

## Curriculum Standard for Health Science: Therapeutic and Diagnostic Services

**Career Cluster:** Health Science \*\*

**Cluster Description:** Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.

**Pathway:** Therapeutic and Diagnostic Services

**Effective Term** Spring 2019

### Program Majors Under Pathway

Program Major / Classification of Instruction Programs (CIP) Code	Credential Level(s) Offered	Program Major Code
Emergency Medical Science	CIP Code 51.0904	Diploma/Certificate D45910
Medical Assisting	CIP Code 51.0801	Diploma/Certificate D45920
Nurse Aide	CIP Code 51.3902	Diploma/Certificate D45970
Pharmacy Technology	CIP Code 51.0805	Diploma/Certificate D45940
Phlebotomy	CIP Code 51.1009	Diploma/Certificate D45950
Therapeutic Massage	CIP Code 51.3501	Diploma/Certificate D45960

### Pathway Description:

This curriculum is designed to prepare students for careers in the Health Sciences.

Students will complete general education courses that provide a foundation for success in nursing and allied health curricula. Students may select a career pathway that will prepare them for an entry level position in health care. Courses may also provide foundational knowledge needed in the pursuit of advanced health science degrees or programs.

Graduates should qualify for an entry-level job associated with the program major such as Emergency Medical Technician (EMT) or Advanced Emergency Medical Technician (AEMT), Medical Assistant, Nurse Aide, Pharmacy Technician, Phlebotomist, or Massage Therapist dependent upon the selected program major.

*Program Major Description: Choose one of the following 4<sup>th</sup> paragraphs to use in conjunction with the first three paragraphs of the pathway description above for documentation used to identify each Program Major:*

***In order to utilize one of the program majors below, the college must have approval to offer the primary curriculum program and file an electronic program of study (POS). (Example: A college must have approval for Medical Assisting (A45400) in order to file a POS for Medical Assisting (D45920)).***

**Emergency Medical Science:** A program that prepares graduates to enter the workforce as Emergency Medical Technicians or Advanced Emergency Medical Technicians. The course of study provides the student an opportunity to acquire basic life support knowledge and skills by utilizing classroom instruction, practical laboratory sessions, and hospital/field internships. Students progressing through the program may be eligible to apply for both state and national certification exams. Employment opportunities include ambulance services, fire and rescue agencies, air medical services, specialty areas of hospitals, industry, educational institutions, and government agencies.

**Medical Assisting:** A program that prepares multi-skilled health care professionals qualified to perform administrative, clinical, and laboratory procedures. Course work includes instruction in scheduling appointments, medical records, introductory insurance procedures, computer operations; assisting with examinations/treatments, performing routine laboratory procedures, electrocardiography, and supervised medication administration. Graduates of CAAHEP-accredited medical assisting programs may be eligible to sit for the American Association of Medical Assistants' Certification Examination to become Certified Medical Assistants. Employment opportunities include physicians' offices, health maintenance organizations, health departments, and hospitals.

\*Within the degree program, the institution shall include opportunities for the achievement of competence in reading, writing, oral communication, fundamental mathematical skills, and basic use of computers.

Approved by the State Board of Community Colleges on October 18, 2013; Editorial Revision 11/12/13; SBCC Revised 11/21/14; Prefix Addition 08/01/15; CCRC Revised (D45910) 10/09/18; CCRC Revised--Electronic Only (RISE Initiative) 10/24/19.

**Nurse Aide:** The Nurse Aide curriculum prepares individuals to work under the supervision of licensed nursing professionals in performing nursing care and services for persons of all ages. Topics include growth and development, personal care, vital signs, communication, nutrition, medical asepsis, therapeutic activities, accident and fire safety, household environment and equipment management, family resources and services, and employment skills. Upon completion, the student may be eligible for listing as a Nurse Aide I and other selected Nurse Aide registries as determined by the local program of study.

**Pharmacy Technology:** A program that prepares individuals to assist the pharmacist in duties that a technician can legally perform and to function within the boundaries prescribed by the pharmacist and the employment agency. Course work includes preparing prescription medications, mixing intravenous solutions and other specialized medications, maintaining inventories, and packaging medications in unit-dose or med-card form. Employment opportunities include retail, hospitals, nursing homes, research laboratories, wholesale drug companies, and pharmaceutical manufacturing facilities. Graduates from the program may be eligible to take the National Certification Examination to become a certified pharmacy technician.

**Phlebotomy:** A program that prepares individuals to obtain blood and other specimens for the purpose of laboratory analysis. Course work includes proper specimen collection and handling, communication skills, and maintaining patient data. Graduates may qualify for employment in hospitals, clinics, physicians' offices, and other health care settings and may be eligible for national certification as phlebotomy technicians.

**Therapeutic Massage:** A program that prepares graduates to work in direct client care settings to provide manipulation, methodical pressure, friction and kneading of the body for maintaining wellness or treating alterations in wellness throughout the lifespan. Courses work includes content in normal human anatomy and physiology, therapeutic massage, and ethical/legal issues. Employment opportunities include hospitals/rehabilitation centers, health departments, home health, medical offices, nursing homes, spas/health/sports clubs, and private practice. Graduates may be eligible to take the Massage and Bodywork Licensing Exam or the National Certification for Therapeutic Massage and Bodywork.

**I. General Education Academic Core**

[Curriculum Requirements for associate degree, diploma, and certificate programs in accordance with 1 D SBCCC 400.10]: Degree programs must contain a minimum of 15 semester hours including at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural sciences/mathematics. Degree programs must contain a minimum of 6 semester hours of communications. Diploma programs must contain a minimum of 6 semester hours of general education; 3 semester hours must be in communications. General education is optional in certificate programs.

**Health Science: Therapeutic and Diagnostic Services**

Recommended General Education Academic Core	AAS	Diploma	Certificate
<b>Minimum General Education Hours Required:</b>		6 SHC	
<i>Courses listed below are <b>recommended</b> general education courses for this curriculum standard. Colleges may choose to include additional or alternative general education courses to meet local curriculum needs.</i>			
<b>Communication:</b>		3-6+ SHC	
ENG 111 Expository Writing 3 SHC			
ENG 112 Argument-Based Research 3 SHC			
COM 120 Intro Interpersonal Com 3 SHC			
COM 231 Public Speaking 3 SHC			
<b>Humanities/Fine Arts:</b>		0-3+ SHC	
HUM 115 Critical Thinking 3 SHC			
PHI 230 Introduction to Logic 3 SHC			
PHI 240 Introduction to Ethics 3 SHC			

<b>Social /Behavioral Sciences:</b>				<b>0-3+ SHC</b>
*PSY	150	General Psychology	3 SHC	
PSY	241	Developmental Psy	3 SHC	
<b>Natural Sciences/Mathematics:</b>				<b>0-3+ SHC</b>
BIO	165	Anatomy & Physiology I	4 SHC	
BIO	166	Anatomy & Physiology II	4 SHC	
BIO	168	Anatomy & Physiology I	4 SHC	
BIO	169	Anatomy & Physiology II	4 SHC	
BIO	163	Basic Anatomy & Physiology	5 SHC	
BIO	175	General Microbiology	3 SHC	
BIO	275	Microbiology	4 SHC	
CHM	131	Introduction to Chemistry	3 SHC	
CHM	131A	Introduction to Chemistry Lab	1 SHC	
MAT	110	Mathematical Measurement & Literacy	3 SHC	
MAT	143	Quantitative Literacy (proposed new course)	3 SHC	
PHY	110	Conceptual Physics	3 SHC	
PHY	110A	Conceptual Physics Lab	1 SHC	
*Please note PSY 150 General Psychology is a required core course for the Phlebotomy Pathway.				

**II. Major Hours.** AAS, diploma, and certificate programs must include courses which offer specific job knowledge and skills. Work-based learning may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit. Below is a description of each section under Major Hours.

- A. Technical Core.** The technical core is comprised of specific courses which are required for all Program Majors under this Curriculum Standard. A diploma program offered under an approved AAS program standard or a certificate which is the highest credential level awarded under an approved AAS program standard must include a minimum of 12 semester hours credit derived from the curriculum core courses or core subject area of the AAS program.
- B. Program Major(s).** The Program Major must include a minimum of 12 semester hours credit from required subjects and/or courses. The Program Major is in addition to the technical core.
- C. Other Major Hours.** Other major hours must be selected from prefixes listed on the curriculum standard. A maximum of 9 semester hours of credit may be selected from each prefix listed, with the exception of prefixes listed in the core.

<b>Health Science: Therapeutic and Diagnostic Services</b>	<b>AAS</b>	<b>Diploma</b>	<b>Certificate</b>
<b>Minimum Major Hours Required:</b>		<b>30 SHC</b>	
<b>A. Technical Core: (3-8 SHC)</b>			
MED 120 Survey of Medical Terminology			2 SHC or
MED 121 Medical Terminology I			3 SHC &
MED 122 Medical Terminology II			3 SHC
MED 180 CPR Certification			1 SHC or
HSC 120 CPR			1 SHC or
HEA 112 First Aid & CPR			2 SHC or
HSC 110 Orientation to Health Careers			1 SHC or
HSC 140 Transcultural Healthcare			2 SHC
<b>B. Program Major(s): (12-22 SHC) (Select one Program Major)</b>			
<b>Emergency Medical Science (17 SHC)</b>			
EMS 110 EMT			9 SHC
EMS 120 Advanced EMT			6 SHC
EMS 121 AEMT Clinical Practicum			2 SHC

<b>Medical Assisting (22 SHC)</b>				
MED 110	Orientation to Medical Assisting	1 SHC		
MED 118	Medical Law and Ethics	2 SHC		
MED 130	Administrative Office Procedures I	2 SHC		
MED 131	Administrative Office Procedures II	2 SHC		
MED 140	Exam Room Procedures I	5 SHC		
MED 150	Lab Procedures I	5 SHC		
MED 260	Medical Clinical Practicum	5 SHC		
<b>Nurse Aide (12-18 SHC)</b>				
<b>Required Courses:</b>				
NAS 101	Nurse Aide I	6 SHC		
<b>Required Subject Areas:</b>				
<b>Select a minimum of 6 SHC:</b>				
NAS 102	Nurse Aide II	6 SHC		
NAS 103	Home Health Care Nurse Aide	6 SHC		
NAS 106	Geriatric Aide	6 SHC		
NAS 107	Medication Aide	1 SHC		
<b>Pharmacy Technology(19 SHC)</b>				
PHM 110	Introduction to Pharmacy	3 SHC		
PHM 111	Pharmacy Practice I	4 SHC		
PHM 115	Pharmacy Calculations	3 SHC		
PHM 118	Sterile Procedures	4 SHC		
PHM 120	Pharmacology I	3 SHC		
PHM 140	Trends in Pharmacy	2 SHC		
<b>Phlebotomy (12 SHC)</b>				
PBT 100	Phlebotomy Technology	6 SHC		
PBT 101	Phlebotomy Practicum	3 SHC		
PSY 150	General Psychology	3 SHC		
<b>Therapeutic Massage (22 SHC)</b>				
MTH 110	Fundamentals of Massage	10 SHC		
MTH 120	Ther Massage Applications	10 SHC		
MTH 125	Ethics of Massage	2 SHC		
<b>C. Other Major Hours.</b>				
<b>To be selected from the following prefixes:</b>				
BIO, CHM, CIS, EMS, HEA, HSC, MAT, MED, MTH, NAS, NUT, PBT, PHM, PHY, PSY, SOC, and WBL.				
Up to two semester hour credits may be selected from ACA.				
Up to three semester hour credits may be selected from the following prefixes: ARA, ASL, CHI, FRE, GER, ITA, JPN, LAT, POR, RUS and SPA.				

### III. Other Required Hours

A college may include courses to meet graduation or local employer requirements in a certificate (0-1 SHC), diploma (0-4 SHC), or an associate in applied science (0-7 SHC) program. These curriculum courses shall be selected from the Combined Course Library and must be approved by the System Office prior to implementation. Restricted, unique, or free elective courses may not be included as other required hours.

### IV. Employability Competencies

Fundamental competencies that address soft skills vital to employability, personal, and professional success are listed below. Colleges are encouraged to integrate these competencies into the curriculum by embedding appropriate student learning outcomes into one or more courses or through alternative methods.

- A. Interpersonal Skills and Teamwork** – The ability to work effectively with others, especially to analyze situations, establish priorities, and apply resources for solving problems or accomplishing tasks.
- B. Communication** – The ability to effectively exchange ideas and information with others through oral, written, or visual means.
- C. Integrity and Professionalism** – Workplace behaviors that relate to ethical standards, honesty, fairness, respect, responsibility, self-control, criticism and demeanor.
- D. Problem-solving** – The ability to identify problems and potential causes while developing and implementing practical action plans for solutions.
- E. Initiative and Dependability** – Workplace behaviors that relate to seeking out new responsibilities, establishing and meeting goals, completing tasks, following directions, complying with rules, and consistent reliability.
- F. Information processing** – The ability to acquire, evaluate, organize, manage, and interpret information.
- G. Adaptability and Lifelong Learning** – The ability to learn and apply new knowledge and skills and adapt to changing technologies, methods, processes, work environments, organizational structures and management practices.
- H. Entrepreneurship** – The knowledge and skills necessary to create opportunities and develop as an employee or self-employed business owner.

\*An **Employability Skills Resource Toolkit** has been developed by NC-NET for the competencies listed above. Additional information is located at: <http://www.nc-net.info/employability.php>

\*\*The North Carolina Career Clusters Guide was developed by the North Carolina Department of Public Instruction and the North Carolina Community College system to link the academic and Career and Technical Education programs at the secondary and postsecondary levels to increase student achievement. Additional information about Career Clusters is located at: [http://www.nc-net.info/NC\\_career\\_clusters\\_guide.php](http://www.nc-net.info/NC_career_clusters_guide.php) or <http://www.careertech.org>.

<i>Summary of Required Semester Hour Credits (SHC) for each credential:</i>	<b>AAS</b>	<b>Diploma</b>	<b>Certificate</b>
Minimum General Education Hours	15	6	0
Minimum Major Hours	49	30	12
Other Required Hours	0-7	0-4	0-1
<b>Total Semester Hours Credit (SHC)</b>	<b>64-76</b>	<b>36-48</b>	<b>12-18</b>