

<b>Public Health Informatics Competencies</b>			
<b>Use of IT for individual professional effectiveness</b>			
<b>PH Workforce Segment</b>	<b>COMPETENCY</b>	<b>Learning objectives (student will be able to...)</b>	<b>Related COL Core Comp's</b>
Entire PH workforce (incl. clerical and administrative staff)	1. Utilizes personal computers and other office information technologies at least at a basic level for working with documents and other computerized files	<ul style="list-style-type: none"> <li>▶ launch a computer application</li> <li>▶ save work to a computer file, and locate and open a file on a computer disk drive</li> <li>▶ print a file</li> <li>▶ copy a file for use on another computer</li> <li>▶ use a standard word processing program to create and edit a formatted document using tables and graphics</li> <li>▶ use a fax machine to send a facsimile copy of a document</li> </ul>	pending
Entire PH workforce (incl. clerical and administrative staff)	2-A. Utilizes modern information technology tools for at least basic electronic communication	<ul style="list-style-type: none"> <li>▶ send and receive e-mail (including the application of appropriate e-mail etiquette)</li> <li>▶ open and save binary attachments to incoming e-mail messages, and attach files to outgoing e-mail messages</li> </ul>	pending
All PH Professionals	2-B. Utilizes modern information technology tools for the full range of electronic communication appropriate to one's programmatic area.	<ul style="list-style-type: none"> <li>▶ send and receive e-mail</li> <li>▶ open and save binary attachments to e-mail messages, and attach files to outgoing e-mail messages</li> <li>▶ identify, subscribe to and participate in program-appropriate electronic "lists" (e-mail-based discussion groups)</li> <li>▶ use e-mail, broadcast fax, and other technologies to send health alerts to pre-established groups</li> </ul>	pending
Entire PH workforce (incl. clerical and administrative staff)	3-A. Utilizes modern information technology tools to retrieve on-line information	<ul style="list-style-type: none"> <li>▶ use browser software to navigate the World-Wide Web</li> </ul>	pending

<b>PH Workforce Segment</b>	<b>COMPETENCY</b>	<b>Learning objectives (student will be able to...)</b>	<b>Core Comp's</b>
All PH Professionals	3-B. Utilizes modern information technology tools to identify, locate, access and appropriately interpret and use on-line public health-related information and data.	<ul style="list-style-type: none"> <li>▶ use browser software to navigate the World-Wide Web</li> <li>▶ use general-purpose on-line search engines to search the Web</li> <li>▶ identify special-purpose search engines (e.g., <i>PubMed</i>, <i>CDC WONDER</i>) relevant to their specific program, and use those search engines to retrieve public health-specific information and data</li> <li>▶ assess the validity, authoritativeness, and appropriate uses of data and information retrieved from on-line sources</li> </ul>	pending
Entire PH workforce (incl. clerical and administrative staff)	4. Utilizes information technology so as to ensure the protection of electronic files and computer systems	<ul style="list-style-type: none"> <li>▶ appropriately use and maintain virus-scanning software installed at their organization</li> <li>▶ make timely and appropriate back-ups of important electronic files</li> </ul>	pending
All PH Professionals	5. Utilizes modern distance-learning technologies to support life-long learning appropriate to programmatic needs	<ul style="list-style-type: none"> <li>▶ discover available on-line learning opportunities</li> <li>▶ identify the public health distance learning coordinator for their state</li> <li>▶ find, register for, and participate in both synchronous and asynchronous Internet-based learning opportunities</li> <li>▶ participate in satellite broadcast-based learning at or near their work-site</li> </ul>	pending

<b>PH Workforce Segment</b>	<b>COMPETENCY</b>	<b>Learning objectives (student will be able to...)</b>	<b>Core Comp's</b>
Sr.-level & Sup./Management Staff	6. Utilizes 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).	<ul style="list-style-type: none"> <li>▶ design and deploy an agency/organization Web site that helps users find health-related information (e.g., disease/injury prevention recommendations, vaccination schedules, community health statistics, etc.).</li> <li>▶ develop strategies to design and target prevention messages to specific populations.</li> <li>▶ employ information technologies (e.g., e-mail, Web, listservs) to broadcast health-related news, alerts, and advisories to community members, legislators and other policy makers, news media, and others.</li> <li>▶ employ information technologies to broaden input into the policy-making process (e.g., e-mail discussion lists among public health leaders, web-based input from community members on pending policy decisions)</li> </ul>	pending
Senior-level Staff	7. Combines data and information from multiple sources, to create new information to support public health decision-making	<ul style="list-style-type: none"> <li>▶ identify the wide array of information sources that are potentially relevant to public health (e.g., clinical, labor, police and criminal justice, environmental, and social services data)</li> <li>▶ find on-line data and information from multiple sources</li> <li>▶ appropriately combine and utilize data and information from multiple sources to create new information and knowledge</li> </ul>	pending

<b>PH Workforce Segment</b>	<b>COMPETENCY</b>	<b>Learning objectives (student will be able to...)</b>	<b>Core Comp's</b>
Senior-level Staff	8. Appropriately selects and utilizes state-of-the-art software tools in support of public health data acquisition, management, analysis, and reporting.	e.g., <ul style="list-style-type: none"> <li>▶ describe the utility of GIS to public health data analysis and display, and demonstrate at least basic familiarity with at least one GIS software system.</li> <li>▶ describe the common applications of statistical software to public health practice, and demonstrate at least basic familiarity with one or more statistical software packages.</li> </ul>	pending
All PH Professionals (COL core competencies that may also be thought of as informatics competencies)	<i>Determines appropriate uses and limitations of both quantitative and qualitative data</i>		n/a
All PH Professionals (COL core competencies that may also be thought of as informatics competencies)	<i>Evaluates the integrity and comparability of data and identifies gaps in data sources</i>		n/a
All PH Professionals (COL core competencies that may also be thought of as informatics competencies)	<i>Applies ethical principles to the collection, maintenance, use, and dissemination of data and information</i>		n/a
All PH Professionals (COL core competencies that may also be thought of as informatics competencies)	<i>Partners with communities to attach meaning to collected quantitative and qualitative data</i>		n/a
All PH Professionals (COL core competencies that may also be thought of as informatics competencies)	<i>Makes relevant inferences from quantitative and qualitative data</i>		n/a
All PH Professionals (COL core competencies that may also be thought of as informatics competencies)	<i>Obtains and interprets information regarding risks and benefits to the community</i>		n/a

<b>PH Workforce Segment</b>	<b>COMPETENCY</b>	<b>Learning objectives (student will be able to...)</b>	<b>Core Comp's</b>
All PH Professionals (COL core competencies that may also be thought of as informatics competencies)	<i>Applies data collection processes, information technology applications, and computer systems storage/retrieval strategies</i>		n/a
All PH Professionals (COL core competencies that may also be thought of as informatics competencies)	<i>Recognizes how the data illuminates ethical, political, scientific, economic, and overall public health issues</i>		n/a

<b>PH Workforce Segment</b>	<b>COMPETENCY</b>	<b>Learning objectives</b> (student will be able to...)	<b>Core Comp's</b>
<b>Development of information systems to improve the effectiveness of the public health enterprise</b>			
<b>PH Workforce Segment</b>	<b>Competency</b>	<b>Learning objectives</b> (student will be able to...)	<b>Related CCs</b>
Sr.-level & Sup./Management Staff	9. Recognizes the appropriate roles and domains for computer scientists, epidemiologists, policy makers and programmers and other IT specialists in information system development		pending
Supervisory and Management Staff	10-A. Leads and advocates for the development of integrated, cost-effective public health information systems within their public health enterprise, and ensures that new applications and information systems are built in conformance with a larger (enterprise-level) information architecture.		pending
Senior-level Staff	10-B. Actively participates in and supports the development of a integrated information systems at the enterprise level, and ensures that new applications and information systems are built in conformance with the enterprise information architecture		pending

<b>PH Workforce Segment</b>	<b>COMPETENCY</b>	<b>Learning objectives (student will be able to...)</b>	<b>Core Comp's</b>
Supervisory and Management Staff	11-A. Applies accepted models and processes for developing information systems and for managing information resources	e.g., <ul style="list-style-type: none"> <li>▶ Manage a requirements specification process, ensuring that all appropriate stakeholders are actively involved throughout the process</li> <li>▶ Promote the use of rapid prototyping as a tool for requirements specification and development</li> <li>▶ Manage the informed development of business, information, and information technology models in support of information resource management planning</li> </ul>	pending
Senior-level Staff	11-B. Recognizes and participates in accepted approaches and processes for developing information systems and for managing information resources	e.g., <ul style="list-style-type: none"> <li>▶ describe the nature of requirements specification, and explain its importance in systems development</li> <li>▶ define the role of functional decomposition as it relates to building business models; explain how these models relate to building information systems specifically and to information resource management planning generally.</li> </ul>	pending

PH Workforce Segment	COMPETENCY	Learning objectives (student will be able to...)	Core Comp's
Sr.-level & Sup./Management Staff	12. Actively, effectively engages and communicates with information technology specialists as well as public health colleagues regarding proven information technologies and their potential application to public health practice.	e.g., <ul style="list-style-type: none"> <li>▶ describe at a basic level the fundamentals of computer networking, including the cost and support implications of various networking solutions</li> <li>▶ describe at a basic level the essential underpinnings of the Internet and the World Wide Web</li> <li>▶ describe at a basic level common technologies employed to ensure computer systems' security, and the meaning of the terms authentication, encryption, non-repudiation, and other concepts basic to computer security</li> <li>▶ describe nascent information technologies (e.g., personal digital assistants and wireless networking), and consider how they might be employed to improve public health practice.</li> <li>▶ name the main technologies currently available for delivering high-bandwidth distance learning materials to the learner, and describe the relative advantages and (local) feasibility of each.</li> </ul>	pending
Sr.-level & Sup./Management Staff	13. Participates in the development of new and enhanced databases for public health, and applies principles of good database design	<ul style="list-style-type: none"> <li>▶ explain the basics of commonly employed computer database management systems, and define common relational database concepts such as entity, relationship, instance, attribute, and domain</li> <li>▶ understand the nature and purpose of good database design, and how to participate in that design process</li> <li>▶ interpret entity-relationship diagrams</li> <li>▶ define appropriate roles for those involved in database design and development, including the public health scientist and other subject matter experts, systems analyst; programmer; database administrator; project manager; et al.</li> </ul>	pending



PH Workforce Segment	COMPETENCY	Learning objectives (student will be able to...)	Core Comp's
Sr.-level & Sup./Management Staff	14. Utilizes (or ensures the utilization of) data standards for storage and transmission, and appropriately engages with public health-relevant standard-setting bodies	<ul style="list-style-type: none"> <li>▶ describe the basic purposes of public health-relevant communications standards (e.g., HL-7) and data standards (e.g., LOINC and SnoMed), and explain how utilization of such standards contributes to effective information systems development and integration</li> </ul>	pending
Sr.-level & Sup./Management Staff	15. Applies and participates in developing confidentiality and privacy policies for the enterprise, and ensures the development of adequate security systems to support the implementation of those policies.	<ul style="list-style-type: none"> <li>▶ Describe the relationship between confidentiality/privacy policies and computer security</li> <li>▶ Define a security system, including both technological and non-technological components</li> <li>▶ Explain the concept of Fair Information Practices</li> <li>▶ Define HIPAA, and describe its likely impact on the public health enterprise</li> </ul>	pending
Sup./Management Staff	<p>16. Utilizes proven informatics principles and practices when managing information technology <u>projects</u>*</p> <p>*This competency is in addition to the other management competencies defined by the Council on Linkages.</p>	<ul style="list-style-type: none"> <li>▶ define the array of different kinds of expertise needed for various information systems development projects</li> <li>▶ describe the importance of <i>teams</i> to information system development, and how to manage teams of people with diverse skill sets and professional cultures</li> <li>▶ ensure that end users are consistently involved in systems development from beginning to end</li> <li>▶ manage expectations systematically throughout system development</li> <li>▶ "over-communicate" progress among staff, potential users, and other stakeholders</li> <li>▶ select proven technologies, avoid proprietary solutions</li> <li>▶ build in the potential for evaluation of the impact of new information technologies</li> <li>▶ etc., etc.</li> </ul>	pending

PH Workforce Segment	COMPETENCY	Learning objectives (student will be able to...)	Core Comp's
Sup./Management Staff	17. Utilizes proven informatics principles and practices when managing information technology <u>staff and other IT specialists.</u>	<ul style="list-style-type: none"> <li>▶ hire appropriate staff for appropriate tasks; look for proven expertise</li> <li>▶ describe when and how to consultants in systems development</li> <li>▶ ensure that technical staff explain issues in terms comprehensible by non-technologists</li> <li>▶ handle "technical obfuscation" constructively</li> <li>▶ plan for loss (to outside market) of technically competent staff</li> <li>▶ insist on demonstrations of progress, and clear documentation of code</li> <li>▶ etc., etc.</li> </ul>	pending
Sup./Management Staff	18. Procures appropriate cost-effective, information technologies for the public health enterprise.	<ul style="list-style-type: none"> <li>▶ make rational assessments of and decisions about procurement of modern information technologies</li> <li>▶ phase large procurements in a manner that allows for "early warning signs" of potential trouble.</li> </ul>	pending
Sup./Management Staff	19. Uses information technology to assure openness of public health agency processes and responsiveness to the electorate and the public	<ul style="list-style-type: none"> <li>▶ use the Web to communicate agency policies, invite public comment, share information about agency actions in the community, and so forth.</li> </ul>	
Sup./Management Staff	20. Monitors informatics research findings and public health information systems development efforts, and applies these findings and experiences as appropriate to public health practice.	<ul style="list-style-type: none"> <li>▶ identify the major information systems development efforts currently under way that are likely to impact public health practice.</li> <li>▶ discuss how portable computing technologies (e.g., PDAs) and wireless networking might be applied to support public health field work.</li> </ul>	