Iowa – Health Science Education and Model Program of Study

Iowa Department of Education
Health Sciences Education

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IOWA
HEALTH SCIENCE EDUCATION

Iowa Health Science Mission:
Health Science Education prepares students for employment and/or continuing education opportunities in health care through technical instruction in the classroom, experiential education in the laboratory and clinical settings, work-based learning opportunities, and leadership skills through HOSA-Future Health Professionals.

Health Science Education Pathways
The Iowa Health Science Education Pathways are based on the national healthcare skills standards and national health science career cluster pathways. Through health science courses students can gain an important foundation of knowledge and skills necessary for entry-level employment and continued education in health sciences.

Health care is one of the largest and fastest-growing industries in the United States, employing over 14 million workers in more than 200 careers. The explosion of technology in health care and an unprecedented aging population contribute to the national health care workforce shortage. Approximately 28 percent of all new jobs will be created in the health care industry through the year 2018, which translates to 3.2 million new health care positions nationwide.

Driven by high cost, rapid technological changes, increased demand for health services, and dramatic employment growth in the healthcare community, a variety of studies, proposals, and legislative initiatives continue to emerge. Each of these studies, proposals, and initiatives has an impact on health science education programs nationwide that prepare healthcare employee candidates.

Iowa Health Science Education is partnered with the National Consortium for Health Science Education (NCHSE), which was organized in 1991 to stimulate creative and innovative leadership for ensuring a well prepared healthcare workforce. The NCHSE mission is to provide leadership and professional development for Health Science Education through collaboration among education, the healthcare industry, policy makers and professional organizations.

IOWA HEALTH SCIENCE SUGGESTED PATHWAYS

Foundation Standards
Allied Health – Preparation for all 5 Pathways

Therapeutic Services
Emergency Medical Technician
Medical Assistant
Nurse Assisting
Pharmacy Technician

Diagnostic Services

Health Informatics
Health Information Management

Biotechnology Research & Development

Support Services
Clinical/Medical Laboratory Assistant

Student Leadership Organization
HOSA-Future Health Professionals is the student organization for Health Science Education. HOSA is involved in leadership development, career training, and service projects. The primary focus of HOSA is to increase opportunities in health care careers and enhance the delivery of quality health care to all people. HOSA provides students with opportunities to attain the knowledge, skills, and leadership characteristics necessary to succeed in a health care profession, through leadership training, career training, and service projects.

The following are the foundation standards, which provide a common language, common goal, and a common reference point for educators, employers and consumers. The National Healthcare Foundation Standards include the Accountability Criteria that serve to better define expectations for meeting the standards, to provide content for curriculum design, and a framework for measurement and certification of achievement. Also included are the Health Science Pathway Standards, which have been revalidated as of July 2012. The Pathway Standards have been cross-walked to the Common Career Technical Core.
The standards allow:

- Students and parents to have clear direction to help set goals for future employment;
- Educators are able to design quality curriculum and instruction consistent with industry expectations; and
- Consumers and employers benefit from high quality, efficient healthcare delivery from well-trained workers.

National Consortium for Health Science Education
National Healthcare Foundation Standards
and
Accountability Criteria

Accountability criteria have been established for each foundation standard to better define the expectations for meeting the standard, to provide content for curriculum design and measurement, and certification of achievement.

Foundation Standard 1: Academic Foundation

Healthcare professionals will know the academic subject matter required for proficiency within their area. They will use this knowledge as needed in their role. The following accountability criteria are considered essential for students in a health science program of study.

Accountability Criteria:

1.1 Human Structure and Function

1.11 Classify the basic structural and functional organization of the human body (tissue, organ, and system).

1.12 Recognize body planes, directional terms, quadrants, and cavities.

1.13 Analyze the basic structure and function of the human body.

1.2 Diseases and Disorders

1.21 Describe common diseases and disorders of each body system (prevention, pathology, diagnosis, and treatment).

1.22 Recognize emerging diseases and disorders.

1.23 Investigate biomedical therapies as they relate to the prevention, pathology, and treatment of disease.

1.3 Medical Mathematics

1.31 Apply mathematical computations related to healthcare procedures (metric and household, conversions and measurements).

1.32 Analyze diagrams, charts, graphs, and tables to interpret healthcare results.

1.33 Record time using the 24-hour clock.

Foundation Standard 2: Communications

Healthcare professionals will know the various methods of giving and obtaining information. They will communicate effectively, both orally and in writing.

Accountability Criteria:

2.1 Concepts of Effective Communication

2.11 Interpret verbal and nonverbal communication.

2.12 Recognize barriers to communication.

2.13 Report subjective and objective information.

2.14 Recognize the elements of communication using a sender-receiver model.

2.15 Apply speaking and active listening skills.

2.2 Medical Terminology

2.21 Use roots, prefixes, and suffixes to communicate information.

2.22 Use medical abbreviations to communicate information.

2.3 Written Communication Skills

2.31 Recognize elements of written and electronic communication (spelling, grammar, and formatting).

Foundation Standard 3: Systems

Healthcare professionals will understand how their role fits into their department, their organization and the overall healthcare environment. They will identify how key systems affect services they perform and quality of care.

Accountability Criteria:

3.1 Healthcare Delivery Systems

3.11 Understand the healthcare delivery system (public, private, government, and non-profit).

3.12 Explain the factors influencing healthcare delivery systems.

3.13 Describe the responsibilities of consumers within the healthcare system.

3.14 Explain the impact of emerging issues such as technology, epidemiology, bioethics, and socioeconomics on healthcare delivery systems.

3.15 Discuss common methods of payment for healthcare.

Foundation Standard 4: Employability Skills

Healthcare professionals 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.

Accountability Criteria:

4.1 Personal Traits of the Healthcare Professional

4.11 Classify the personal traits and attitudes desirable in a member of the healthcare team

4.12 Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior.

4.2 Employability Skills

4.21 Apply employability skills in healthcare.

4.3 Career Decision-making

4.31 Discuss levels of education, credentialing requirements, and employment trends in healthcare.

4.32 Compare careers within the health science career pathways (diagnostic services, therapeutic services, health informatics, support services, or biotechnology research and development).

4.4 Employability Preparation

4.41 Develop components of a personal portfolio

4.42 Demonstrate the process for obtaining employment

<u>Foundation Standard 5: Legal Responsibilities</u>

Healthcare professionals will understand the legal responsibilities, limitations, and implications of their actions within the healthcare delivery setting. They will perform their duties according to regulations, policies, laws and legislated rights of clients.

Accountability Criteria:

5.1 Legal Implications

5.11 Analyze legal responsibilities.

5.12 Apply procedures for accurate documentation and record keeping.

5.2 Legal Practices

5.21 Apply standards for Health Insurance Portability and Accountability Act (HIPAA).

5.22 Describe advance directives.

5.23 Summarize the Patient's Bill of Rights.

5.24 Understand informed consent.

5.25 Explain laws governing harassment, labor and scope of practice.

<u>Foundation Standard 6: Ethics</u>

Healthcare professionals will understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment. They will perform quality healthcare delivery.

Accountability Criteria:

6.1 Ethical Boundaries

6.11 Differentiate between ethical and legal issues impacting healthcare.
6.12 Recognize ethical issues and their implications related to healthcare.

6.2 Ethical Practice

6.21 Apply procedures for reporting activities and behaviors that affect the health, safety, and welfare of others.

6.3 Cultural, Social, and Ethnic Diversity

6.31 Understand religious and cultural values as they impact healthcare.
6.32 Demonstrate respectful and empathetic treatment of ALL patients/clients (customer service).

Foundation Standard 7: Safety Practices

Healthcare professionals 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.

Accountability Criteria:

7.1 Infection Control

7.11 Explain principles of infection control.
7.12 Describe methods of controlling the spread and growth of microorganisms.

7.2 Personal Safety

7.21 Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations.
7.22 Apply principles of body mechanics.

7.3 Environmental Safety

7.31 Apply safety techniques in the work environment.

7.4 Common Safety Hazards

7.41 Comply with safety signs, symbols, and labels.
7.42 Understand implications of hazardous materials.

7.5 Emergency Procedures and Protocols

7.51 Practice fire safety in a healthcare setting.
7.52 Apply principles of basic emergency response in natural disasters and other emergencies.

Foundation Standard 8: Teamwork

Healthcare professionals will understand the roles and responsibilities of individual members as part of the healthcare team, including their ability to promote the delivery of quality healthcare. They will interact effectively and sensitively with all members of the healthcare team.

Accountability Criteria:

8.1 Healthcare Teams

8.11 Understand roles and responsibilities of team members.
8.12 Recognize characteristics of effective teams.

8.2 Team Member Participation

8.21 Recognize methods for building positive team relationships.
8.22 Analyze attributes and attitudes of an effective leader.
8.23 Apply effective techniques for managing team conflict.

Foundation Standard 9: Health Maintenance Practices

Healthcare professionals will understand the fundamentals of wellness and the prevention of disease processes. They will practice preventive health behaviors among the clients.

Accountability Criteria:

9.1 Healthy Behaviors

9.11 Apply behaviors that promote health and wellness.
9.12 Describe strategies for the prevention of diseases including health screenings and examinations.
9.13 Discuss complementary (alternative) health practices as they relate to wellness and disease prevention.

Foundation Standard 10: Technical Skills

Healthcare professionals will apply technical skills required for all career specialties. They will demonstrate skills and knowledge as appropriate.

Accountability Criteria:

10.1 Technical Skills

10.11 Apply procedures for measuring and recording vital signs including the normal ranges.
10.12 Apply skills to obtain training or certification in cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), foreign body airway obstruction (FBAO) and first aid.

*Additional technical skills may be included in a program of study based on career specialties

Foundation Standard 11: Information Technology Applications

Healthcare professionals will use information technology applications required within all career specialties. They will demonstrate use as appropriate to healthcare applications.

Accountability Criteria:

11.1 Health Information Literacy and Skills

11.11 Identify methods and types of data collected in healthcare.
11.12 Use health record data collection tools (such as input screens, document templates).
11.13 Differentiate between types and content of health records (patient, pharmacy, and laboratory).
11.14 Ensure that documentation in the health record reflects timeliness, completeness, and accuracy.
11.15 Adhere to information systems policies and procedures as required by national, state, local, and organizational levels.

11.2 Privacy and Confidentiality of Health Information

11.21 Apply the fundamentals of privacy and confidentiality policies and procedures.
11.22 Identify legal and regulatory requirements related to the use of personal health information.
11.23 Identify and apply policies and procedures for access and disclosure of personal health information.
11.24 Describe the consequences of inappropriate use of health data in terms of disciplinary action.
11.25 Describe appropriate methods to correct inaccurate information/errors personally entered into an electronic medical record (EMR).

11.3 Basic Computer Literacy Skills

11.31 Apply basic computer concepts and terminology in order to use computers and other mobile devices.
11.32 Demonstrate basic computer operating procedures.
11.33 Demonstrate use of file organization and information storage.
11.34 Use basic word processing, spreadsheet, and database applications.
11.35 Evaluate the validity of web-based resources.
11.36 Demonstrate use of appropriate email and social media usage.

National Consortium for Health Science Education Competencies

Checklist for Reviewing Local Programs

Please note that districts are not required to use these, but if they do not, a DACUM process must occur to develop local standards and benchmarks.

Health Science Courses: (Minimum of 2 Carnegie Units)
Course 1
Course 2
Course 3
Course 4
Course 5
Course 6

Core Courses – Up to 1 Unit of core courses can be used in a Program to substitute for two courses above. If core courses are used, the following are recommended: Introduction to Computers/Computer Applications (through the Business Program and Nutrition through the FCS Program. Districts can also use Careers, Internships, etc.

Competency	Course 1	Course 2	Course 3	Course 4	Course 5	Course 4	Course 6
FOUNDATION Standard 1: Academic Foundation							
Healthcare professionals will know the academic subject matter required for proficiency within their area. They will use this knowledge as needed in their role. The following accountability criteria are considered essential for students in a health science program of study.							
Classify the basic structural and functional organization of the human body (tissue, organ, and system							
Recognize body planes, directional terms, quadrants, and cavities							
Analyze the basic structure and function of the human body							
Describe common diseases and disorders of each body system (prevention, pathology, diagnosis, and treatment).							
Recognize emerging diseases and disorders							

Investigate biomedical therapies as they relate to the prevention, pathology, and treatment of disease							
Apply mathematical computations related to healthcare procedures (metric and household, conversions and measurements)							
Analyze diagrams, charts, graphs, and tables to interpret healthcare results							
Record time using the 24-hour clock							
FOUNDATION Standard 2: Communications							
Healthcare professionals will know the various methods of giving and obtaining information. They will communicate effectively, both orally and in writing.							
Interpret verbal and nonverbal communication							
Recognize barriers to communication							
Report subjective and objective information							
Recognize the elements of communication using a sender-receiver model							
Apply speaking and active listening skills							
Use roots, prefixes, and suffixes to communicate information							
Use medical abbreviations to communicate information							
Recognize elements of written and electronic communication (spelling, grammar, and formatting)							

FOUNDATION Standard 3: Systems							
Healthcare professionals will understand how their role fits into their department, their organization, and the overall healthcare environment. They will identify how key systems affect services they perform and quality of care.							
Understand the healthcare delivery system (public, private, government, and non-profit)							
Explain the factors influencing healthcare delivery systems							
Describe the responsibilities of consumers within the healthcare system							
Explain the impact of emerging issues such as technology, epidemiology, bioethics, and socioeconomics on healthcare delivery systems							
Discuss common methods of payment for healthcare							
FOUNDATION Standard 4: Employability Skills							
Healthcare professionals 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.							
Classify the personal traits and attitudes desirable in a member of the healthcare team							
Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior							
Apply employability skills in healthcare							
Discuss levels of education, credentialing requirements, and employment trends in healthcare							

Compare careers within the health science career pathways (diagnostic services, therapeutic services, health informatics, support services, or biotechnology research and development)							
Develop components of a personal portfolio							
Demonstrate the process of obtaining employment							
FOUNDATION Standard 5: Legal Responsibilities							
Healthcare professionals will understand the legal responsibilities, limitations, and implications of their actions within the healthcare delivery setting. They will perform their duties according to regulations, policies, laws and legislated rights of clients.							
Analyze legal responsibilities							
Apply procedures for accurate documentation and record keeping							
Apply standards for Health Insurance Portability and Accountability Act (HIPAA)							
Describe advance directives							
Summarize the Patient's Bill of Rights							
Understand informed consent							
Explain laws governing harassment, labor and scope of practice							
FOUNDATION Standard 6: Ethics							
Healthcare professionals will understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment. They will perform quality healthcare delivery.							
Differentiate between ethical and legal issues impacting healthcare							
Recognize ethical issues and their implications related to healthcare							

Apply procedures for reporting activities and behaviors that affect the health, safety, and welfare of others							
Understand religious and cultural values as they impact healthcare							
Demonstrate respectful and empathetic treatment of all patients/clients (customer service)							
FOUNDATION Standard 7: Safety Practices							
Healthcare professionals 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.							
Explain principles of infection control							
Describe methods of controlling the spread and growth of microorganisms							
Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations							
Apply principles of body mechanics							
Apply safety techniques in the work environment							
Comply with safety signs, symbols, and labels							
Understand implications of hazardous materials							
Practice fire safety in a healthcare setting							
Apply principles of basic emergency response in natural disasters and other emergencies							

FOUNDATION Standard 8: Teamwork							
Healthcare professionals will understand the roles and responsibilities of individual members as part of the healthcare team, including their ability to promote the delivery of quality healthcare. They will interact effectively and sensitively with all members of the healthcare team.							
Understand roles and responsibilities of team members							
Recognize characteristics of effective teams							
Recognize methods for building positive team relationships							
Analyze attributes and attitudes of an effective leader							
Apply effective techniques for managing team conflict							
FOUNDATION Standard 9: Health Maintenance Practices							
Healthcare professionals will understand the fundamentals of wellness and the prevention of disease processes. They will practice preventive health behaviors among the clients.							
Apply behaviors that promote health and wellness							
Describe strategies for the prevention of diseases including health screenings and examinations							
Discuss complementary (alternative) health practices as they relate to wellness and disease prevention							
FOUNDATION Standard 10: Technical Skills							
Healthcare professionals will apply technical skills required for all career specialties. They will demonstrate skills and knowledge as appropriate.							
Apply procedures for measuring and recording vital signs including the normal ranges							
Apply skills to obtain training or certification in cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), foreign body airway obstruction (FBAO) and first aid							

FOUNDATION Standard 11: Information Technology Applications							
Healthcare professionals will use information technology applications required within all career specialties. They will demonstrate use as appropriate to healthcare applications.							
Identify methods and types of data collected in healthcare							
Use health record data collection tools (such as input screens, document templates)							
Differentiate between types and content of health records (patient, pharmacy, and laboratory)							
Ensure that documentation in the health record reflects timeliness, completeness, and accuracy							
Adhere to information systems policies and procedures as required by national, state, local, and organizational levels							
Apply the fundamentals of privacy and confidentiality policies and procedures							
Identify legal and regulatory requirements related to the use of personal health information							
Identify and apply policies and procedures of access and disclosure of disciplinary action							
Describe the consequences of inappropriate use of health data in terms of disciplinary action							
Describe appropriate methods to correct inaccurate information/errors personally entered into an electronic medical record (EMR)							
Apply basic computer concepts and terminology in order to use computers and other mobile devices							

Demonstrate basic computer operating procedures							
Demonstrate use of file organization and information storage							
Use basic word processing, spreadsheet, and database applications							
Evaluate the validity of web-based resources							
Demonstrate the use of appropriate e-mail and social media usage							

Allied Health Program of Study

Allied Health

Iowa Department of Education
Health Science Education Standards
Allied Health

Teacher Requirements

Four thousand hours of occupational experience within five years preceding application for licensure in the occupation to be taught. Program completion leading to registration, certification, or licensure in Iowa in the health specialty to be taught. Coursework in foundations of vocational and career education, planning and implementing courses and curriculum, methods and techniques of instruction, and evaluation of programs and pupils.
http://www.boee.iowa.gov/endorsements/endorsements_teacher_gened.html
OR – Meet Community College Instructor Requirements for the subject area.

Recommended Curriculum – Secondary Program

Introduction to Health Careers
Foundational Skills
Units: Minimum of .5

Health Science I
Foundational Skills
Units: Minimum of .5

Health Science II
Foundational Skills
Units: Minimum of .5

Medical Terminology
Intermediate Skills
Units: Minimum of 1

Survey of Anatomy for Allied Health
Intermediate Skills
Units: Minimum of .5

Nurse Aid OR Health Care Internship
Intermediate Skills
Units: Minimum of .5

Depending on the number of minutes in the CC courses, districts may need to add one unit of "core" CTE courses to ensure there are three (3) units in the program

Standards: See Foundation Standards on Page 22

Suggested End of Pathway Assessment

American Heart Association CPR/First Aid Certification

AND

Iowa CNA Certification Test (if part of program)
Not required for Medical Assistant and Surgical Technician Programs

AND

National Health Science Assessment and Certification Program
(National Consortium for Health Science Education)
Pass Rate – 69-70% for certification

OR

Locally Developed Program Assessment approved by Advisory Committee and linked Community College

Critical Competencies

The Healthcare Professional will be able to:

1. Classify the basic structural and functional organization of the human body (tissue, organ, and system
2. Analyze the basic structure and function of the human body
3. Recognize the elements of communication using a sender-receiver model
4. Classify the personal traits and attitudes desirable in a member of the healthcare team
5. Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior
6. Discuss levels of education, credentialing requirements, and employment trends in healthcare
7. Apply standards for Health Insurance Portability and Accountability Act (HIPAA)
8. Differentiate between ethical and legal issues impacting healthcare
9. Understand religious and cultural values as they impact healthcare
10. Demonstrate respectful and empathetic treatment of all patients/clients (customer service)
11. Explain principles of infection control

12. Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations
13. Apply principles of body mechanics
14. Comply with safety signs, symbols, and labels
15. Recognize characteristics of effective teams
16. Recognize methods for building positive team relationships
17. Apply behaviors that promote health and wellness
18. Apply procedures for measuring and recording vital signs including the normal ranges
19. Apply basic computer concepts and terminology in order to use computers and other mobile devices
20. Demonstrate the use of appropriate e-mail and social media usage

Advisory Committee Approval:

Focus Groups of Secondary and Postsecondary Health Science and Biological Science Instructors and were utilized to begin the development of this plan. The Health Science Program Management Committee acts as the Iowa Health Science Advisory Committee for the purpose of this Program of Study. This committee is made up of representatives from the health community as well as educators. The committee approved the critical competencies and the assessment instruments identified at their meeting on June 15, 2013.

Communication Plan

The Health Science Model Program of Study focus groups determined that a brochure would be developed to be distributed to all secondary districts in the state. In addition, this document (Iowa Health Science Education Plan) outlining recommended Health Science Programs of Study will be distributed to all secondary districts in the state. The brochure and plan will also be shared with guidance counselors, HOSA Chapters, and science and health career instructors. Community College Health Science Deans and Nursing Deans will also be given technical assistance in understanding the plans of study included in this document.

Health Science POS Review Plan

This plan and the various Programs of Study included in the plan will be reviewed by the Health Science Program Management Committee on a yearly basis and updated as curriculum changes in the community colleges or in the career pathways occur. The Health Science Consultant will also communicate with Secondary and Postsecondary instructors and obtain any suggestions for changes to the Programs of Study.

Competencies – for Nursing, Medical Assistant and Surgical Technologist Program Linkage
National Consortium for Health Science Education
(Adopted by the Iowa Department of Education as State competencies for secondary programs)

Please note that districts are not required to use these, but if they do not, a DACUM process must occur to develop local standards and benchmarks.

Core Courses – Up to 1 Unit of core courses can be a part of a CTE program if necessary. The following courses are recommended: Introduction to Computers/Computer Applications (through the Business Program and Nutrition through the FCS Program. Districts can also use Careers, Internships, etc.

If a standard is used in more than one course, lower levels of learning may apply. Survey of Anatomy or Medical Terminology may include more competencies than identified

Competency	**Intro to Health Careers**	**Health Science I**	**Health Science II**	**Survey of Anatomy**	**Medical Term.**	**Nurse Aide or Health Care Internship**
FOUNDATION Standard 1: Academic Foundation Healthcare professionals will know the academic subject matter required for proficiency within their area. They will use this knowledge as needed in their role. The following accountability criteria are considered essential for students in a health science program of study.						
Classify the basic structural and functional organization of the human body (tissue, organ, and system				X	X	X
Recognize body planes, directional terms, quadrants, and cavities				X	X	X
Analyze the basic structure and function of the human body			X	X		X

Describe common diseases and disorders of each body system (prevention, pathology, diagnosis, and treatment).					X	X
Recognize emerging diseases and disorders			X		X	X
Investigate biomedical therapies as they relate to the prevention, pathology, and treatment of disease			X			X
Apply mathematical computations related to healthcare procedures (metric and household, conversions and measurements)		X				X
Analyze diagrams, charts, graphs, and tables to interpret healthcare results			X			X
Record time using the 24-hour clock		X				X
FOUNDATION Standard 2: Communications Healthcare professionals will know the various methods of giving and obtaining information. They will communicate effectively, both orally and in writing.						
Interpret verbal and nonverbal communication	X	X				X
Recognize barriers to communication	X	X		X		X
Report subjective and objective information			X			X
Recognize the elements of communication using a sender-receiver model	X	X				X
Apply speaking and active listening skills	X	X				X

Use roots, prefixes, and suffixes to communicate information		X	X	X	X	X
Use medical abbreviations to communicate information		X	X	X	X	X
Recognize elements of written and electronic communication (spelling, grammar, and formatting)	X		X		X	X
FOUNDATION Standard 3: Systems Healthcare professionals will understand how their role fits into their department, their organization, and the overall healthcare environment. They will identify how key systems affect services they perform and quality of care.						
Understand the healthcare delivery system (public, private, government, and non-profit)	X		X			X
Explain the factors influencing healthcare delivery systems	X		X			X
Describe the responsibilities of consumers within the healthcare system	X	X	X			X
Explain the impact of emerging issues such as technology, epidemiology, bioethics, and socioeconomics on healthcare delivery systems		X	X			X
Discuss common methods of payment for healthcare			X			X
FOUNDATION Standard 4: Employability Skills Healthcare professionals 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.						
Classify the personal traits and attitudes desirable in a member of the healthcare team	X		X			X

Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior	X		X			X
Apply employability skills in healthcare	X		X			X
Discuss levels of education, credentialing requirements, and employment trends in healthcare	X		X			X
Compare careers within the health science career pathways (diagnostic services, therapeutic services, health informatics, support services, or biotechnology research and development)	X		X			X
Develop components of a personal portfolio	X		X			X
Demonstrate the process of obtaining employment	X		X			X
FOUNDATION Standard 5: Legal Responsibilities Healthcare professionals will understand the legal responsibilities, limitations, and implications of their actions within the healthcare delivery setting. They will perform their duties according to regulations, policies, laws and legislated rights of clients.						
Analyze legal responsibilities	X		X			X
Apply procedures for accurate documentation and record keeping			X			X
Apply standards for Health Insurance Portability and Accountability Act (HIPAA)			X			X
Describe advance directives	X	X				X
Summarize the Patient's Bill of Rights	X					X
Understand informed consent	X		X			X
Explain laws governing harassment, labor and scope of practice	X					X

FOUNDATION Standard 6: Ethics Healthcare professionals will understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment. They will perform quality healthcare delivery.						
Differentiate between ethical and legal issues impacting healthcare	X	X				X
Recognize ethical issues and their implications related to healthcare	X		X			X
Apply procedures for reporting activities and behaviors that affect the health, safety, and welfare of others			X			X
Understand religious and cultural values as they impact healthcare	X	X				X
Demonstrate respectful and empathetic treatment of all patients/clients (customer service)	X	X				X
FOUNDATION Standard 7: Safety Practices Healthcare professionals 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.						
Explain principles of infection control	X			X		X
Describe methods of controlling the spread and growth of microorganisms	X			X		X
Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations		X	X			X
Apply principles of body mechanics		X				X

Apply safety techniques in the work environment		X				X
Comply with safety signs, symbols, and labels		X				X
Understand implications of hazardous materials	X			X		X
Practice fire safety in a healthcare setting		X				X
Apply principles of basic emergency response in natural disasters and other emergencies		X				X
FOUNDATION Standard 8: Teamwork Healthcare professionals will understand the roles and responsibilities of individual members as part of the healthcare team, including their ability to promote the delivery of quality healthcare. They will interact effectively and sensitively with all members of the healthcare team.						
Understand roles and responsibilities of team members	X	X				X
Recognize characteristics of effective teams	X	X	X			X
Recognize methods for building positive team relationships	X	X	X			X
Analyze attributes and attitudes of an effective leader	X		X			X
Apply effective techniques for managing team conflict	X		X			X
FOUNDATION Standard 9: Health Maintenance Practices Healthcare professionals will understand the fundamentals of wellness and the prevention of disease processes. They will practice preventive health behaviors among the clients.						
Apply behaviors that promote health and wellness		X	X			X
Describe strategies for the prevention of diseases including health screenings and examinations			X			X

Discuss complementary (alternative) health practices as they relate to wellness and disease prevention			X			X
FOUNDATION Standard 10: Technical Skills Healthcare professionals will apply technical skills required for all career specialties. They will demonstrate skills and knowledge as appropriate.						
Apply procedures for measuring and recording vital signs including the normal ranges			X			X
Apply skills to obtain training or certification in cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), foreign body airway obstruction (FBAO) and first aid			X			X
FOUNDATION Standard 11: Information Technology Applications Healthcare professionals will use information technology applications required within all career specialties. They will demonstrate use as appropriate to healthcare applications.						
Identify methods and types of data collected in healthcare	X		X			X
Use health record data collection tools (such as input screens, document templates)			X			X
Differentiate between types and content of health records (patient, pharmacy, and laboratory)			X			X
Ensure that documentation in the health record reflects timeliness, completeness, and accuracy			X		X	X
Adhere to information systems policies and procedures as required by national, state, local, and organizational levels			X			X

Apply the fundamentals of privacy and confidentiality policies and procedures			X			X
Identify legal and regulatory requirements related to the use of personal health information	X		X			X
Identify and apply policies and procedures of access and disclosure of disciplinary action			X			
Describe the consequences of inappropriate use of health data in terms of disciplinary action	X		X			X
Describe appropriate methods to correct inaccurate information/errors personally entered into an electronic medical record (EMR)			X			X
Apply basic computer concepts and terminology in order to use computers and other mobile devices			X		X	X
Demonstrate basic computer operating procedures			X			X
Demonstrate use of file organization and information storage			X			X
Use basic word processing, spreadsheet, and database applications			X			
Evaluate the validity of web-based resources	X		X			
Demonstrate the use of appropriate e-mail and social media usage			X			X

Therapeutic Services Competencies – for Nursing, Medical Assistant and Surgical Technologist Program Linkage
National Consortium for Health Science Education
(Adopted by the Iowa Department of Education as State competencies for secondary programs)

Foundation Standards should be met – see previous crosswalk form
Health Science Therapeutic Services Courses: (Minimum of 2 Carnegie Units)
Intro to Health
Health Science I
Health Science II
Survey of Anatomy
Med Term
Nurse Aide

Competency	Intro. to Health	Health Science I	Health Science II	Survey of Anatomy	Med. Term	Nurse Aide
Standard 1: Client Interaction						
Therapeutic services professionals will be able to explain planned procedures and goals to patients and other clients. They will use various strategies to respond to questions and concerns of patients and other clients.						
Oral Communication - Evaluate patient or other client's ability to understand information given		x	X			X
Oral Communication - Demonstrate empathy for patients and other clients		x	X			X
Oral Communication - Choose jargon-free language appropriate to the situation	X	x	X			X
Oral Communication - Adjust communication to the needs of the patient or other clients			X			X

Standard 2: Team Interactions						
Therapeutic services professionals will be able to communicate patient and other client information within a team.						
Distinguish appropriate role and responsibilities of each team member	X	x	X			X
Respect and value the expertise and contributions of all team members	X	x	X			X
Evaluate relevancy of information to be conveyed		x	X			X
Formulate and report information in a way that is clear and concise	X	x	X			X
Standard 3: Information Collection Therapeutic services professionals will understand the facility protocol and regulator guidelines for collecting patient and other client information. They will participate in identifying and responding to patient and other client health care needs, strengths, problems and report results.						
Select appropriate tools for information to be collected			X			X
Collect and format information using facility protocols and regulatory guidelines			X			X
Standard 4: Treatment Planning and Implementation						
Therapeutic services professionals will understand the general purpose and components of the treatment plan. They will collaborate in planning procedures according to facility protocol and regulatory guidelines. They will understand how these procedures support the goals and objectives of the treatment plan of the patient or other client and implement the procedures within their scope of practice.						
Planning - Design the treatment plan incorporating patient or other client input			X			
Planning - Create a treatment plan using a problem-solving model and evaluate for intervention opportunities			X			
Planning - Select appropriate resources to implement treatment plan			X			

Implementation - Evaluate priorities in order to organize work			X			
Implementation - Use equipment and instruments according to the manufacturer's guidelines and accepted safety practice			X			
Implementation - Document actions according to facility protocol and regulator guidelines			X			
Standard 5: Monitoring Client Status						
Therapeutic services professionals will understand the process for monitoring patient and other client health status. They will assess health status and report the results to a treatment team.						
Evaluate patient and client response to administered treatments and procedures			X			X
Analyze and report patient and other client response			X			X
Assess need for follow up and alternative care			X			X
Standard 6: Patient and other Client Status Evaluation						
Therapeutic services professionals will evaluate patient and other client needs, strengths and problems in order to determine if treatment goals are being reached.						
Choose appropriate evaluation tools to assess patient and other client response to treatment plan			X			
Analyze information gathered			X			
Revise or create modifications to treatment plan based on information gathered.			X			

Allied Health Program of Study with Linkage to a Nursing Program
(Linkages to Other Health Science Programs are in Process)

Subject	9	9	10	10	11	11	12	12	13	13	14	14
	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
English/ Language Arts	English 9		English 10		English 11		English 12		Composition			Comp. II
Math	Algebra		Geometry		Algebra II		Pre Calculus					Statistics
Science	General Science		Biology		Physics or Biology II		Chemistry		Anatomy & Physiology	Anatomy & Physiology II	Microbiology	
Social Studies	World History		US History		AP Psychology or AP Sociology		US Government	Economics	Develop. or Intro to Psych. if AP Psych not taken			Intro. to Sociology
Foreign Language			Foreign Language		Foreign Language		Foreign Language					
Fine Arts	Fine Arts				Fine Arts		Speech					
PE/Health	PE		PE/Health		PE		PE					
Career Courses		Intro. to Health Careers (HSC105)	Health Science I	Health Science II	Medical Terminology HSC113 (2 cr) HSC115 (4 cr)		Survey of Anatomy for Allied Health (HSC125)	Nurse Aid (HSC172) or Health Care Internship	See Educational Program Report for your college CIP: 5138010000 at www.curricunet.com/iowa_doe/			

Allied Health Program of Study with Linkage to a Medical Assistant Diploma Program

Subject	9	9	10	10	11	11	12	12	13	13	14	14
	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
English/ Language Arts	English 9		English 10		English 11		English 12		Composition			
Math	Algebra		Geometry		Algebra II							
Science	General Science		Biology				Biology II		Anatomy & Physiology or Anatomy for Allied Health			
Social Studies	World History		US History		AP Psychology or AP Sociology		US Government	Economics	Intro to Psych. if AP Psych not taken			
Foreign Language			Foreign Language		Foreign Language							
Fine Arts	Fine Arts				Fine Arts		Speech					
PE/Health	PE		PE/Health		PE		PE					
Career Courses		Intro. to Health Careers (HSC105)	Health Science I	Health Science II	Medical Terminology HSC113 (2 cr) HSC115 (4 cr)		Survey of Anatomy for Allied Health (HSC125)	Health Care Internship or Introduction to Computers (CSC110)	See Educational Program Report for your college CIP: 5108010100 at www.curricunet.com/iowa_doe/			

Allied Health Program of Study with Linkage to a Surgical Technologist Program

Subject	9	9	10	10	11	11	12	12	13	13	14	14
	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
English/ Language Arts	English 9		English 10		English 11		English 12		Composition		Interpersonal Communic.	Comp II
Math	Algebra		Geometry		Algebra II							Statistics
Science	General Science		Biology				Biology II		Anatomy & Physiology	Anatomy & Physiology II	Microbiology	
Social Studies	World History		US History		AP Psychology or AP Sociology		US Government	Economics	Developmental or Intro to Psych. if AP Psych not taken			Intro. to Sociology
Foreign Language			Foreign Language		Foreign Language							
Fine Arts	Fine Arts				Fine Arts		Speech					
PE/Health	PE		PE/Health		PE		PE					
Career Courses		Intro. to Health Careers (HSC105)	Health Science I	Health Science II	Medical Terminology HSC113 (2 cr) HSC115 (4 cr)		Survey of Anatomy for Allied Health (HSC125)	Health Care Internship or Introduction to Computers (CSC110)	See Educational Program Report for your college CIP: 5109090200 at www.curricunet.com/iowa_doe/			

Therapeutic Services

National Consortium for Health Science Education
National Health Science Career Cluster Model
Therapeutic Services Pathway Standards

Standards & Accountability Criteria
These standards apply to occupations or functions primarily involved in changing the health status of the patient and other clients over time. The standards specify the knowledge and skills needed by professionals in the therapeutic services pathway.

Standard 1: Client Interaction
Therapeutic services professionals will be able to explain planned procedures and goals to patients and other clients. They will use various strategies to respond to questions and concerns of patients and other clients.

Common Career Technical Core (CCTC): Utilize communication strategies to answer patient/client questions and concerns on planned procedures and goals.

***Accountability Criteria*:**

1.1 Oral Communication
1.11 Evaluate patient or other client's ability to understand information given.
1.12 Demonstrate empathy for patients and other clients.
1.13 Choose jargon-free language appropriate to the situation.
1.14 Adjust communication to the needs of the patient or other clients.

Standard 2: Intra Team Communication
Therapeutic services professionals will be able to communicate patient and other client information within a team.

Common Career Technical Core (CCTC): Communicate patient/client information among healthcare team members to facilitate a team approach to patient care.

Accountability Criteria:

2.1 Team Interactions
2.11 Distinguish appropriate role and responsibilities of each team member.
2.12 Respect and value the expertise and contributions of all team members.
2.13 Evaluate relevancy of information to be conveyed
2.14 Formulate and report information in a way that is clear and concise.

Standard 3: Information Collection

Therapeutic services professionals will understand the facility protocol and regulatory guidelines for collecting patient and other client information. They will participate in identifying and responding to patient and other client heath care needs, strengths, problems and report results.

Accountability Criteria:

3.1 Information collection

3.11 Select appropriate tools for information to be collected.
3.12 Collect and format information using facility protocols and regulatory guidelines.

Standard 4: Treatment Planning and Implementation

Therapeutic services professionals will understand the general purpose and components of the treatment plan. They will collaborate in planning procedures according to facility protocol and regulatory guidelines. They will understand how these procedures support the goals and objectives of the treatment plan of the patient or other client and implement the procedures within their scope of practice.

Common Career Technical Core (CCTC): Utilize processes for assessing, monitoring and reporting patient's/client's health status to the treatment team within protocol and scope of practice.

Accountability Criteria:

4.1 Planning

4.11 Design the treatment plan incorporating patient or other client input.
4.12 Create a treatment plan using a problem-solving model and evaluate for intervention opportunities.
4.12 Select appropriate resources to implement treatment plan.

4.2 Implementation

4.21 Evaluate priorities in order to organize work.
4.22 Use equipment and instruments according to the manufacturer's guidelines and accepted safety practice.
4.23 Document actions according to facility protocol and regulatory guidelines.

Standard 5: Monitoring Client Status

Therapeutic services professionals will understand the process for monitoring patient and other client health status. They will assess health status and report the results to a treatment team.

Accountability Criteria:

5.1 Procedures for Monitoring

5.11 Evaluate patient and client response to administered treatments and procedures.
5.12 Analyze and report patient and other client response.
5.13 Assess need for follow up and alternative care.

Standard 6: Patient and other Client Status Evaluation

Therapeutic services professionals will evaluate patient and other client needs, strengths and problems in order to determine if treatment goals are being reached.

Common Career Technical Core (CCTC): Evaluate patient/client needs, strengths and problems in order to determine if treatment goals are being met.

***Accountability Criteria*:**

6.1 Evaluation

6.11 Choose appropriate evaluation tools to assess patient and other client response to treatment plan.

6.12 Analyze information gathered.

6.13 Revise or create modifications to treatment plan based on information gathered.

Iowa Department of Education
Health Science Education Standards

EMT, CPT, & EKG Technician
(Emergency Medical Technician, Certified Phlebotomy Technician, and Electrocardiogram Technician)

Therapeutic Services

Teacher Requirements

Four thousand hours of occupational experience within five years preceding application for licensure in the occupation to be taught. Program completion leading to registration, certification, or licensure in Iowa in the health specialty to be taught. Coursework in foundations of vocational and career education, planning and implementing courses and curriculum, methods and techniques of instruction, and evaluation of programs and pupils. http://www.boee.iowa.gov/endorsements/endorsements_teacher_gened.html
OR – Meet Community College Instructor Requirements for the subject area.
PLUS:

Pre-requisite Experience:
Prospective teachers must document that they have spent a minimum of six years of required full-time work experience in this field. Three of those years can be working as a full-time EMS Provider.

Pre-requisite Certification:
Teacher candidates must be a certified EMS Provider at the EMT level or higher with the Iowa Bureau of EMS or the National Registry of EMTs. EMS Instructor Endorsement to be lead instructor in a program through the Iowa Bureau of EMS.

Recommended Curriculum – Community College or Career Academy Program

Introduction to Health Careers
Foundational Skills
Units: .5 units

Medical Terminology
Foundational Skills
Units: .5 units

Emergency Medical Technician
(student must be 17 years of age)
Therapeutic Skills
Employment-entry Skills, Cooperative Employment Opportunities, and Exam Preparation
American Heart Association CPR for Health Care Providers must be completed prior to EMS course in Senior Year
Units: Minimum of 2

EMT, CPT, & EKG Technician Pathway Standards

1. NCHSE Foundation Standards and Accountability Criteria
2. NCHSE Therapeutic Services Pathway Standards and Accountability Criteria
3. International Trauma Life Support Certification from International Trauma Life Support (Level II)
4. U.S. Department of Transportation, Education Standards (All levels)
5. Senior Clinical Internship (Level III) (minimum of 75 Hours summer or co-op schedule for two marking periods)
6. Basic principles and practice procedures for EMT, CPT, & EKG Technician
7. Programs must fully comply with all State classroom and clinical requirements for EMT, CPT, & EKG Technician training.

Suggested End of Pathway Assessment

EMT – Examination from the National Registry of EMTs

AND

Clinical Emergency Care, Phlebotomy, and/or EKG Technician Rating(s) from Senior Clinical Internship

AND/OR

National Health Career Certification for EKG Technician

AND/OR

National Health Science Assessment and Certification Program

Critical Competencies

1. Analyze the basic structure and function of the human body
2. Describe common diseases and disorders of each body system (prevention, pathology, diagnosis, and treatment).
3. Interpret verbal and nonverbal communication
4. Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior
5. Apply standards for Health Insurance Portability and Accountability Act (HIPAA)
6. Apply procedures for reporting activities and behaviors that affect the health, safety, and welfare of others
7. Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations
8. Apply principles of basic emergency response in natural disasters and other emergencies
9. Apply procedures for measuring and recording vital signs including the normal ranges
10. Apply skills to obtain training or certification in cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), foreign body airway obstruction (FBAO) and first aid

11. Ensure that documentation in the health record reflects timeliness, completeness, and accuracy
12. Create a treatment plan using a problem-solving model and evaluate for intervention opportunities
13. Use equipment and instruments according to the manufacturer's guidelines and accepted safety practice
14. Evaluate patient and client response to administered treatments and procedures

Advisory Committee Approval:

The EMT Program of Study utilized the EMS Training Directors/Coordinators as the advisory committee to review the EMS Program of Study. This group is made up of community college and private educators of EMS/EMT and many work as EMTs/Paramedics in their communities. The committee approved the critical competencies and the assessment instruments identified at their meeting on July 2014.

Communication Plan

The EMS Training Directors/Coordinators determined that a brochure would be developed to be distributed to all secondary districts in the state. In addition, this document (Iowa Health Science Education Plan) outlining recommended Health Science Programs of Study will be distributed to all secondary districts in the state. The brochure and plan will also be shared with guidance counselors, HOSA Chapters, and science and health career instructors. Community College Health Science Deans and EMT Directors will also be given technical assistance in understanding the plans of study included in this document.

Health Science POS Review Plan

This plan will be reviewed by the EMS Training Program Directors/Coordinators on a yearly basis and updated as curriculum changes occur in the community colleges or in the career pathway.

Competencies – National Consortium for Health Science Education (Adopted by the Iowa Department of Education as State competencies for secondary programs)

Please note that districts are not required to use these, but if they do not, a DACUM process must occur to develop local standards and benchmarks.

Health Science EMT Courses: (Minimum of 3 Carnegie Units)

Introduction to Health Careers
Medical Terminology
Emergency Medical Technician

Competency	Introduction to Health Careers	Medical Terminology	Emergency Medical Technician
FOUNDATION Standard 1: Academic Foundation Healthcare professionals will know the academic subject matter required for proficiency within their area. They will use this knowledge as needed in their role. The following accountability criteria are considered essential for students in a health science program of study.			
Classify the basic structural and functional organization of the human body (tissue, organ, and system		X	X
Recognize body planes, directional terms, quadrants, and cavities		X	X
Analyze the basic structure and function of the human body			X
Describe common diseases and disorders of each body system (prevention, pathology, diagnosis, and treatment).		X	X
Recognize emerging diseases and disorders		X	X
Investigate biomedical therapies as they relate to the prevention, pathology, and treatment of disease			X
Apply mathematical computations related to healthcare procedures (metric and household, conversions and measurements)			X
Analyze diagrams, charts, graphs, and tables to interpret healthcare results			X
Record time using the 24-hour clock			X
FOUNDATION Standard 2: Communications Healthcare professionals will know the various methods of giving and obtaining information. They will communicate effectively, both orally and in writing.			
Interpret verbal and nonverbal	X		X

communication			
Recognize barriers to communication	X		X
Report subjective and objective information			X
Recognize the elements of communication using a sender-receiver model	X		X
Apply speaking and active listening skills	X		X
Use roots, prefixes, and suffixes to communicate information			X
Use medical abbreviations to communicate information			X
Recognize elements of written and electronic communication (spelling, grammar, and formatting)	X		X
FOUNDATION Standard 3: Systems Healthcare professionals will understand how their role fits into their department, their organization, and the overall healthcare environment. They will identify how key systems affect services they perform and quality of care.			
Understand the healthcare delivery system (public, private, government, and non-profit)	X		X
Explain the factors influencing healthcare delivery systems	X		X
Describe the responsibilities of consumers within the healthcare system	X		X
Explain the impact of emerging issues such as technology, epidemiology, bioethics, and socioeconomics on healthcare delivery systems			X
Discuss common methods of payment for healthcare			X
FOUNDATION Standard 4: Employability Skills Healthcare professionals 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.			
Classify the personal traits and attitudes desirable in a member of the healthcare team	X		X
Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior	X		X
Apply employability skills in healthcare	X		X
Discuss levels of education, credentialing requirements, and employment trends in healthcare	X		X

Compare careers within the health science career pathways (diagnostic services, therapeutic services, health informatics, support services, or biotechnology research and development)	X		
Develop components of a personal portfolio	X		
Demonstrate the process of obtaining employment	X		
FOUNDATION Standard 5: Legal Responsibilities Healthcare professionals will understand the legal responsibilities, limitations, and implications of their actions within the healthcare delivery setting. They will perform their duties according to regulations, policies, laws and legislated rights of clients.			
Analyze legal responsibilities	X		X
Apply procedures for accurate documentation and record keeping			X
Apply standards for Health Insurance Portability and Accountability Act (HIPAA)			X
Describe advance directives	X		X
Summarize the Patient's Bill of Rights	X		X
Understand informed consent	X		X
Explain laws governing harassment, labor and scope of practice	X		X
FOUNDATION Standard 6: Ethics Healthcare professionals will understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment. They will perform quality healthcare delivery.			
Differentiate between ethical and legal issues impacting healthcare	X		X
Recognize ethical issues and their implications related to healthcare	X		X
Apply procedures for reporting activities and behaviors that affect the health, safety, and welfare of others			X
Understand religious and cultural values as they impact healthcare	X		X
Demonstrate respectful and empathetic treatment of all patients/clients (customer service)	X		X

FOUNDATION Standard 7: Safety Practices Healthcare professionals 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.			
Explain principles of infection control	X		X
Describe methods of controlling the spread and growth of microorganisms	X		X
Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations			X
Apply principles of body mechanics			X
Apply safety techniques in the work environment			X
Comply with safety signs, symbols, and labels			X
Understand implications of hazardous materials	X		X
Practice fire safety in a healthcare setting			X
Apply principles of basic emergency response in natural disasters and other emergencies			X
FOUNDATION Standard 8: Teamwork Healthcare professionals will understand the roles and responsibilities of individual members as part of the healthcare team, including their ability to promote the delivery of quality healthcare. They will interact effectively and sensitively with all members of the healthcare team.			
Understand roles and responsibilities of team members	X		X
Recognize characteristics of effective teams	X		X
Recognize methods for building positive team relationships	X		X
Analyze attributes and attitudes of an effective leader	X		X
Apply effective techniques for managing team conflict	X		X
FOUNDATION Standard 9: Health Maintenance Practices Healthcare professionals will understand the fundamentals of wellness and the prevention of disease processes. They will practice preventive health behaviors among the clients.			
Apply behaviors that promote health and wellness			X
Describe strategies for the prevention of diseases including health screenings and examinations			X

Discuss complementary (alternative) health practices as they relate to wellness and disease prevention			X
FOUNDATION Standard 10: Technical Skills Healthcare professionals will apply technical skills required for all career specialties. They will demonstrate skills and knowledge as appropriate.			
Apply procedures for measuring and recording vital signs including the normal ranges			X
Apply skills to obtain training or certification in cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), foreign body airway obstruction (FBAO) and first aid			X
FOUNDATION Standard 11: Information Technology Applications Healthcare professionals will use information technology applications required within all career specialties. They will demonstrate use as appropriate to healthcare applications.			
Identify methods and types of data collected in healthcare	X		X
Use health record data collection tools (such as input screens, document templates)			X
Differentiate between types and content of health records (patient, pharmacy, and laboratory)			X
Ensure that documentation in the health record reflects timeliness, completeness, and accuracy		X	X
Adhere to information systems policies and procedures as required by national, state, local, and organizational levels			X
Apply the fundamentals of privacy and confidentiality policies and procedures			X
Identify legal and regulatory requirements related to the use of personal health information	X		X
Identify and apply policies and procedures of access and disclosure of disciplinary action			X
Describe the consequences of inappropriate use of health data in terms of disciplinary action	X		X

Describe appropriate methods to correct inaccurate information/errors personally entered into an electronic medical record (EMR)			X
Apply basic computer concepts and terminology in order to use computers and other mobile devices		X	X
Demonstrate basic computer operating procedures			X
Demonstrate use of file organization and information storage	X		
Use basic word processing, spreadsheet, and database applications			X
Evaluate the validity of web-based resources	X		
Demonstrate the use of appropriate e-mail and social media usage			X

Therapeutic Services Competencies with EMT Program of Study

Therapeutic Services Competencies	Intro to Health Careers	Medical Terminology	Emergency Medical Technician
Standard 1: Client Interaction Therapeutic services professionals will be able to explain planned procedures and goals to patients and other clients. They will use various strategies to respond to questions and concerns of patients and other clients.			
Evaluate patient or other client's ability to understand information given			X
Demonstrate empathy for patients and other clients			X
Choose jargon-free language appropriate to the situation	X		X
Adjust communication to the needs of the patient or other clients			X
Standard 2: Team Interactions Therapeutic services professionals will be able to communicate patient and other client information within a team.			
Distinguish appropriate role and responsibilities of each team member	X		X
Respect and value the expertise and contributions of all team members	X		X
Evaluate relevancy of information to be conveyed			X
Formulate and report information in a way that is clear and concise	X		X
Standard 3: Information Collection Therapeutic services professionals will understand the facility protocol and regulator guidelines for collecting patient and other client information. They will participate in identifying and responding to patient and other client health care needs, strengths, problems and report results.			
Select appropriate tools for information to be collected			X
Collect and format information using facility protocols and regulatory guidelines			X

Standard 4: Treatment Planning and Implementation Therapeutic services professionals will understand the general purpose and components of the treatment plan. They will collaborate in planning procedures according to facility protocol and regulatory guidelines. They will understand how these procedures support the goals and objectives of the treatment plan of the patient or other client and implement the procedures within their scope of practice.			
Design the treatment plan incorporating patient or other client input			X
Create a treatment plan using a problem-solving model and evaluate for intervention opportunities			X
Select appropriate resources to implement treatment plan			X
Evaluate priorities in order to organize work			X
Use equipment and instruments according to the manufacturer's guidelines and accepted safety practice			X
Document actions according to facility protocol and regulator guidelines			X
Standard 5: Monitoring Client Status Therapeutic services professionals will understand the process for monitoring patient and other client health status. They will assess health status and report the results to a treatment team.			
Evaluate patient and client response to administered treatments and procedures			X
Analyze and report patient and other client response			X
Assess need for follow up and alternative care			X
Standard 6: Patient and other Client Status Evaluation Therapeutic services professionals will evaluate patient and other client needs, strengths and problems in order to determine if treatment goals are being reached.			
Choose appropriate evaluation tools to assess patient and other client response to treatment plan			X
Analyze information gathered			X
Revise or create modifications to treatment plan based on information gathered.			X

Emergency Medical Technician, Certified Phlebotomy Technician and Electrocardiogram Technician POS Linked to CC Paramedic Program

Subject	9	9	10	10	11	11	12	12	13	13	14	14
	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
English/ Language Arts	English 9		English 10		English 11		English 12		Comp I	Comp. II or Speech		
Math	Algebra		Geometry		Algebra II							Statistics or Math for Liberal Arts
Science	General Science		Biology		Physics or Biology II		Chemistry		Anatomy and Physiology I or Essentials of A&P	Anatomy and Physiology II		
Social Studies	World History		US History		AP Psychology or AP Sociology		US Government	Economics	Develop. or Intro to Psych. if AP Psych not taken			Intro. to Sociology if AP Sociology not taken
Foreign Language			Foreign Language		Foreign Language		Foreign Language					
Fine Arts	Fine Arts				Fine Arts		Speech					
PE/Health	PE		PE/Health		PE		PE					
Career Courses				Intro to Health Careers (HSC105)		Medical Terminology HSC112 (2 cr) HSC115 (4 cr)	Emergency Medical Technician EMS201 (7 cr)		See Educational Program Report for your college CIP: 510904620 at www.curricunet.com/iowa_doe/			

Iowa Department of Education
Health Science Education Standards

Certified Nurse Assistant

Therapeutic Services

Teacher Requirements

1. **Primary Certified Nurse Assistant Teacher Certification**
   The Primary CNA teacher must be available to all supporting instructors in the development of lesson plans based on experience in taking care of nursing home residents, and periodically ensure and document that instructors are operating effectively and that the program is operating in accordance with all state and federal regulations.

   a. Four thousand hours of occupational experience within five years preceding application for licensure in the occupation to be taught. Program completion leading to registration, certification, or licensure in Iowa in the health specialty to be taught. Coursework in foundations of vocational and career education, planning and implementing courses and curriculum, methods and techniques of instruction, and evaluation of programs and pupils. http://www.boee.iowa.gov/endorsements/endorsements_teacher_gened.html
   OR – Meet Community College Instructor Requirements for the subject area.
   b. A current Iowa Registered Nurse license in good standing with the Iowa Board of Nursing: http://www.iowa.gov/nursing/nav/general_information.html
   c. Iowa Bureau of Inspections and Appeals Certified Nursing Assistant (CNA) teaching requirements which includes a minimum of one year of full-time, continuous, long-term care experience that meets all long-term care regulations: http://www.state.ia.us/government/dia/index.html .

2. **Supporting Certified Nurse Assistant Teacher(s) Certification**
   The supporting CNA teacher can only teach in a program where a primary teacher is employed and available to assist in the development of lesson plans based on experience in taking care of nursing home residents and ensure the program is operating in accordance with all state and federal regulations. One year of long-term care experience is not required.

   a. Four thousand hours of occupational experience within five years preceding application for licensure in the occupation to be taught. Program completion leading to registration, certification, or licensure in Iowa in the health specialty to be taught. Coursework in foundations of vocational and career education, planning and implementing courses and curriculum, methods and techniques of instruction, and evaluation of programs and pupils.
   http://www.boee.iowa.gov/endorsements/endorsements_teacher_gened.html **OR – Meet Community College Instructor Requirements for the subject area**.

b. A current Iowa Registered Nurse license in good standing with the Iowa Board of Nursing: http://www.iowa.gov/nursing/nav/general_information.html

Recommended Curriculum

Nurse/Nursing Assistant and Patient Care Assistant I
Foundational Skills
Units: Minimum of 1

Nurse/Nursing Assistant and Patient Care Assistant II
Intermediate Skills and Exam Preparation
Units: Minimum of 1

Medical Terminology
Units: Minimum of 1

Certified Nurse Assistant Pathway Standards

1. NCHSE Foundation Standards and Accountability Criteria
2. NCHSE Therapeutic Services Pathway Standards and Accountability Criteria
3. Basic Healthcare Skills as well as Specific Skills from the *Iowa Candidate Handbook for the Iowa Nurse Aide* (Division of Inspections and Appeals) for Iowa Certified Nursing Assistant (CNA) General Patient Care plus the required 75 hours CNA clinical experience.
4. Programs must fully comply with all State classroom and clinical requirements for CNA training courses set forth in **Iowa Code** section 135C.1 and with all regulations promulgated pursuant to this chapter.
5. Basic principles and practice procedures for Certified Nurse Assistant

Suggested End of Pathway Assessment

American Heart Association CPR/First Aid Certification

AND
Iowa CNA Certification Test

AND/OR

National Health Science Assessment and Certification Program
(National Consortium for Health Science Education)
OR
Locally Developed Program Assessment approved by Advisory Committee and linked Community College

Standards and Benchmarks as well as a Drawing Board for this program are still in process.

Iowa Department of Education

Health Science Education Standards

Pharmacy Technician

Therapeutic Services

Teacher Requirements

Four thousand hours of occupational experience within five years preceding application for licensure in the occupation to be taught. Program completion leading to registration, certification, or licensure in Iowa in the health specialty to be taught. Coursework in foundations of vocational and career education, planning and implementing courses and curriculum, methods and techniques of instruction, and evaluation of programs and pupils.
http://www.boee.iowa.gov/endorsements/endorsements_teacher_gened.html
OR – Meet Community College Instructor Requirements for the subject area.
PLUS:

Pre-requisite Certification: Current Licensed Iowa Pharmacist in good standing with the Iowa Board of Pharmacy http://www.state.ia.us/ibpe/ **OR:**

Current Nationally Certified (PTCB) Pharmacy Technician in good standing with the Iowa Board of Pharmacy http://www.state.ia.us/ibpe/

Recommended Curriculum

Medical Terminology
Units: Minimum of .5
Issues in Health and Society
Units: Minimum of .5
Introduction to Pharmacy Technology
Units: Minimum of .5
Pharmacology for Pharmacy Technicians
Units: Minimum of .5
Pharmacy Practicum
Units: Minimum of .5
CTE Core Course
Units: Minimum of .5

Pharmacy Technician Pathway Standards

1. NCHSE Foundation Standards and Accountability Criteria
2. NCHSE Therapeutic Services Pathway Standards and Accountability Criteria
3. Basic principles and practice procedures for Pharmacy Technicians.
4. Programs must fully comply with all State classroom and clinical requirements for Pharmacy Technician training courses set forth in Iowa Code 657 IAC Chapter 3.
5. Minimum of 30 supervised clinical hours.

Suggested End of Pathway Assessment

American Heart Association CPR/First Aid Certification

AND

Certification Exam administered through Pharmacy Technician Certification Board (PTCB)

AND/OR

Certification Exam administered through the Institute for Certification of Pharmacy Technicians (ICPT)

AND/OR

National Health Science Assessment and Certification Program
(National Consortium for Health Science Education)
OR
Locally Developed Program Assessment approved by Advisory Committee and linked Community College

PHARMACY TECH STANDARDS AND BENCHMARKS CROSSWALK

STILL TO COME

Pharmacy Technology Program of Study with Linkage to a Pharmacy Technician/Assistant Program

Subject	9	9	10	10	11	11	12	12	13	13	14	14
	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
English/ Language Arts	English 9		English 10		English 11		English 12		Fundament. Of Oral Communica.			
Math	Algebra		Geometry		Algebra II		Pre Calculus		Intermediate Algebra			
Science	General Science		Biology		Chemistry		Physics		Anatomy & Physiology			
Social Studies	World History		US History		AP Psychology		US Government	Economics		Intro to Psychology		
Foreign Language			Foreign Language		Foreign Language		Foreign Language					
Fine Arts	Fine Arts				Fine Arts		Speech					
PE/Health	PE		PE/Health		PE		PE					
Career Courses		Keyboarding	CTE Core Course	Medical Terminology (HSC112)	Issues in Health & Society	Intro to Pharmacy Technology	Pharmacology for Pharmacy Technicians	Pharmacy Practicum	See Educational Program Report for your college CIP: 5108050000 at www.curricunet.com/iowa_doe/			

Diagnostic Services

National Consortium for Health Science Education
National Health Science Career Cluster Model
Diagnostic Services Pathway

Standards & Accountability Criteria
These standards apply to occupations or functions primarily involved in creating a picture of the health status of patients and other clients at a single point in time. The standards specify the knowledge and skills needed by professionals in the diagnostic services pathway.

Standard 1: Multidisciplinary Communication
Diagnostic services professionals will communicate information within a healthcare environment. They will convey this information to the appropriate discipline(s) in a timely manner.

Common Career Technical Core (CCTC): Communicate key diagnostic information to healthcare workers and patients in an accurate and timely manner.

Accountability Criteria:

1.1 Oral Communication Skills
1.11 Adjust communication to other's ability to understand.
1.12 Apply active listening skills using reflection, restatement, and clarification.
1.13 Demonstrate courtesy to others including self-introduction.
1.14 Interpret verbal and nonverbal behaviors to augment communication and within scope of practice.
1.15 Demonstrate interviewing skills.

1.2 Written Communication Skills
1.21 Choose correct syntax and grammar.
1.22 Report relevant information in a timely manner.
1.23 Distinguish between subjective and objective information when reporting.
1.24 Analyze communication for appropriate response and provide feedback.
1.25 Organize, write and compile technical information and summaries.
1.26 Use medical terminology in order to interpret, transcribe and communicate information, data and observations.

Standard 2: Assessment of Patients and Other Clients

Diagnostic services professionals will understand the process to assess and report patients and other client's health status.

Common Career Technical Core (CCTC): Assess and report patient's/client's health status in order to monitor and document patient progress.

Accountability Criteria:

2.1 Assessment of patients and other client's health status

2.11 Analyze available information to assess client viability.
2.12 Evaluate and appraise appropriateness of information.
2.13 Evaluate patient and other client response to treatment and/or procedure.
2.14 Produce appropriate documentation.

Standard 3: Patient and Other Client Movement

Diagnostic services professionals will understand the principles of body mechanics for positioning, transferring, and transporting of patients and other clients. These activities will be performed efficiently without injury to patients and other clients or self.

Common Career Technical Core (CCTC): Demonstrate the principles of body mechanics for positioning, transferring and transporting of patients/clients, and perform them without injury to the patient/client or self.

Accountability Criteria:

3.1 Patient and Client Safety

3.11 Assess the patient and other client status.
3.12 Evaluate potential hazards to patient and other client.
3.13 Choose and apply appropriate transport methods.
3.14 Choose and apply appropriate transfer methods.
3.15 Modify positioning to accommodate patient and other client status.

3.2 Personal Safety

3.21 Apply principles of body mechanics and ergonomics.
3.22 Prevent injury by using proper safety equipment and techniques.
3.23 Choose engineering controls as appropriate.

3.3 Equipment Safety

3.31 Evaluate equipment for possible hazards.
3.32 Choose appropriate equipment for transportation.
3.33 Choose appropriate equipment for transfer.
3.34 Modify equipment and techniques to accommodate patient and other client status.
3.35 Choose and practice infection control procedures.

Standards 4: Patients and Other Clients Interaction

Diagnostic services professionals will understand how to explain procedures and goals to patients and other clients. Various strategies will be used to respond to patients' and other clients' questions and concerns.

Common Career Technical Core (CCTC): Explain procedures and goals to the patient/client accurately and effectively, using strategies to respond to questions and concerns.

Accountability Criteria:

4.1 Explanation of Procedures and Goals

4.11 Assess patient and other client's ability to comprehend.
4.12 Adjust and modify based on assessment.
4.13 Verify patient and other client's understanding.

4.2 Interaction Strategies

4.21 Apply active listening skills using reflection, restatement, and clarification techniques.
4.22 Address patient and other client concerns in a positive manner.

Standard 5: Preparation

Diagnostic services professionals will understand the requests for procedures, interpret the requests, and plan implementation of services as well as appropriate preparation for specific procedures.

Common Career Technical Core (CCTC): Select, demonstrate and interpret diagnostic procedures.

Accountability Criteria:

5.1 Procedural Requests

5.11 Comprehend Scope of Practice.
5.12 Evaluate request for appropriateness.
5.13 Coordinate interdisciplinary services if applicable.

5.2 Service implementation

5.21 Initiate services based on request.

5.3 Protocol Preparation

5.31 Choose appropriate protocol based on client assessment and request.
5.32 Choose protocol based on resources.

5.4 Patient and Other Client Preparation

5.41 Verify patient and other client identification.
5.42 Ensure client readiness and assess for contraindication.
5.43 Obtain client informed consent if applicable

Standard 6: Procedure

Diagnostic services professionals will understand any given procedure and perform these procedures to create diagnostic results.

Common Career Technical Core (CCTC): Select, demonstrate and interpret diagnostic procedures.

***Accountability Criteria*:**

6.1 Procedure Performance

6.11 Cognizant of their scope of practice. Updated 9/2012
6.12 Competent within their scope of practice.
6.13 Perform procedure according to protocol.
6.14 Modify procedure as required within constraints of client and personal safety.

Standard 7: Evaluation and Reporting

Diagnostic services professionals will understand 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.

Common Career Technical Core (CCTC): Select, demonstrate and interpret diagnostic procedures.

Accountability Criteria:

7.1 Procedural Evaluation

7.11 Assess the quality of results.
7.12 Construct and apply appropriate corrective measures/actions.

7.2 Personal Evaluation

7.21 Evaluate quality of results.
7.22 Assess problem-solving skills.
7.23 Evaluate timeliness and productivity.

7.3 Equipment

7.31 Evaluate quality of results.
7.32 Analysis, construct and apply appropriate corrective measures.

7.4 Quality Assurance/Performance Improvement

7.41 Choose appropriate evaluation methods.
7.42 Evaluate and apply appropriate tools.

7.5 Reporting Methods

7.51 Use written, oral and electronic communication skills to produce reports.
7.52 Deliver reports to all appropriate parties.
7.53 Confirm that the parties involved receive all necessary information.

National Consortium for Health Science Education

Diagnostic Services Competencies Crosswalk –

National Consortium for Health Science Education (Adopted by the Iowa Department of Education as State competencies for secondary programs)

Foundation Standards should be met – see previous crosswalk form

Health Science Diagnostic Services Courses: (Minimum of 2 Carnegie Units)

Course 1

Course 2

Course 3

Course 4

Core Courses – 1 Unit – recommend:

Competency	Course 1	Course 2	Course 3	Course 4
Standard 1: Multidisciplinary Communication Diagnostic services professionals will communicate information within a healthcare environment. They will convey this information to the appropriate discipline(s) in a timely manner.				
Oral Communication Skills - Adjust communication to other's ability to understand				
Oral Communication Skills - Apply active listening skills using reflection, restatement, and clarification				
Oral Communication Skills - Demonstrate courtesy to others including self-introduction				
Oral Communication Skills - Interpret verbal and nonverbal behaviors to augment communication and within scope of practice				
Oral Communication Skills - Demonstrate interviewing skills				

Written Communication Skills - Choose correct syntax and grammar				
Written Communication Skills - Report relevant information in a timely manner				
Written Communication Skills - Distinguish between subjective and objective information when reporting				
Written Communication Skills - Analyze communication for appropriate response and provide feedback				
Written Communication Skills - Organize, write and compile technical information and summaries				
Written Communication Skills - Use medical terminology in order to interpret, transcribe and communicate information, data and observations				
Standard 2: Assessment of Patients and Other Clients Diagnostic services professionals will understand the process to assess and report patients and other client's health status.				
Analyze available information to assess client viability				
Evaluate and appraise appropriateness of information				
Evaluate patient and other client response to treatment and/or procedure				
Produce appropriate documentation				
Standard 3: Patient and Other Client Movement Diagnostic services professionals will understand the principles of body mechanics for positioning, transferring and transporting of patients/clients, and perform them without injury to the patient/client or self.				
Patient and Client Safety - Assess the patient and other client status				
Patient and Client Safety - Evaluate potential hazards to patient and other clients				
Patient and Client Safety - Choose and apply appropriate transport methods				

Patient and Client Safety - Choose and apply appropriate transfer methods				
Patient and Client Safety - Modify positioning to accommodate patient and other client status				
Personal Safety - Apply principles of body mechanics and ergonomics				
Personal Safety - Prevent injury by using proper safety equipment and techniques				
Personal Safety - Choose engineering controls as appropriate				
Equipment Safety - Evaluate equipment for possible hazards				
Equipment Safety - Choose appropriate equipment for transportation				
Equipment Safety - Choose appropriate equipment for transfer				
Equipment Safety - Modify equipment and techniques to accommodate patient and other client status				
Equipment Safety - Choose and practice infection control procedures				
Standard 4: Patients and Other Clients Interaction Diagnostic services professionals will understand how to explain procedures and goals to patients and other clients. Various strategies will be used to respond to patients' and other clients' questions and concerns.				
Explanation of Procedures and Goals - Assess patient and other client's ability to comprehend				
Explanation of Procedures and Goals - Adjust and modify based on assessment				
Explanation of Procedures and Goals - Verify patient and other client's understanding				
Interaction Strategies - Apply active listening skills using reflection, restatement, and clarification techniques				

Interaction Strategies - Address patient and other client concerns in a positive manner				
Standard 5: Preparation Diagnostic services professionals will understand the requests for procedures, interpret the requests, and plan implementation of services as well as appropriate preparation for specific procedures.				
Procedural Requests - Comprehend Scope of Practice				
Procedural Requests - Evaluate request for appropriateness				
Procedural Requests - Coordinate interdisciplinary services if applicable				
Service Implementation - Initiate services based on request				
Protocol Preparation - Choose appropriate protocol based on client assessment and request				
Protocol Preparation - Choose protocol based on resources				
Patient and Other Client Preparation - Verify patient and other client identification				
Patient and Other Client Preparation - Ensure client readiness and assess for contraindication				
Patient and Other Client Preparation - Obtain client informed consent if applicable				
Standard 6: Procedure Diagnostic services professionals will understand any given procedure and perform these procedures to create diagnostic results.				
Cognizant of their scope of practice				
Competent within their scope of practice				
Perform procedure according to protocol				

Modify procedure as required within the constraints of client and personal safety				
Standard 7: Evaluation and Reporting Diagnostic services professionals will understand 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.				
Procedural Evaluation - Assess the quality of results				
Procedural Evaluation - Construct and apply appropriate corrective measures/actions				
Personal Evaluation - Evaluate quality of results				
Personal Evaluation - Assess problem-solving skills				
Personal Evaluation - Evaluate timeliness and productivity				
Equipment - Evaluate quality of results				
Equipment - Analyze, construct and apply appropriate corrective measures				
Quality Assurance/Performance Improvement - Choose appropriate evaluation methods				
Quality Assurance/Performance Improvement - Evaluate and apply appropriate tools				
Reporting Methods - Use written, oral and electronic communication skills to produce reports				
Reporting Methods - Deliver reports to all appropriate parties				
Reporting Methods - Confirm that the parties involved receive all necessary information				

Iowa does not currently have any secondary career programs identified for this pathway

Health Informatics

National Consortium for Health Science Education
National Health Science Career Cluster Model
Health Information Management

Standards & Accountability Criteria
These standards apply to occupations or functions that document client care. The standards specify the knowledge and skills needed by professionals in the Informatics services pathway.

Standard 1: Communication
Health informatics professionals will understand the need to communicate health/medical information accurately and within legal/regulatory bounds across the organization.

Common Career Technical Core (CCTC): Communicate health information accurately and within legal and regulatory guidelines, upholding the strictest standards of confidentiality.

***Accountability Criteria*:**

1.1 Communication
1.11 Manage the accuracy, effectiveness, and timeliness of the transfer of information.
1.12 Evaluate legal and regulatory requirements for the transfer of information.
1.13 Distinguish who in the organization needs information and when they need it.

Standard 2: Analysis
Health informatics professionals will know the quantitative and qualitative requirements for information. They will analyze the information for designated purposes.

Accountability Criteria:

2.1 Analysis
2.11 Synthesize information to determine the best course of action.
2.12 Assess health information required by patients, staff, and the community.
2.13 Assemble all necessary data components for successful completion of tasks.
2.14 Appraise the accuracy and completeness of data.
2.15 Assess whether information is reported and disseminated within legal and regulatory bounds.

Standard 3: Abstracting and Coding

Health informatics professionals will know how to read and interpret a medical record or other medical documents, applying knowledge of medical terminology and codes. They will extract required information from a medical record and other medical documents for a variety of purposes, upon regulatory or legal request. Updated 9/2012

3.1 Abstracting and Coding

3.11 Assemble appropriate, accurate information to record charges and reimbursement.
3.12 Choose accurate medical terminology.
3.13 Assess and apply information for regulatory and legal purposes.

Standard 4: Information Systems

Health informatics professionals will understand the resources, routes and flow of information within the health care system. They will participate in the design and implementation of effective systems or processes.

Accountability Criteria:

4.1 Information Systems

4.11 Synthesize the information systems utilized by the organization.
4.12 Assess how systems interact to facilitate the timely and accurate flow.
4.13 Organize information within the parameters of the information systems.
4.14 Integrate information for timely, accurate dissemination.
4.15 Evaluate effectiveness of systems.
4.16 Assess and recommend systems for improvement.

Standard 5: Documentation

Health informatics professionals will understand the content and diverse uses of health information. They will accurately document and communicate appropriate information using legal and regulatory processes.

Common Career Technical Core (CCTC): Describe the content and diverse uses of health information.

***Accountability Criteria*:**

5.1 Documentation

5.11 Assemble and accurately document required information.
5.12 Interpret information that has been collected.
5.13 Differentiate the various purposes and audiences for whom the information is collected.
5.14 Prepare accurate documentation for various audiences within legal and regulatory requirements.
5.15 Disseminate information to various audiences using established systems and guidelines.
5.16 Assess and recommend processes for improvement.

Standard 6: Operations

Health informatics professionals will understand the broad scope of operations in which health care services are delivered. They 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.

Common Career Technical Core (CCTC): Demonstrate the use of systems used to capture, retrieve and maintain confidential health information from internal and external sources.

Accountability Criteria:

6.1 Operations

6.11 Analyzing the internal and external sources of information and resources available.

6.12 Project outcomes as interconnected components of a modified health care system.

6.13 Select the systems and sources of information necessary for the successful completion of the task.

6.14 Participate in the design of operational systems and processes.

6.15 Evaluate operational systems and processes for improvement.

National Consortium for Health Science Education

Health Informatics Competencies Crosswalk –

National Consortium for Health Science Education (Adopted by the Iowa Department of Education as State competencies for secondary programs)

Foundation Standards should be met – see previous crosswalk form

Health Science Health Informatics Courses: (Minimum of 2 Carnegie Units)

Course 1

Course 2

Course 3

Course 4

Core Courses – 1 Unit – recommend:

Competency	Course 1	Course 2	Course 3	Course 4
Standard 1: Communication Health informatics professionals will understand the need to communicate health/medical information accurately and within legal/regulatory bounds across the organization.				
Manage the accuracy, effectiveness, and timeliness of the transfer of information				
Evaluate legal and regulatory requirements for the transfer of information				
Distinguish who in the organization needs information and when they need it				

Standard 2: Analysis Health informatics professionals will know the quantitative and qualitative requirements for information. They will analyze the information for designated purposes.				
Synthesize information to determine the best course of action				
Assess health information required by patients, staff, and the community				
Assemble all necessary data components for successful completion of tasks				
Appraise the accuracy and completeness of data				
Assess whether information is reported and disseminated within legal and regulatory bounds				
Standard 3: Abstracting and Coding Health informatics professionals will know how to read and interpret a medical record or other medical documents, applying knowledge of medical terminology and codes. They will extract required information from a medical record and other medical documents for a variety of purposes, upon regulatory or legal request.				
Assemble appropriate, accurate information to record charges and reimbursement				
Choose accurate medical terminology				
Assess and apply information for regulatory and legal purposes				
Standard 4: Information Systems Health Informatics professionals will understand the resources, routes and flow of information within the health care system. They will participate in the design and implementation of effective systems or processes.				
Synthesize the information systems utilized by the organization				
Assess how systems interact to facilitate the timely and accurate flow				

Organize information within the parameters of the information systems				
Integrate information for timely, accurate dissemination				
Evaluate effectiveness of systems				
Assess and recommend systems for improvement				
Standard 5: Documentation Health informatics professionals will understand the content and diverse uses of health information. They will accurately document and communicate appropriate information using legal and regulatory processes.				
Assemble and accurately document required information				
Interpret information that has been collected				
Differentiate the various purposes and audiences for whom the information is collected				
Prepare accurate documentation for various audiences within legal and regulatory requirements				
Disseminate information to various audiences using established systems and guidelines				
Assess and recommend processes for improvement				
Standard 6 – Operations Health informatics professionals will understand the broad scope of operations in which health care services are delivered. They will know the systems operations used to capture, retrieve, and maintain formation from internal and external sources. They will utilize internal and external information and resources accurately and efficiently.				
Analyzing the internal and external sources of information and resources available				
Project outcomes as interconnected components of a modified health care system				
Select the systems and sources of information necessary for the successful completion of the task				

Participate in the design of operational systems and processes				
Evaluate operational systems and processes for improvement				

Iowa Department of Education

Health Science Education Standards

Health Information Management

Health Informatics

Teacher Requirements

Four thousand hours of occupational experience within five years preceding application for licensure in the occupation to be taught. Program completion leading to registration, certification, or licensure in Iowa in the health specialty to be taught. Coursework in foundations of vocational and career education, planning and implementing courses and curriculum, methods and techniques of instruction, and evaluation of programs and pupils.
http://www.boee.iowa.gov/endorsements/endorsements_teacher_gened.html
OR – Meet Community College Instructor Requirements for the subject area.
PLUS:

Pre-requisite Experience:

1. Minimum of six years full-time experience working as a health information management professional t for a physician's office, hospital, and/or medical insurance office.

Certification Requirements:

2. (RHIA or RHIT) – Registered Health Information Administrator/Registered Health Information Technician Certification

Recommended Curriculum

Health Records in Acute Care (Concurrent Enrollment Course)
Foundational Skills
Units: Minimum of .5

Legal & Ethical Aspects of Health Records
Foundational Skills
Units: Minimum of .5

Medical Terminology
Foundational Skills
Units: Minimum of 1

Anatomy and Physiology for Health Science Professionals
Foundational Skills
Units: Minimum of 1

Health Information Management Pathway Standards

1. NCHSE Foundation Standards and Accountability Criteria
2. NCHSE Health Informatics Pathway Standards and Accountability Criteria

Critical Competencies

1. Healthcare professionals will demonstrate the fundamental knowledge of the normal and abnormal anatomy and physiology of the human body and be able to apply medical math.
2. Healthcare professionals will demonstrate the various methods of giving and obtaining information. They will demonstrate effective communication, both orally and in writing.
3. Healthcare professionals will compare and contrast how their role fits into their department, their organization and the overall healthcare environment.
4. Healthcare professionals will identify and describe the impact of employability skills on employment opportunities and job satisfaction.
5. Healthcare professionals will perform their duties according to regulations, policies, laws and legislated rights of clients.
6. Healthcare professionals will deliver quality healthcare with respect to cultural, social and ethnic differences.
7. Healthcare professionals will know how to prevent injury or illness through safe work practices and follow health and safety policies and procedures.
8. Healthcare professionals will understand the roles of team members and function effectively and sensitively with all members of the healthcare team.
9. Healthcare professionals will practice and role model preventive health behaviors.
10. Healthcare professionals will apply skills required for all career specialties. They will demonstrate skills and knowledge as appropriate.

11. Healthcare professionals will demonstrate and utilize appropriate information technology applications.
12. Health informatics professionals will understand the need to communicate health/medical information accurately and within legal/regulatory bounds across the organization.
13. Health informatics professionals will know the quantitative and qualitative requirements for information. They will analyze the information for designated purposes.
14. Health informatics professionals will know how to read and interpret a medical record or other medical documents, applying knowledge of medical terminology and codes. They will extract required information from a medical record and other medical documents for a variety of purposes, upon regulatory or legal request.
15. Health Informatics professionals will understand the resources, routes and flow of information within the health care system. They will participate in the design and implementation of effective systems or processes.
16. Health informatics professionals will understand the content and diverse uses of health information. They will accurately document and communicate appropriate information using legal and regulatory processes.
17. Health informatics professionals will understand the broad scope of operations in which health care services are delivered. They will know the systems operations used to capture, retrieve, and maintain formation from internal and external sources. They will utilize internal and external information and resources accurately and efficiently.

Suggested End of Pathway Assessment

American Heart Association CPR/First Aid Certification

AND

National Health Science Assessment and Certification Program
(National Consortium for Health Science Education)
OR
Locally Developed Program Assessment approved by Advisory Committee and linked Community College

Health Informatics Standards and Benchmarks Crosswalk
Still to Come

Health Information Management Program of Study with Linkage to a HIM or HIT Program

Subject	9	9	10	10	11	11	12	12	13	13	14	14
	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2	Semester 1	Semester 2
English/ Language Arts	English 9		English 10		English 11		English 12		Composition		Public Speaking	
Math	Algebra		Geometry		Algebra II		Pre Calculus					
Science	General Science		Biology		Chemistry		Physics		Anatomy & Physiology & Lab	Anatomy & Physiology II & Lab		
Social Studies	World History		US History		AP Psychology		US Government	Economics	Intro to Psychology			
Foreign Language			Foreign Language		Foreign Language		Foreign Language					
Fine Arts	Fine Arts				Fine Arts		Speech					Intro. to Sociology
PE/Health	PE		PE/Health		PE		PE					
Career Courses		Introduction to Computers CC# - CSA110A	Medical Terminology CC# - HSC113 or HSC115		Health Records in Acute Care CC# - HIT370C	Legal & Ethical Aspects of Health Records CC# - HIT420C	Anatomy for Allied Health (HSC126)		See Educational Program Report for your college CIP: 5107070000 at www.curricunet.com/iowa_doe/			

Biotechnology Research & Development

National Consortium for Health Science Education
National Health Science Career Cluster Model
Biotechnology Research and Development (R & D) Pathway

Standards & Accountability Criteria
These standards apply to occupations and functions primarily involved in bioscience research and development that applies to human health. The standards specify the knowledge and skills common to occupations in the biotechnology research and development pathway.

Standard 1: Contributions of Biotechnology to health and the human condition
Biotechnology R & D professionals will understand that biotechnology products are based on molecular biology of disease and health; the quality of life through finding a cure for genetic, environmental and behavioral diseases, chronic conditions, industrial enzymes and new diagnostic tools; and legal and ethical issues to protect and preserve the quality of life, with emphasis on social and diversity issues.

Common Career Technical Core (CCTC): Summarize the goals of biotechnology research and development within legal and ethical protocols.

***Accountability Criteria*:**

1.1 Contributions to Quality of Life
1.11 Propose an industrial enzyme that could contribute to the quality of life.
1.12 Generate a list of environmental diseases or chronic conditions that have been or could be treated with biotechnology products.

1.2 Legal and Ethical Considerations
1.21 Assess a current biotechnology-related ethical issue in the news and how it may affect the quality of life.

Standard 2: Academic Foundations
Biotechnology R & D professionals will be knowledgeable in the fundamentals of mathematical concepts, statistics, genetics, organic chemistry, biochemistry, cell biology, molecular biology and microbiology.

Common Career Technical Core (CCTC): Apply the fundamentals of biochemistry, cell biology, genetics, mathematical concepts, microbiology, molecular biology, organic chemistry and statistics to conduct effective biotechnology research and development of products.

Accountability Criteria:
2.1 Mathematical Concepts

2.11 Illustrate the concepts of percentages and ratios using a biotechnology application.
2.12 Contract weight-to-weight and weight-to-volume calculations for solutions.
2.13 Explain scientific notation.

2.2 Statistics

2.21 Compare the standard deviation and the mean of efficacy testing data of two biotechnology products.
2.22 Graphically illustrate a set of biotech data such that a layman would understand it.

2.3 Genetics

2.31 Describe the basic structure of a chromosome.
2.32 Construct a karyotype with human chromosomes.
2.33 Differentiate the genetic inheritance of a lethal dominant homozygous trait (e.g. dwarfism) from a heterozygous disease (e.g., sickle cell anemia).

2.4 Organic Chemistry

2.41 Construct a molecule of a compound with 3 or more carbon atoms.
2.42 Create an equation of two organic substrates leading to a product.
2.43 Describe atomic number, atomic mass and orbitals.
2.44 Contrast covalent, ionic and hydrogen bonding.

2.5 Biochemistry

2.51 Diagram six chemical side groups that could be in a biotechnology product.
2.52 Categorize all amino acids into essential and non-essential.
2.53 Describe the relationship between biochemistry and biotechnology product development.
2.54 Compare the underlying reasons why some molecules are hydrophilic and some are hydrophobic.

2.6 Cell Biology

2.61 Describe the basic structures and functions of cells and how this knowledge is used in biotechnology.
2.62 Select cellular barriers to be overcome for a biotechnology product to work inside a cell.

2.7 Molecular Biology

2.71 Diagram the structure of the nucleic acid DNA.
2.72 Demonstrate DNA replication graphically and its' importance to biotechnology product development.
2.73 Describe the central dogma of molecular biology and how understanding this process impacts biotechnology research and development.

2.8 Microbiology

2.81 Analyze how microorganisms are used in mass producing recombinant proteins.
2.82 Compare and contrast bacterial, fungal, and animal cells and how these similarities and differences affect biotechnology product development and production decisions.

2.83 Compare and contrast the use of plasmids in bacterial transformation and the process of plasmid DNA isolation.

Standard 3: Introduction to Biotechnology Knowledge Areas and Techniques

Biotechnology R & D professionals will be introduced to the following recombinant DNA and genetic engineering, bioprocessing (producing recombinant DNA products on a large scale for profit), monoclonal antibody production, separation and purification of biotechnology products, nanotechnology, bioinformatics, genomics, proteomics and transcriptomics.

Common Career Technical Core (CCTC): Demonstrate basic knowledge of recombinant DNA, genetic engineering, bioprocessing, monoclonal antibody production, nanotechnology, bioinformatics, genomics, proteomics, and transcriptomics to conduct biotechnology research and development.

Accountability Criteria:

3.1 Techniques

3.11 Describe the following techniques; recombinant DNA, genetic engineering, monoclonal antibody production, separation and purification of biotechnology products and bioprocessing.

3.2 Knowledge Areas

3.21 Predict how nanotechnology, bioinformatics, proteomics, genomics and transcriptomics will create new career opportunities.

Standard 4: Laboratory Protocols and Procedures

Biotechnology R & D professionals will understand the principles of solution preparation such as molarity, pH, and dilution; sterile techniques such as inoculum development and transfer; knowledge of contamination control; and measurement and calibration of instruments such as micropipettes and pH meters. They will maintain a sanitary, safe and hazard free laboratory environment. Employees will be adept at teamwork, oral and written communication skills, problem solving, emergency lab response, and biosafety protocols.

Common Career Technical Core (CCTC): Demonstrate principles of solution preparation, sterile techniques, contamination control, and measurement and calibration of instruments used in biotechnology research.

Accountability Criteria:

4.1 Procedures

4.11 Describe how molarity relates to solution preparation.

4.12 Calculate the molarity of a given solution and measure the pH of this solution.

4.13 Prepare a serial dilution of a microbial culture starting with 10-3 going to 10-8

and plate on to nutrient agar petri dishes. Determine the original concentration of the microbial culture.

4.2 Protocols

4.21 Distinguish the requirements of sterile techniques.

4.22 Respond to a hypothetical laboratory accident appropriately as a member of a laboratory team. Updated 9/2012

Standard 5: Product Design and Development

Biotechnology R & D professionals will have the knowledge of how the product is designed, and what is involved in its development and subsequent production, including the laboratory procedures and regulatory requirements. The employee will have a general understanding of the entire process in order to know how their scope of work contributes to the result including; R & D at the lab bench level, both pre-clinical trials, clinical trials (3 phases), product license application, regulatory process for clinical trials (current Good Manufacturing Practices [cGMPs], and Good Laboratory Practices [GLPs]) for production (cGMPs, GLPs).

Common Career Technical Core (CCTC): Determine processes for product design and production and how that work contributes to an understanding of the biotechnology product development process.

5.1 Development

5.11 Diagram the process involved in making one biotech product in an industrial setting.

5.12 Analyze the role of pre-clinical and clinical trials in biotechnology product development.

5.2 Regulation

5.21 Examine the role of a Quality Assurance person in this process.

5.22 Define cGMP and why it is important in biotech production.

Standard 6: Bioethics

Biotechnology R & D professionals are not isolated from the social effect of their products in our society. Science, technology and society are intertwined. Biotechnology R & D employees will be conversant with the larger ethical, moral and legal issues related to biotech research, product development and use in society.

Common Career Technical Core (CCTC): Summarize and explain the larger ethical, moral and legal issues related to biotechnology research, product development and use in society.

Accountability Criteria:

6.1 Societal

6.11 Differentiate between morality and ethics and the relationship of each to biotechnology health care product development.

6.12 Discuss bioethical issues related to recombinant products.

6.13 Contrast personal, professional and organizational ethics.

6.2 Institutional

6.21 Comply with policies and requirements for documentation and record keeping.

6.22 Comply with institutional ethical policies and procedures.

National Consortium for Health Science Education

Biotechnology Research & Development Competencies Crosswalk –

National Consortium for Health Science Education (Adopted by the Iowa Department of Education as State competencies for secondary programs)

Foundation Standards should be met – see previous crosswalk form

Health Science Biotechnology Courses: (Minimum of 2 Carnegie Units)

Course 1

Course 2

Course 3

Course 4

Core Courses – 1 Unit – recommend:

Competency	Course 1	Course 2	Course 3	Course 4
Standard 1: Contributions of Biotechnology to Health and the Human Condition Biotechnology R&D professionals will understand that biotechnology products are based on molecular biology of disease and health; the quality of life through finding a cure for genetic, environmental and behavioral diseases, chronic conditions, industrial enzymes and new diagnostic tools; and legal and ethical issues to protect and preserve the quality of life, with emphasis on social and diversity issues.				
Contribution to Quality of Life – Propose an industrial enzyme that could contribute to the quality of life				
Contribution to Quality of Life – Generate a list of environmental diseases or chronic conditions that have been or could be treated with biotechnology products				
Legal and Ethical Considerations – Assess a current biotechnology-related ethical issue in the news and how it may affect the quality of life				

Standard 2: Academic Foundations Biotechnology R&D professionals will be knowledgeable in the fundamentals of mathematical concepts, statistics, genetics, organic chemistry, biochemistry, cell biology, molecular biology and microbiology				
Mathematical Concepts – Illustrate the concepts of percentages and ratios using a biotechnology application				
Mathematical Concepts – Contract weight-to-weight and weight-to-volume calculations for solutions				
Mathematical Concepts – Explain scientific notation				
Statistics – compare the standard deviation and the mean of efficacy testing data of two biotechnology products				
Statistics – Graphically illustrate a set of biotech data such that a layman would understand it				
Genetics – Describe the basic structure of a chromosome				
Genetics – Construct a karyotype with human chromosomes				
Genetics – Differentiate the genetic inheritance of a lethal dominant homozygous trait (e.g. dwarfism) from a heterozygous disease (e.g., sickle cell anemia)				
Organic Chemistry – Construct a molecule of a compounds with 3 or more carbon atoms				
Organic Chemistry – Create an equation of two organic substrates leading to a product				
Organic Chemistry – Describe atomic number, atomic mass and orbitals				
Organic Chemistry – Contrast covalent, ionic and hydrogen bonding				
Biochemistry – Diagram six chemical side groups that could be in a biotechnology product				

Biochemistry – Categorize all amino acids into essential and non-essential				
Biochemistry – Describe the relationship between biochemistry and biotechnology product development				
Biochemistry – Compare the underlying reasons why some molecules are hydrophilic and some are hydrophobic				
Cell Biology – Describe the basic structures and functions of cells and how this knowledge is used in biotechnology				
Cell Biology – Select cellular barriers to be overcome for a biotechnology product to work inside a cell				
Molecular Biology – Diagram the structure of the nucleic acid DNA				
Molecular Biology – Demonstrate DNA replication graphically and its' importance to biotechnology product development				
Molecular Biology – Describe the central dogma of molecular biology and how understanding this process impact biotechnology research and development				
Microbiology – Analyze how microorganisms are used in mass producing recombinant proteins				
Microbiology – Compare and contrast bacterial, fungal, and animal cells and how these similarities and differences affect biotechnology product development and production decisions				
Microbiology – Compare and contrast the use of plasmids in bacterial transformation and the process of plasmid DNA isolation				

Standard 3: Introduction to Biotechnology Knowledge Areas and Techniques Biotechnology R&D professionals will be introduced t the following recombinant DNA and genetic engineering, bioprocessing (producing recombinant DNAC products on a large scale for profit), monoclonal antibody production, separation and purification of biotechnology products, nanotechnology, bioinformatics, genomics, proteomics and transcriptomics				
Techniques – Describe the following techniques; recombinant DNA, genetic engineering, monoclonal antibody production, separation and purification of biotechnology products and bioprocessing				
Knowledge Areas – Predict how nanotechnology, bioinformatics, proteomics, genomics and transcriptomics will create new career opportunities				
Standard 4: Laboratory Protocols and Procedures Biotechnology R&D professionals will understand the principles of solution preparation such as molarity, pH, and dilution; sterile techniques such as inoculums development and transfer; knowledge of contamination control; and measurement and calibration of instruments such as micropipettes and pH meters. They will maintain a sanitary, safe and hazard free laboratory environment. Employees will be adept at teamwork, oral and written communication skills, problem solving, emergency lab response, and biosafety protocols				
Procedures – Describe how molarity relates to solution preparation				
Procedures – Calculate the molarity of a given solution and measure the pH of this solution				
Procedures – Prepare a serial dilution of a microbial culture starting with 10-3 going to 10-8 and plate on to nutrient agar petri dishes. Determine the original concentration of the microbial culture				
Protocols – Distinguish the requirements of sterile techniques				
Protocols – Respond to a hypothetical laboratory accident appropriately as a member of a laboratory team				

Standard 5: Product Design and Development Biotechnology R & D professionals will have the knowledge of how the product is designed, and what is involved in its development and subsequent production, including the laboratory procedures and regulatory requirements. The employee will have a general understanding of the entire process in order to know how their scope of work contributes to the result including; R & D at the lab bench level, both pre-clinical trials, clinical trials (3 phases), product license application, regulatory process for clinical trials (current Good Manufacturing Practices [cGMPs], and Good Laboratory Practices [GLPs]) for production (cGMPs, GLPs).				
Development – Diagram the process involved in making one biotech product in an industrial setting				
Development – Analyze the role of pre-clinical and clinical trials in biotechnology product development				
Regulation – Examine the role of a Quality Assurance person in this process				
Regulation – Define cGMP and why it is important in biotech production				
Standard 6: Bioethics Biotechnology R & D professionals are not isolated from the social effect of their products in our society. Science, technology and society are intertwined. Biotechnology R & D employees will be conversant with the larger ethical, moral and legal issues related to biotech research, product development and use in society.				
Societal – Differentiate between morality and ethics and the relationship of each to biotechnology health care product development				
Societal – Discuss bioethical issues related to recombinant products				
Societal – Contrast personal, professional and organizational ethics				
Institutional – Comply with policies and requirements for documentation and record keeping				
Institutional – Comply with institutional ethical policies and procedures				

Iowa does not currently have any programs for secondary districts in Biotechnology. PLTW does have a Bio-Medical program but no programs exist in this area at the postsecondary level at Iowa's Community Colleges for linkage.

Support Services

National Consortium for Health Science Education
National Health Science Career Cluster Model
Support Services Pathway

Standards & Accountability Criteria
These standards apply to occupations or functions involving direct or indirect patients and other client's care that create a therapeutic environment for providing that care. The standards specify the knowledge and skills needed by professionals in the support services pathway.

Standard 1: Operations
Support services professionals will examine, differentiate, and enhance the responsibilities of their roles. They will perform their tasks safely following established internal and external guidelines.

Common Career Technical Core (CCTC): Describe, differentiate and safely perform the responsibilities of healthcare support services roles.

Accountability Criteria

1.1 Administration
1.11 Develop/implement departmental mission statement, goals, objectives, and strategic plan.
1.12 Develop/implement departmental policies, procedures, processes and modify as needed.
1.13 Coordinate departmental activities with other departments, outside agencies and contractors, including event planning and logistics.
1.14 Develop/implement new and existing services.
1.15 Design and implement an employee recognition program.

1.2 Quality Measurement and Improvement
1.21 Monitor customer expectations through satisfaction plans and measurement tools to assure adequacy of products and services.
1.22 Participate and provide support standardization, consolidation and/or re-engineering processes.
1.23 Evaluate cost effectiveness of alternative methodologies.
1.24 Perform quality management activities.
1.25 Monitor customer expectations through satisfaction plans and measurement tools to assure adequacy of service.

1.3 Compliance

1.31 Adhere to a code of ethics to ensure corporate compliance.
1.32 Ensure compliance with legal, regulatory, and accreditation standards or codes. Administer the hazardous materials management program.
1.33 Coordinate with physicians, departmental directors/managers, and outside agencies in the development of Emergency Preparedness Plans.
1.34 Inspect buildings/facilities and grounds to ensure compliance with standards, regulations, and codes.
1.35 Check work of staff to ensure compliance with applicable safety and building regulations.

Standard 2: Aseptic Procedures

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.

Common Career Technical Core (CCTC): Demonstrate work practices that maintain a clean and healthy healthcare facility to reduce or eliminate pathogenic organisms.

Accountability Criteria

2.1 Cleaning and Decontamination

2.11 Demonstrate various decontamination techniques and procedures.
2.12 Demonstrate knowledge of standards precaution guidelines.
2.13 Select procedures and precautions to be followed when using chemicals.
2.14 Demonstrate techniques for mechanical and manual cleaning procedures.
2.15 Evaluate potential causes and methods of transmitting infection (e.g., contact, airborne, common vehicle, vector-borne).
2.16 Integrate all infection control standards with design and construction activities.

2.2 Hazardous Materials and Waste Management

2.21 Develop, implement, and monitor hazardous waste disposal policies and procedures in accordance with regulatory requirements.
2.22 Assess and monitor the operations of a waste management program, including recycling and reduction of regulated medical, solid, hazardous chemical and radioactive waste materials.
2.23 Develop systems and procedures that minimize customer cost of ordering, storing, and using supplies, services, and equipment.
2.24 Ensure that regulated waste is handled, packaged, stored and disposed of in accordance with federal, state, and local regulations and maintain appropriate documentation.

2.3 Materials Handling and Storage

2.31 Demonstrate process and environmental requirements for proper handling and storage of sterile and non-sterile items.
2.32 Demonstrate appropriate inventory control and distribution systems.

2.33 Describe and implement a program to purchase materials, supplies, and capital equipment within allocated resources.
2.34 Apply optimal material flow and layout.
2.35 Adopt policies and procedures to monitor distribution, consumption, and pilferage or materials.
2.36 Provide adequate space to meet standards for storage.

Standard 3: Resource Management

Support services professionals will evaluate the principles and techniques of resource management. They will make appropriate decisions to maximize the use of available resources.

Common Career Technical Core (CCTC): Follow established internal and external guidelines in order to provide high-quality, effective support services in the healthcare facility.

Common Career Technical Core (CCTC): Maximize available resources for proper care and use of healthcare equipment and materials.

Accountability Criteria

3.1 Finance

3.11 Participate and evaluate purchasing processes and agreements.
3.12 Evaluate audit activities, including the review of discrepancies, purchase orders, and invoices.
3.13 Assess cost benefits that support best product recommendations.
3.14 Explain competitive pricing, terms, and service levels.
3.15 Identify opportunities for reduction in resource consumption.
3.16 Develop inventory reduction targets and process to achieve targets.

3.2 Acquisition and Distribution

3.21 Implement purchasing and procurement techniques that improve the overall supply chain.
3.22 Analyze timely order placement, supplier performance, and continuously review for effectiveness.
3.23 Assess a supplier performance standards program.
3.24 Organize catalogs, price lists, inventory records, purchase order files, and product/supplier files, ensuring that they are updated and current.
3.25 Provide consultation to departments requiring assistance in resource allocation.
3.26 Assess the integration of resource functions.
3.27 Implement appropriate distribution strategies and systems to ensure optimal materials flow.
3.28 Organize adequate quantities of supplies, equipment, instruments and medical devices are maintained.

3.3 Equipment and Maintenance

3.31 Participate in capital purchasing processes.
3.32 Assess procedures and processes for the selection, acquisition, distribution, and maintenance of equipment.

3.33 Apply written instructions for the equipment manufactures operations manual, departmental policies and procedures.
3.34 Implement a preventive maintenance (PM) process for buildings, equipment, parts, supplies, and utilities as appropriate.
3.35 Participate in equipment and systems training programs for maintenance staff and user groups.

3.4 Staffing and Productivity

3.41 Participate in a comprehensive training and education program, covering such aspects as safety, infection control, hazardous materials, and new equipment use.
3.42 Analyze labor distribution for projects and operations.
3.43 Adopt reporting mechanisms for departmental functions.

Standard 4: Aesthetics

Support services professionals will defend the establishment, maintenance, and improvement of the environment. They will assist in the development and implementation of facility standards.

Common Career Technical Core (CCTC): Implement healthcare facility standards in order to maintain high-quality healthcare facilities.

Accountability Criteria

4.1 Physical Environment and Presentation

4.11 Coordinate with other departments to select facility finishes and furnishings within appropriate safety codes.
4.12 Participate in the development of design and construction plans.
4.13 Analyze the therapeutic and functional aspects of color décor and furnishing.
4.14 Provide facility accessibility through appropriate way finding and maintaining a clutter free environment.
4.15 Maintain facility in good repair.
4.16 Organize, deliver and present products and services in a quality manner.

National Consortium for Health Science Education

Support Services Competencies Crosswalk – National Consortium for Health Science Education (Adopted by the Iowa Department of Education as State competencies for secondary programs)

Foundation Standards should be met – see previous crosswalk form

Health Science Support Services Courses: (Minimum of 2 Carnegie Units)

Course 1

Course 2

Course 3

Course 4

Core Courses – 1 Unit – recommend:

Competency	Course 1	Course 2	Course 3	Course 4
Standard 1: Operations Support services professionals will examine, differentiate, and enhance the responsibilities of their roles. They will perform their tasks safety following established internal and external guidelines.				
Administration – Develop/implement departmental mission statement, goals, objectives, and strategic plan				
Administration – Develop/implement departmental policies, procedures, processes and modify as needed				
Administration – Coordinate departmental activities with other departments, outside agencies and contractors, including event planning and logistics				
Administration – Develop/implement new and existing services				
Administration – Design and implement an employee recognition program				
Quality Measurement and Improvement – Monitor customer expectations through satisfaction plans and				

measurement tools to assure adequacy of products and services				
Quality Measurement and Improvement – Participate and provide support standardization, consolidation and/or re-engineering processes.				
Quality Measurement and Improvement – Evaluate cost effectiveness of alternative methodologies				
Quality Measurement and Improvement – Perform quality management activities				
Quality Measurement and Improvement – Monitor customer expectations through satisfaction plans and measurement tools to assure adequacy of service				
Compliance – Adhere to a code of ethics to ensure corporate compliance				
Compliance – Ensure compliance with legal, regulatory, accreditation standards or codes. Administer the hazardous materials management program				
Compliance – Coordinate with physicians, departmental directors/managers, and outside agencies in the development of Emergency Preparedness Plans				
Compliance – Inspect buildings/facilities and grounds to ensure compliance with standards, regulations, and codes				
Compliance – Check work of staff to ensure compliance with applicable safety and building regulations				
Standard 2: Aseptic Procedures 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.				
Cleaning and Decontamination – Demonstrate various decontamination techniques and procedures				
Cleaning and Decontamination – Demonstrate knowledge of standards precaution guidelines				

Cleaning and Decontamination – Select procedures and precautions to be followed when using chemicals				
Cleaning and Decontamination – Demonstrate techniques for mechanical and manual cleaning procedures				
Cleaning and Decontamination – Evaluate potential causes and methods of transmitting infection (e.g., contact, airborne, common vehicle, vector-borne)				
Cleaning and Decontamination – Integrate all infection control standards with design and construction activities				
Hazardous Materials and Waste Management – Develop, implement, and monitor hazardous waste disposal policies and procedures in accordance with regulatory requirements				
Hazardous Materials and Waste Management – Assess and monitor the operations of a waste management program, including recycling and reduction of regulated medical, solid, hazardous chemical and radioactive waste materials				
Hazardous Materials and Waste Management – Develop systems and procedures that minimize customer cost of ordering, storing, and using supplies, services, and equipment				
Hazardous Materials and Waste Management – Ensure that regulated waste is handled, packaged, stored and disposed of in accordance with federal, state, and local regulations and maintain appropriate documentation				
Materials Handling and Storage – Demonstrate processes and environmental requirements for proper handling and storage of sterile and non-sterile items				
Materials Handling and Storage – Demonstrate appropriate inventory control and distribution systems				
Materials Handling and Storage – Describe and implement a program to purchase materials, supplies,				

and capital equipment within allocated resources				
Materials Handling and Storage – Apply optimal material flow and layout				
Materials Handling and Storage – Adopt policies and procedures to monitor distribution, consumption, and pilferage or materials				
Materials Handling and Storage – Provide adequate space to meet standards for storage				
Standard 3: Resource Management Support services professionals will evaluate the principles and techniques of resource management. They will make appropriate decisions to maximize the use of available resources				
Finance – Participate and evaluate purchasing processes and agreements				
Finance – Evaluate audit activities, including the review of discrepancies, purchase orders, and invoices				
Finance – Assess cost benefits that support best product recommendations				
Finance – Explain competitive pricing, terms, and service levels				
Finance – Identify opportunities for reduction in resource consumption				
Finance – Develop inventory reduction targets and process to achieve targets				
Acquisition and Distribution – Implement purchasing and procurement techniques that improve the overall supply chain				
Acquisition and Distribution – Analyze timely order placement, supplier performance, and continuously review for effectiveness				
Acquisition and Distribution – Assess a supplier performance standards program				

Acquisition and Distribution – Organize catalogs, price lists, inventory records, purchase order files, and product/supplier files, ensuring that they are updated and current				
Acquisition and Distribution – Provide consultation to departments requiring assistance in resource allocation				
Acquisition and Distribution – Assess the integration of resource functions				
Acquisition and Distribution – Implement appropriate distribution strategies and systems to ensure optimal materials flow				
Acquisition and Distribution – Organize adequate quantities of supplies, equipment, instruments and medical devices are maintained				
Equipment and Maintenance – Participate in capital purchasing processes				
Equipment and Maintenance –Assess procedures and processes for the selection, acquisition, distribution, and maintenance of equipment				
Equipment and Maintenance – Apply written instructions for the equipment manufactures operations manual, departmental policies and procedures				
Equipment and Maintenance – Implement a preventive maintenance (PM) process for buildings, equipment, parts, supplies and utilities as appropriate				
Equipment and Maintenance – Participate in equipment and systems training programs for maintenance staff and user groups				
Staffing and Productivity – Participate in a comprehensive training and education program, covering such aspects as safety, infection control, hazardous materials, and new equipment use				

Staffing and Productivity – Analyze labor distribution for projects and operations				
Staffing and Productivity – Adopt reporting mechanisms for departmental functions				
Standard 4: Aesthetics Support services professionals will defend the establishment, maintenance, and improvement of the environment. They will assist in the development and implementation of facility standards				
Physical Environment and Presentation – Coordinate with other departments to select facility finishes and furnishings within appropriate safety codes				
Physical Environment and Presentation – Participate in the development of design and construction plans				
Physical Environment and Presentation – Analyze the therapeutic and functional aspects of color décor and furnishings				
Physical Environment and Presentation – Provide facility accessibility through appropriate way finding and maintaining a clutter free environment				
Physical Environment and Presentation – Maintain facility in good repair				
Physical Environment and Presentation – Organize, deliver and present products and services in a quality manner				

Iowa Department of Education

Health Science Education Standards

Clinical Laboratory Assistant

Diagnostics Services

Teacher Requirements

Four thousand hours of occupational experience within five years preceding application for licensure in the occupation to be taught. Program completion leading to registration, certification, or licensure in Iowa in the health specialty to be taught. Coursework in foundations of vocational and career education, planning and implementing courses and curriculum, methods and techniques of instruction, and evaluation of programs and pupils.
http://www.boee.iowa.gov/endorsements/endorsements_teacher_gened.html (see bottom of page)
OR – Meet Community College Instructor Requirements for the subject area.
PLUS:

Pre-requisite Certification:
Bachelors degree in Medical Technology from a National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) certified program **AND:**

A current National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) certification and a current American Society for Clinical Pathology Board of Certification (ASCP BOC) is equal to three career-related credits.

Recommended Curriculum

Clinical Lab Assistant I
Foundational Skills
Units: Minimum of 1

Clinical Lab Assistant II
Intermediate Skills
Units: Minimum of 1

Clinical Lab Assistant III
Employment-entry Skills and Exam Preparation
Units: Minimum of 1

Clinical Laboratory Assistant Pathway Standards

1. NCHSE Foundation Standards and Accountability Criteria
2. NCHSE Diagnostic Services Pathway Standards and Accountability Criteria
3. Programs must fully comply with all state classroom and clinical requirements for Clinical/Medical Laboratory Assistant training
4. Basic principles and practice procedures for Clinical Laboratory Assistant
5. Minimum of 30 supervised clinical hours

Suggested End of Pathway Assessment

American Heart Association CPR/First Aid Certification

AND

Medical Laboratory Assistant Certification Exam administered through National Healthcareer Association (NHA)

AND/OR

National Health Science Assessment and Certification Program
(National Consortium for Health Science Education)
OR
Locally Developed Program Assessment approved by Advisory Committee and linked Community College

Clinical Lab Assistant Standards and Benchmarks Crosswalk and Drawing Board Still to Come