

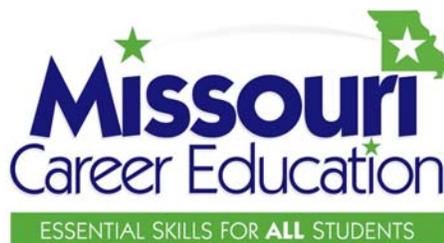
STATEWIDE VALIDATION

of
National Career Cluster Knowledge and Skills Statements
with
Suggestions to Better Prepare the Workforce of Tomorrow

*Responses Received from Online Survey of Missouri Business and Industry
Conducted November 20, 2006 through January 8, 2007*

16 Career Clusters

- *Agriculture, Food and Natural Resources*
- *Architecture and Construction*
- *Arts, Audio-Visual Technology, and Communication*
- *Business, Management and Administration*
- *Education and Training*
- *Finance*
- *Government and Public Administration*
- **Health**
- *Hospitality and Tourism*
- *Human Services*
- *Information Technology*
- *Law, Public Safety, Corrections and Security*
- *Manufacturing*
- *Marketing, Sales and Service*
- *Science, Technology, Engineering and Mathematics*
- *Transportation, Distribution and Logistics*



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How essential are the following knowledge and skills as the "Foundation" for a career in the Health Sciences?

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Health care workers will know the academic subject matter required for proficiency within their area. They will use this knowledge as needed in their role. In addition to state high school graduation requirements, the following are included: use a knowledge of human structure and function, and use a knowledge of diseases and disorders.	64% (25)	28% (11)	5% (2)	0% (0)	3% (1)	1.39
Health care workers will know the various methods of giving and obtaining information. They will communicate effectively, both orally and in writing.	72% (28)	23% (9)	3% (1)	0% (0)	3% (1)	1.29
Health care workers will use information technology applications required within all career specialties. They will demonstrate use as appropriate to health care applications.	41% (16)	54% (21)	3% (1)	0% (0)	3% (1)	1.61
Health care workers will understand how their role fits into their department, their organization and the overall health care environment. They will identify how key systems affect services they perform and quality of care.	54% (21)	36% (14)	8% (3)	0% (0)	3% (1)	1.53
Health care workers will understand the existing and potential hazards to clients, co-workers and self. They will prevent injury or illness through safe work practices and follow health and safety policies and procedures.	74% (29)	21% (8)	3% (1)	0% (0)	3% (1)	1.26

Health care workers will understand the fundamentals of wellness and the prevention of disease processes. They will practice preventive health behaviors among the clients.	62% (24)	31% (12)	3% (1)	3% (1)	3% (1)	1.45
Total Respondents						39

How essential are the following knowledge and skills as the "Foundation" for a career in the Health Sciences?

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Health care workers will understand the roles and responsibilities of individual members as part of the health care team, including their ability to promote the delivery of quality health care.	45% (17)	45% (17)	11% (4)	0% (0)	0% (0)	1.66
Health care workers will understand the legal responsibilities, limitations, and implications of their actions within the health care delivery setting.	66% (25)	24% (9)	11% (4)	0% (0)	0% (0)	1.45
Health care workers will understand accepted ethical practices with respect to cultural, social, and ethnic differences within the health care environment. They will perform quality health care delivery.	74% (28)	24% (9)	3% (1)	0% (0)	0% (0)	1.29
Health care workers will understand how employability skills enhance their employment opportunities and job satisfaction. They will demonstrate key employability skills and will maintain and upgrade skills as needed.	47% (18)	47% (18)	5% (2)	0% (0)	0% (0)	1.58

Health care workers will apply technical skills required for all career specialties. They will demonstrate skills and knowledge as appropriate.	58% (22)	32% (12)	11% (4)	0% (0)	0% (0)	1.53
Total Respondents						38

Please comment on what other skills and knowledge are essential for a foundation in the Health Sciences.

Total Respondents	6
(See Comments page)	

Select a career pathway:

		Response Percent	Response Total
Therapeutic Services		56.4%	22
Diagnostic Services		17.9%	7
Health Informatics		15.4%	6
Support Services		5.1%	2
Biotechnology Research and Development		5.1%	2
Total Respondents			39

How essential are the following skills for the "Therapeutic Services" career pathway?

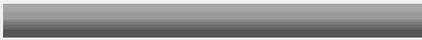
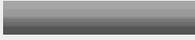
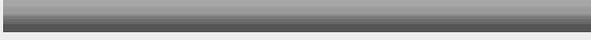
	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Therapeutic services professionals will be able to explain planned procedures to patients and health professionals including goals, side effects and coping strategies. They will use various strategies to respond to questions and concerns of patients.	87% (20)	13% (3)	0% (0)	0% (0)	0% (0)	1.13
Therapeutic services professionals will be able to communicate patient information among team members allowing for feedback as needed.	70% (16)	30% (7)	0% (0)	0% (0)	0% (0)	1.30
Therapeutic services professionals will use facility protocol and regulatory guidelines for collecting patient information. They will participate in identifying patient health care needs, strengths and problems and respond appropriately.	74% (17)	22% (5)	4% (1)	0% (0)	0% (0)	1.30
Therapeutic services professionals will understand the purposes of the treatment plan and collaborate in planning procedures that support the goals for the patient according to facility protocol, regulatory guidelines and within their scope of practice.	78% (18)	13% (3)	9% (2)	0% (0)	0% (0)	1.30
Therapeutic services professionals will monitor and assess patients' health status, and develop appropriate therapeutic response based on facility protocol.	78% (18)	22% (5)	0% (0)	0% (0)	0% (0)	1.22
Therapeutic services professionals will evaluate patient needs, strengths and problems in order to determine if treatment goals are being reached.	83% (19)	17% (4)	0% (0)	0% (0)	0% (0)	1.17
Total Respondents						23

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What other skills and knowledge are essential for this career pathway?

Total Respondents	4
(See Comments page)	

How would you characterize your relationship to the workforce in the career pathway of Therapeutic Services? Answer as many as applicable.

		Response Percent	Response Total
I make hiring decisions		52.2%	12
I supervise people who are in this career field		65.2%	15
I work in this career field		87%	20
I have a friend or relative who works in this career field		30.4%	7
I have an interest in improving the quality of the workforce in this area		87%	20
I have an interest in attracting more people to this career field		91.3%	21
I have no professional connection with this career field		0%	0
Other (please specify)		13%	3
Total Respondents			23

Thank you for your responses. Please indicate what you would like to do next.

		Response Percent	Response Total
Continue to the final wrap-up questions of this survey		95.7%	22
Return to the Health Sciences list to select another career pathway.		4.3%	1
Total Respondents			23

How essential are the following skills for the "Diagnostic Services" career pathway?

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Diagnostic services professionals will communicate information within a healthcare environment. They will convey this information to the appropriate departments and other professionals in a timely manner.	83% (5)	17% (1)	0% (0)	0% (0)	0% (0)	1.17
Diagnostic services professionals will be proficient in the processes to assess and report health status of the patient.	100% (7)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Diagnostic services professionals will apply the principles of body mechanics for positioning, transferring, and transporting of patients. These activities will be performed efficiently without injury to the patient or self.	86% (6)	14% (1)	0% (0)	0% (0)	0% (0)	1.14
Diagnostic services professionals will accurately and effectively explain procedures and goals to the patient. A variety of strategies will be used to respond to questions and concerns of the patient.	71% (5)	29% (2)	0% (0)	0% (0)	0% (0)	1.29

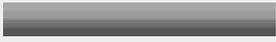
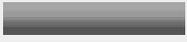
Diagnostic services professionals will appropriately respond to requests for procedures, interpret the requests, and plan implementation of services as well as preparation for specific procedures.	50% (3)	50% (3)	0% (0)	0% (0)	0% (0)	1.50
Diagnostic services professionals interpret any given procedure, are knowledgeable of the purpose for each procedure and perform the specific procedure to create diagnostic results.	86% (6)	14% (1)	0% (0)	0% (0)	0% (0)	1.14
Diagnostic services professionals will apply the principles of quality assurance/performance improvement as applied to the specific disciplines as well as reporting in a timely manner, utilizing appropriate communication channels.	100% (7)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Total Respondents						7

What other skills and knowledge are essential for this career pathway?

Total Respondents

0

How would you characterize your relationship to the workforce in the career pathway of Diagnostic Services? Answer as many as applicable.

		Response Percent	Response Total
I make hiring decisions		42.9%	3
I supervise people who are in this career field		42.9%	3
I work in this career field		71.4%	5
I have a friend or relative who works in this career field		57.1%	4
I have an interest in improving the quality of the workforce in this area		71.4%	5
I have an interest in attracting more people to this career field		57.1%	4
I have no professional connection with this career field		0%	0
Other (please specify)		28.6%	2
Total Respondents			7

Thank you for your responses. Please indicate what you would like to do next.

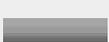
		Response Percent	Response Total
Continue to the final wrap-up questions of this survey		85.7%	6
Return to the Health Sciences list to select another pathway.		14.3%	1
Total Respondents			7

How essential are the following skills for the "Health Informatics" career pathway?

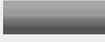
	Very important	Important	Slightly Important	Not Important	No opinion	Response Average
Health informatics professionals will communicate health/medical information accurately and within legal/regulatory guidelines established by the facility holding to the strictest standards of communication and confidentiality.	83% (5)	17% (1)	0% (0)	0% (0)	0% (0)	1.17
Health informatics professionals will know the quantitative and qualitative requirements for information. They will analyze the information for designated purposes.	67% (4)	33% (2)	0% (0)	0% (0)	0% (0)	1.33
Health informatics professionals will read and interpret and extract information from medical documents, applying knowledge of medical terminology and codes.	67% (4)	33% (2)	0% (0)	0% (0)	0% (0)	1.33
Health informatics professionals will understand the resources, routes and flow of information within the health care system.	67% (4)	33% (2)	0% (0)	0% (0)	0% (0)	1.33
They will participate in the design and implementation of effective information systems or processes	50% (3)	50% (3)	0% (0)	0% (0)	0% (0)	1.50
Health informatics professionals will understand the content and diverse uses of health information. They will accurately document, communicate and maintain appropriate information using legal and regulatory guidelines.	67% (4)	33% (2)	0% (0)	0% (0)	0% (0)	1.33

Health informatics professionals will know the systems operations used to capture, retrieve, and maintain information from internal and external sources. They will utilize internal and external information and resources accurately and efficiently.	83% (5)	17% (1)	0% (0)	0% (0)	0% (0)	1.17
Total Respondents						6

What other skills and knowledge are essential for this career pathway?	
Total Respondents	0

How would you characterize your relationship to the workforce in the career pathway of Health Infomatics? Answer as many as applicable.			
		Response Percent	Response Total
I make hiring decisions		66.7%	4
I work in this career field		33.3%	2
I supervise people who are in this career field		50%	3
I have an interest in improving the quality of the workforce in this area		16.7%	1
I have an interest in attracting more people to this career field		16.7%	1
I have no professional connection with this career field		16.7%	1
I have a friend or relative who works in this career field		16.7%	1
No response		0%	0
Total Respondents			6

Thank you for your responses. Please indicate what you would like to do next.

		Response Percent	Response Total
Continue to the final wrap-up questions of this survey		83.3%	5
Return to the Health Sciences list to select another pathway.		16.7%	1
Total Respondents			6

How essential are the following skills for the "Support Services" career pathway?

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Support services professionals will review, assess, differentiate, and enhance the responsibilities of their roles.	33% (2)	50% (3)	17% (1)	0% (0)	0% (0)	1.83
They will perform their tasks safely following established internal and external procedures.	67% (4)	17% (1)	17% (1)	0% (0)	0% (0)	1.50
Support services professionals will adopt work practices that maintain a clean and healthy environment. They will demonstrate best practices to reduce or eliminate pathogenic organisms.	50% (3)	17% (1)	33% (2)	0% (0)	0% (0)	1.83
Support services professionals will make appropriate decisions to maximize the use of available resources for both purchase and maintenance of equipment and materials.	67% (4)	33% (2)	0% (0)	0% (0)	0% (0)	1.33
Support services professionals will promote the establishment, maintenance, and improvement of the facility environment.	33% (2)	50% (3)	17% (1)	0% (0)	0% (0)	1.83

They will assist in the development and implementation of facility standards.	33% (2)	50% (3)	17% (1)	0% (0)	0% (0)	1.83
Total Respondents						6

What other skills and knowledge are essential for this career pathway?

Total Respondents	2
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How would you characterize your relationship to the workforce in the career pathway of Support Services? Answer as many as applicable.

		Response Percent	Response Total
I make hiring decisions		66.7%	4
I supervise people who are in this career field		83.3%	5
I work in this career field		83.3%	5
I have a friend or relative who works in this career field		50%	3
I have an interest in improving the quality of the workforce in this area		66.7%	4
I have an interest in attracting more people to this career field		66.7%	4
I have no professional connection with this career field		0%	0
Other (please specify)		0%	0
Total Respondents			6

Thank you for your responses. Please indicate what you would like to do next.

		Response Percent	Response Total
Continue to the final wrap-up questions of this survey		33.3%	2
Return to the Health Sciences list to select another pathway.		66.7%	4
Total Respondents			6

How essential are the following skills for the "Biotechnology Research and Development" career pathway?

	Very Important	Important	Slightly Important	Not Important	No opinion	Response Average
Biotechnology R&D professionals will understand that the goal of biotechnology products is to improve the quality of life within legal and ethical protocols.	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1.00
Biotechnology R&D professionals will be knowledgeable in the fundamentals of biochemistry, cell biology, genetics, mathematical concepts, microbiology, molecular biology, organic chemistry, and statistics.	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	2.00
Biotechnology R&D professionals will be introduced to recombinant DNA, genetic engineering, bioprocessing, monoclonal antibody production, nanotechnology, bioinformatics, genomics, proteomics and transcriptomics.	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	3.00

Biotechnology R&D professionals will understand the principles of solution preparation, sterile techniques, contamination control, & measurement and calibration of instruments. They will maintain a safe laboratory environment using biosafety protocols.	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	2.00
Biotechnology R&D professionals will know the process for product design and production and how their work contributes to the result.	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	2.00
Total Respondents						1

What other skills and knowledge are essential for this career pathway?

Total Respondents	1
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How would you characterize your relationship to the workforce in the career pathway of Biotechnology Research and Development? Answer as many as applicable.

		Response Percent	Response Total
I make hiring decisions		0%	0
I supervise people who are in this career field		0%	0
I work in this career field		0%	0
I have a friend or relative who works in this career field		100%	2
I have an interest in improving the quality of the workforce in this area		50%	1
I have an interest in attracting more people to this career field		50%	1
I have no professional connection with this career field		0%	0

Other (please specify)		50%	1
Total Respondents			2

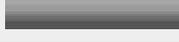
Thank you for your responses. Please indicate what you would like to do next.

		Response Percent	Response Total
Continue to the final wrap-up questions of this survey		100%	2
Return to the Health Sciences list to select another pathway.		0%	0
Total Respondents			2

In which state do you live?

		Response Percent	Response Total
Missouri		97.2%	35
Other (please specify)		2.8%	1
Total Respondents			36

Please indicate the professional area in which you work:

		Response Percent	Response Total
Business/Industry		25%	9
State Agency		16.7%	6
Federal Agency		0%	0
Association/Chamber		2.8%	1
Secondary Education		0%	0
Postsecondary Education		27.8%	10
Other (please specify)		27.8%	10

Total Respondents	36

Years of work experience:

		Response Percent	Response Total
Student		2.8%	1
0-1		0%	0
2-5		2.8%	1
6-10		2.8%	1
11-20		30.6%	11
21-30		30.6%	11
31+		30.6%	11
Total Respondents			36

What other comments would you like to add related to career education in Missouri?

Total Respondents	9
(See Comments page)	

Would you be willing to participate in future surveys like this related to Missouri Career Education and workforce development?

		Response Percent	Response Total
Yes		58.3%	21
Maybe		30.6%	11
No		11.1%	4
Total Respondents			36

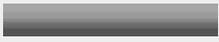
Would you be willing to serve on a local or state advisory council for the betterment of career education and workforce preparation in Missouri?

		Response Percent	Response Total
Yes		36.1%	13
Maybe		38.9%	14
No		25%	9
Total Respondents			36

If you indicated "yes" or "maybe" to either of the two questions above, please provide DESE your contact information (include name, company, address, telephone number, and e-mail address). This information will be used solely for the purposes described.

Total Respondents	23
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Through which channel did you receive this survey?

		Response Percent	Response Total
Trade association or professional society		36.1%	13
Chamber of Commerce or industry group		2.8%	1
Business colleague		8.3%	3
e-mail from Department of Elementary and Secondary Education		33.3%	12
Educator		13.9%	5
Website link		0%	0
Word-of-mouth		5.6%	2
Other (please specify)		0%	0
Total Respondents			36

Was this survey easy to use?

		Response Percent	Response Total
Yes		86.1%	31
No		2.8%	1
Somewhat		0%	0
Comments		11.1%	4
Total Respondents			36

COMMENTS FOR HEALTH:**FOUNDATION Knowledge and Skills:**

Please comment on what other skills and knowledge are essential for a foundation in the Health Sciences.	
1.	Common sense and problem solving. Ability to get along well with peers and supervisors.
2.	Each health care worker should have the desire to perform his/her skills with perfection and have a willingness to be a good medical team provider, thus rendering a 100% achievement toward health care.
3.	being supportive of other healthcare professionals (especially other nurses) and build upon teaching and mentoring rather than tearing down and belittling other nurses, which is one of the main reasons nurses leave nursing. It seems to be a cyclical abusive relationship. Our profession's dirty little secret. I grow so absolutely tired of other's horror stories and personal experiences in nursing in which a nurse tore another nurse down, rather than building them up or grasping for an open learning opportunity. I absolutely HATE this about nursing.
4.	work ethics and responsibility
5.	Other skills that are needed are the ability to keep abreast of new technologies and current developments that are applicable to the job duties that health care worker performs.
6.	I think that this has been covered with the above statements

PATHWAY Knowledge and Skills:**THERAPEUTIC SERVICES**

What other skills and knowledge are essential for this career pathway?	
1.	These skills vary with the job - a great difference of expectation between CNA and RN, so these are hard to answer in a global way.
2.	know the value of health and what complete "health" really is.
3.	All of the skills listed are very important but it is imperative that students understand the interrelatedness. They need to see the "big picture".
4.	Basic knowledge of anatomy and physiology, psychosocial needs and behaviors, and disease processes is needed by the service professional in order to monitor and assess patients properly.

DIAGNOSTIC SERVICES

No comments.

HEALTH INFORMATICS

No comments.

SUPPORT SERVICES

What other skills and knowledge are essential for this career pathway?

1. Not sure this is the section I should have completed.
2. Note that my answers are based on the assumption that "support services" are worker safety type environmental services rather than custodial type environmental services.

BIOTECHNOLOGY RESEARCH AND DEVELOPMENT

What other skills and knowledge are essential for this career pathway?

1. For nurses in this field and in other field's of nursing to even grasp a basic understanding of these areas. Although some nurses may be highly specialized researchers, the overall field of nursing is in it's infancy with regard to this subject matter. Perhaps, more support from the nurses in power to create a nursing environment in which biotechnology research and development nurses are not only created, but nurtured. However, this would require nurses actually be more supportive of each other, which is a climate that doesn't currently exist.

OTHER COMMENTS:

What other comments would you like to add related to career education in Missouri?	
1.	Career education needs to start in grade school. The questions on this survey are all, or should be all ranked as important. Is the purpose of this survey, then, to rank importance of all these aspects of education?
2.	To have more accessibility for gaining more knowledge for primary and secondary students in the diagnostic profession for health care.
3.	Increase nurse's understanding of how well-rounded nurses uplift others in their profession, rather than tearing down others. No wonder there is a nursing shortage that isn't going to be fixed. I will sit back and enjoy the fireworks in anticipation of 2010 when the real nursing shortage hits the American economy. It's not as if we weren't warned by hundreds of experts. We must work to fix the foundational problems in nursing, not simply hide behind the fact that the baby-boomer generation has higher population numbers. That's not the ONLY problem in nursing. Nursing has many "dirty little secrets," one of which being we "run off" most of our own nurses and then sit back and complain.
4.	There is a great shortage of teachers which makes it very difficult to have quality professional (career)education. Without quality faculty there can not be quality education!
5.	Missouri desperately needs to pass the CARE bill so that patient's are assured of having their x-ray performed by someone with training in radiation protection and proper positioning.
6.	It is very important to maintain educational standards when it comes to delivery of healthcare. For example, there are those in Missouri who would have you believe that with as little as 3 days of training, anyone can perform dental hygiene services. This is supposed to alleviate access to care for underserved communities. Do not be fooled, this is an attempt to bring in an uneducated lower paid individual to the field who has received not only very minimal clinical training, but no understanding of the disease process or anatomy that they are dealing with. Then they would put these people to work in areas where periodontal disease is rampant. I do not understand how that is serving the public! Not only should healthcare workers who deliver therapeutic care be college degreed, they should be required to obtain continuing education so that their ability to practice the highest quality of care is not compromised. It is far better to expand the scope of those licensed to provide care than to allow uneducated, minimally trained individuals to provide therapeutic care. Economically it makes sense as well. How costly is it if people must continue to search for care because the care they received to begin with was inadequate? If one expects therapeutic care to be beneficial, it has to be provided by someone who not only knows what they are doing, but why they are doing it.
7.	My educational focus is related primarily to the courses offered for long-term care employment. That industry is struggling in many ways so it is imperative that students trained to work or complete clinicals in this area be informed and prepared to work within that climate. The need for highly trained employees is essential and will make the difference in the lives of many residents as well as the lives of the students.
8.	I would like for licensed professionals to increase scope of practice and not allow less educated, less skilled workers do more.
9.	It is extremely important to maintain the highest educational standards, require didactic and clinical testing, require licensure and require continuing education. The citizens of Missouri deserve to have the highest quality standard of care despite the call for access to care. It would be far better to expand the scope of a licensed professional than to initiate a less educated and clinically skilled worker. By expanding the scope of practice of a licensed professional allows that individual to seek out areas of need within the state in providing care to underserved citizens. Bringing in an additional uneducated, unskilled worker does not hold any substance that access to care will be increased.