications of computerized information systems, including data integrity, ethical implications, legal requirements, and professional practice standards, trends, and issues.		x	x		5115	
Relate the impact of legal, political, ethical, and economic issues influencing population health and public health informatics.	x					
Articulate how to politically influence the interoperability of information within and across local public health departments, with the state, federal government, and internationally.		x	x			
Apply ethical principles to the collection, maintenance, use, and dissemination of data and information for populations		x	x			
Recognizes how the data illuminates ethical, political, scientific, economic, and overall public health issues		x	x			
Relate the power-shift, ethical, and legal issues affecting or resulting from consumer informatics.	x				3116	
Utilize modern information science and technology as a strategic tool to promote public health (e.g., through community education, behavior modification, collaborative policy development, issue advocacy and community mobilization)		x	x			

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Use information technology to assure openness of public health agency processes and responsiveness to the electorate and the public		x				
Analyze the social and ethical issues related to computerized healthcare information delivery.	x					
Analyze the change in the relationship between healthcare consumers and providers as a result of available consumer information technologies.	x					
Examine the impact of telehealth and information technologies used in the community.			x			
Establishes collegial, interdisciplinary scholarly relationships with the potential to support on-going programs of research.			x			

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Technical Competencies	BSN	DNP	PhD	Resources	Course	Assignment
Demonstrate use word processing features to create documents consistent with APA format i.e. headers and footers, hanging indents	x					
Use existing external peripheral devices (e.g., CD-ROMs, zip drives, USB memory sticks)	x					
Utilize spreadsheets for analysis of information	x					
Manipulate text, images, and data as needed, transferring them from their original locations and formats to a new document	x					
Identify the appropriate technology to capture the required patient data (e.g., fetal monitoring device)	x					
Participate in electronic communication forums designed to encourage on-line discussions/ collaboration (e.g., bulletin boards, chat rooms, blogs, wikis)	x					
Use administrative applications i.e. financial, human resources, scheduling, acuity systems		x				
Use project management software to plan and track progress of projects		x				
Create reports combining data from sources i.e. quality assurance reports, scheduling information, references, statistical reports, reports from information system, etc.		x	x			
Use decision support systems, expert systems and other aides for planning and making decisions		x				
Utilize appropriate state-of-the-art software tools in support of health data acquisition, entry, management, analysis, planning, and reporting		x	x			
Relate strengths and weaknesses of software and databases for supporting practice and research		x	x			
Describe how various hardware / network issues affect practice		x	x			

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Information Literacy	BSN	DNP	PhD	Resources	Course	Assignment
Determine the extent of information needed	x					
Access the needed information effectively and efficiently	x					
Evaluate quality and credibility of information found on the internet	x				3115, 5115	
Construct information with raw data from primary sources			x			
Implement search strategies in various information retrieval systems using different user interfaces and search engines, with different command languages, protocols, and search parameters	x					
Use internet resources for literature searches, looking up clinical guidelines, or evidence-based practice	x					
Create a knowledge source such as RefWorks to store reference information	x					
Articulate the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally	x					