

CAREER CLUSTER™: HEALTH SCIENCE
NM Job Council's 13 Economic Sectors Primary Alignment: Health and Social Services

Pathways and related Programs of Study in this career cluster address careers in planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.

The Pathways for this Career Cluster™ are:

- Biotechnology Research and Development
- Diagnostic Services
- Health Informatics
- Support Services
- Therapeutic Services

Program Learning Outcomes from the NASDCTE Common Career Technical Core for Health Science Cluster:

Note: it is expected that a student completing any Program of Studies in this Career Cluster would transition to post secondary college and career being able to know and do each of these Standards, unless otherwise noted.

1.	Determine academic subject matter, in addition to high school graduation requirements, necessary for pursuing a health science career.
2.	Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.
3.	Identify existing and potential hazards to clients, coworkers, visitors and self in the healthcare workplace.
4.	Evaluate the roles and responsibilities of individual members as part of the healthcare team and explain their role in promoting the delivery of quality health care.
5.	Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace.
6.	Evaluate accepted ethical practices with respect to cultural, social and ethnic differences within the healthcare workplace.

THE CERTIFICATIONS LISTED BELOW ARISE FROM INTERVIEWS, WEBINARS, AND FOCUS GROUPS WITH SECONDARY AND POST SECONDARY EDUCATORS AS WELL AS INPUT FROM INDUSTRY PARTNERS AND REPRESENTATIVES. THE NEXT STEP FOR VALIDATION IS LABOR MARKET DATA AND THE ECONOMIC NEEDS OF BOTH THE STATE OF NEW MEXICO AND THE REGIONS.

Industry Certifications

State Certification in Certified Nursing Assistant

Home Health Aide

Heart Saver CPR

Precisions Exams Certification: Biotechnology, Health Sciences Introductions

BLS AED CPR for Medical Professionals
State Certification in Emergency Medical Technology
NCLEX PN – National Council for Licensure Exam for Practical Nursing
Health Care Professionals First Aid CPR
FEMA Certification
Basic Life Support CPR Certification
National Registry EMT
Mental Health First Aid Adult
Mental Health First Aid Youth
Certified Personal Trainer
Bio-Medical technician
National Health Care Foundation Skill Standards

Focus Group’s Additional Comments and Suggestions:

- Age limits for certifications that require hands on experience are a concern
- Qualifications and certification requirements for teachers are a concern
- Soft skills with an opportunity to practice them are very important in this Cluster and not as evident in this Common Career Technical Core

Below are the POS’s developed by the statewide stakeholders who participated in the development process.

Biotechnology Research and Development: Careers in the Biotechnology Research and Development pathway involve bioscience research and development as it applies to human health. These scientists may study diseases to discover new treatments or invent medical devices used to directly assist patients or to improve the accuracy of diagnostic tests.

Program Learning Outcomes from the NASDCTE Common Career Technical Core (CCTC): <i>Note: it is expected that a student completing the Program of Studies listed below would transition to post secondary college and career being able to know and do each of these Standards, unless otherwise noted.</i>	
1.	Summarize the goals of biotechnology research and development within legal and ethical protocols
2.	Apply the fundamentals of biochemistry, cell biology, genetics, mathematical concepts, microbiology, molecular biology, organic chemistry and statistics conduct effective biotechnology research and development products.
3.	Demonstrate basic knowledge of recombinant DNA, genetic engineering, bioprocessing, monoclonal antibody production, nanotechnology, bioinformatics, genomics, proteomics and transcriptomics to conduct biotechnology research and development.
4.	Demonstrate the principles of solution preparation, sterile techniques, contamination control, and measurement and calibration of instruments used in biotechnology research.
5.	Determine processes for product design and production and how that work contributes to an understanding of the biotechnology product development process.

Program of Study Course Sequence for BIOTECHNOLOGY RESEARCH AND DEVELOPMENT: <i>Note: it is expected that a student completing the Program of Studies listed below would transition to post secondary college and career being able to know and do each of these Standards, unless otherwise noted.</i>				
	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Career and Technical Courses and/or Degree Major Courses as Dual Credit	1502 Health Care Occupations	1595 Health Care Sciences	1550 Medical Anatomy & Physiology	1627 Research and Development
Suggestions for Enrichment to POS			Dual Credit: Medical terminology	1502 Health Care Occupations, Articulated Dual credit
CCRB Approved Career Technical Education (CTE) program of study	1660 Principles of BioMedical Sciences	1661 Human Body Systems 1514 Medical Terminology	1662 Medical Interventions 1550 Medical Anatomy & Physiology	1663 BioMedical Sciences (Capstone/ Dual Enrollment) 1597 Health Care OJT

Program Learning Outcomes Matrix for Biotechnology Research and Development

Note: each dot represents the understanding that the student taking that course would have the best opportunity to know and be able to do the CCTC knowledge and skill standards listed above.

Courses in the POS		Program Learning Outcomes					
STARS No.	Course Title	1	2	3	4	5	6
1595	Health Care Sciences						
1502	Health Care Occupations	•	•	•	•	•	•
1550	Medical Anatomy & Physiology						
1627	Research and Development						

STARS No.	Course Descriptions:
1595	Health Care Sciences - Recommended for Students Grades 9 - 12 - Course in this category offers instruction in related topics that are necessary or helpful in health care occupations; such topics may include mathematics, science, and/or communications.
1502	Health Care Occupations - Recommended for Students Grades 9 - 12 - Course usually offered as a series to provide orientation to, and refinement of, the knowledge and skills germane to the health care industry. Topics usually include (but are not limited to) an overview of health care delivery; patient care, including assessment of vital signs, body mechanics, and diet; anatomy and physiology; identification and use of medical equipment and supplies; medical terminology; hygiene and disease prevention; first aid and CPR procedures; laboratory procedures; and ethical and legal responsibilities. Clinical experiences in local health care settings are integral to the courses.
1550	Medical Anatomy & Physiology - Recommended for Students Grades 11 - 12 - Usually taken after Biology-First-Year courses, Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals.
1627	Research and Development - Recommended for Students Grades 9 - 12 - Course provides students with the opportunity to focus on one or more areas of technology, creatively pursuing new knowledge or solving a technological problem, by designing and building prototypes and working models. Appropriate information is learned and applied in order to complete the research and development process.

Diagnostic Services: Careers in the Diagnostic Services pathway use tests and evaluations that aid in the detection, diagnosis and treatment of diseases, injuries or other physical conditions.

Program Learning Outcomes from the NASDCTE Common Career Technical Core: <i>Note: it is expected that a student completing the Program of Studies listed below would transition to post secondary college and career being able to know and do each of these Standards, unless otherwise noted.</i>	
1.	Communicate key diagnostic information to healthcare workers and patients in an accurate and timely manner.
2.	Assess and report patient's/client's health status in order to monitor and document patient progress.
3.	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.
4.	Explain procedures and goals to the patient/client accurately and effectively, using strategies to respond to questions and concerns.
5.	Select, demonstrate and interpret diagnostic procedures.

Program of Study Course Sequence for DIAGNOSTIC SERVICES				
	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Career and Technical Courses and/or Degree Major Courses as Dual Credit	1501 Health Science I: Introduction to Health Science	1502 Health Care Occupations	1550 Medical Anatomy & Physiology	1598 Health Care OJT
Suggestions for Enrichment to POS			1504 CNA Dual Credit: Medical terminology	1515 Medical Lab Technician 1517 Emergency Medical Technician 1516 EKG Technician

Program Learning Outcomes Matrix FOR DIAGNOSTIC SERVICES <i>Note: each dot represents the understanding that the student taking that course would have the best opportunity to know and be able to do the CCTC knowledge and skill standards listed above.</i>						
Courses in the POS		Program Learning Outcomes				
STARS No.	Course Title	1	2	3	4	5
1501	Health Science I: Introduction to Health Science	•	•			
1502	Health Care Occupations		•	•		•
1550	Medical Anatomy & Physiology	•	•	•	•	•

Program Learning Outcomes Matrix FOR DIAGNOSTIC SERVICES

Note: each dot represents the understanding that the student taking that course would have the best opportunity to know and be able to do the CCTC knowledge and skill standards listed above.

Courses in the POS		Program Learning Outcomes				
STARS No.	Course Title	1	2	3	4	5
1598	Health Care Sciences-Co-Op					

STARS No.	Course Descriptions:
1595	Health Care Sciences - Recommended for Students Grades 9 - 12 - Course in this category offers instruction in related topics that are necessary or helpful in health care occupations; such topics may include mathematics, science, and/or communications.
1501	Health Science I: Introduction to Health Science - Recommended for Students Grades 7 - 12 - Course designed for students with a possible interest in medicine or the allied health fields, Health Care Occupations Career Exploration courses expose students to the opportunities available in a variety of occupational clusters within the health care industry (such as dental care, general and administrative services, lab technology, nursing, therapy, and vision care). Experiences in several of these occupational clusters may be provided, along with information and knowledge related to the health care industry as a whole.
1502	Health Care Occupations - Recommended for Students Grades 9 - 12 - Course usually offered as a series to provide orientation to, and refinement of, the knowledge and skills germane to the health care industry. Topics usually include (but are not limited to) an overview of health care delivery; patient care, including assessment of vital signs, body mechanics, and diet; anatomy and physiology; identification and use of medical equipment and supplies; medical terminology; hygiene and disease prevention; first aid and CPR procedures; laboratory procedures; and ethical and legal responsibilities. Clinical experiences in local health care settings are integral to the courses.
1550	Medical Anatomy & Physiology - Recommended for Students Grades 11 - 12 - Usually taken after Biology-First-Year courses, Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals.
1598	Health Care Sciences-Co-Op - Recommended for Students Grades 10 - 12 - Course provides work experience in the health care industry, and are supported by classroom attendance and discussion. Goals are set for the employment period; classroom experience may involve further study in the field, improvement of employability skills, or discussion regarding the experiences and problems encountered on the job

Health Informatics: Careers in the Health Informatics pathway include many different levels of health care related employment. This pathway includes health care administrators who manage health care agencies as well as those individuals who are responsible for managing all of the patient data and information, financial information, and computer applications related to health care processes and procedures.

Program Learning Outcomes from the NASDCTE Common Career Technical Core:

Note: it is expected that a student completing the Program of Studies listed below would transition to post secondary college and career being able to know and do each of these Standards, unless otherwise noted.

1.	Communicate health information accurately and within legal and regulatory guidelines, upholding the strictest standards of confidentiality.
2.	Describe the content and diverse uses of health information.
3.	Demonstrate the use of systems used to capture, retrieve and maintain confidential health information from internal and external sources.

Program of Study Course Sequence for HEALTH INFORMATICS

	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Career and Technical Courses and/or Degree Major Courses as Dual Credit	1595 Health Care Sciences	1502 Health Care Occupations	1514 Medical Office	Must be developed by a post secondary institution
Suggestions for Enrichment to POSCCRB Approved Career Technical Education (CTE) program of study	SREB Health Informatics: Data and Use	SREB Health Informatics: Transforming Data into Information	SREB Health Informatics: Transforming Information into Knowledge	SREB Health Informatics: Problems and Solutions

Program Learning Outcomes Matrix FOR HEALTH INFORMATICS

Note: each dot represents the understanding that the student taking that course would have the best opportunity to know and be able to do the CCTC knowledge and skill standards listed above.

Courses in the POS		Program Learning Outcomes		
STARS No.	Course Title	1	2	3
1595	Health Care Sciences			
1502	Health Care Occupations			
1514	Medical Office			

STARS No.	Course Descriptions:
1595	Health Care Sciences - Recommended for Students Grades 9 - 12 - Course in this category offers instruction in related topics that are necessary or helpful in health care occupations; such topics may include mathematics, science, and/or communications.
1502	Health Care Occupations - Recommended for Students Grades 9 - 12 - Course usually offered as a series to provide orientation to, and refinement of, the knowledge and skills germane to the health care industry. Topics usually include (but are not limited to) an overview of health care delivery; patient care, including assessment of vital signs, body mechanics, and diet; anatomy and physiology; identification and use of medical equipment and supplies; medical terminology; hygiene and disease prevention; first aid and CPR procedures; laboratory procedures; and ethical and legal responsibilities. Clinical experiences in local health care settings are integral to the courses.
1514	Medical Office - Recommended for Students Grades 10 - 12 - Course exposes students to skills that combine and relate to both the medical and clerical fields. Designed for students who are interested in clerical/transcription occupations within the health care industry, these courses may include (but are not limited to) topics such as medical transcription, medical insurance, financial accounting, scheduling, and patient record keeping. Medical terminology and routine medical procedures are covered to provide context for clerical duties.

Support Services: Careers in the Support Services pathway provide a therapeutic environment for the delivery of health care. Support Services offers a full range of career opportunities from entry level to management, including technical and professional careers.

Program Learning Outcomes from the NASDCTE Common Career Technical Core: <i>Note: it is expected that a student completing the Program of Studies listed below would transition to post secondary college and career being able to know and do each of these Standards, unless otherwise noted.</i>	
1.	Describe, differentiate and safely perform the responsibility of healthcare support services roles.
2.	Demonstrate work practices that maintain a clean and healthy healthcare facility to reduce or eliminate pathogenic organisms.
3.	Follow established internal and external guidelines in order to provide high-quality, effective support services in the healthcare facility.
4.	Maximize available resources for proper care and use of healthcare equipment and materials.
5.	Implement healthcare facility standards in order to maintain high-quality healthcare facilities.

Program of Study Course Sequence for SUPPORT SERVICES				
	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Career and Technical Courses and/or Degree Major Courses as Dual Credit	1595 Health Care Sciences	1502 Health Care Occupations	<i>Has to be developed by a post secondary institution</i>	<i>Has to be developed by a post secondary institution</i>
Suggestions for Enrichment to POS			Dual Credit: Biomed Equipment Technology Servicing Program	Dual Credit: Biomed Equipment Technology Servicing Program

Program Learning Outcomes Matrix FOR SUPPORT SERVICES <i>Note: each dot represents the understanding that the student taking that course would have the best opportunity to know and be able to do the CCTC knowledge and skill standards listed above.</i>						
Courses in the POS		Program Learning Outcomes				
STAR S No.	Course Title	1	2	3	4	5
1595	Health Care Sciences					
1502	Health Care Occupations					

STARS No.	Course Descriptions:
1595	Health Care Sciences - Recommended for Students Grades 9 - 12 - Course in this category offers instruction in related topics that are necessary or helpful in health care occupations; such topics may include mathematics, science, and/or communications.
1502	Health Care Occupations - Recommended for Students Grades 9 - 12 - Course usually offered as a series to provide orientation to, and refinement of, the knowledge and skills germane to the health care industry. Topics usually include (but are not limited to) an overview of health care delivery; patient care, including assessment of vital signs, body mechanics, and diet; anatomy and physiology; identification and use of medical equipment and supplies; medical terminology; hygiene and disease prevention; first aid and CPR procedures; laboratory procedures; and ethical and legal responsibilities. Clinical experiences in local health care settings are integral to the courses.

Therapeutic Services: Careers in the Therapeutic Services pathway are focused primarily on changing the health status of the patient over time. Health professionals in this pathway work directly with patients; they may provide care, treatment, counseling and health education information.

Program Learning Outcomes from the NASDCTE Common Career Technical Core:	
<i>Note: it is expected that a student completing the Program of Studies listed below would transition to post secondary college and career being able to know and do each of these Standards, unless otherwise noted.</i>	
1.	Utilize communication strategies to answer patient/client questions and concerns on planned procedures and goals.
2.	Communicate patient/client information among healthcare team members to facilitate a team approach to patient care.
3.	Utilize processes for assessing, monitoring and reporting patient's/client's health status to the treatment team within protocol and scope of practice.
4.	Evaluate patient/client needs, strengths and problems in order to determine if treatment goals are being met.

Program of Study Course Sequence for THERAPEUTIC SERVICES PATHWAY:				
<i>Note: it is expected that a student completing the Program of Studies listed below would transition to post secondary college and career being able to know and do each of these Standards, unless otherwise noted.</i>				
	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Career and Technical Courses and/or Degree Major Courses as Dual Credit	1502 Health Care Occupations	1550 Medical Anatomy & Physiology	<i>Has to be developed by a post secondary institution</i>	1595 Health Care Sciences Related Subjects
Suggestions for Enrichment to POS			Dual Credit: Medical Terminology 1507 Nursing Science 1	1504 Nursing-CNA 1503 Allied Health Occupations 1506 Home Health Care 1505 Nursing LPN

Note: each dot represents the understanding that the student taking that course would have the best opportunity to know and be able to do the CCTC knowledge and skill standards listed above.

Courses in the POS		Program Learning Outcomes			
STARS No.	Course Title	1	2	3	4
1502	Health Care Occupations				
1595	Health Care Sciences Related Subjects				
1550	Medical Anatomy & Physiology				

STARS No.	Course Descriptions:
1595	Health Care Sciences - Recommended for Students Grades 9 - 12 - Course in this category offers instruction in related topics that are necessary or helpful in health care occupations; such topics may include mathematics, science, and/or communications.
1550	Medical Anatomy & Physiology - Recommended for Students Grades 11 - 12 - Usually taken after Biology-First-Year courses, Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals
1502	Health Care Occupations - Recommended for Students Grades 9 - 12 - Course usually offered as a series to provide orientation to, and refinement of, the knowledge and skills germane to the health care industry. Topics usually include (but are not limited to) an overview of health care delivery; patient care, including assessment of vital signs, body mechanics, and diet; anatomy and physiology; identification and use of medical equipment and supplies; medical terminology; hygiene and disease prevention; first aid and CPR procedures; laboratory procedures; and ethical and legal responsibilities. Clinical experiences in local health care settings are integral to the courses.