



**BETHLEHEM AREA VOCATIONAL-TECHNICAL
SCHOOL**
3300 CHESTER AVENUE BETHLEHEM PA 18020

ACADEMY OF MEDICAL SCIENCE
Mr. Stan Prodes
610-866-8013 ext 166 prodess@bavts.org

ACADEMY OF MEDICAL SCIENCE

Course Description:

The Academy of Medical Science (AMS) is a challenging, academic course for the college preparatory/honor student who wants to pursue a professional career in the health care industry (HCI). Professional career choices are numerous as there are many disciplines spanning the industry. Career interests often include physician, surgeon, physician assistant (PA), registered nurse (RN), nurse practitioner (NP), physical therapist (PT), occupational therapist (OT), and occasionally include dentist, pharmacist, and medical researcher. Students will study human development, emergency response and first aid, safety, medical terminology, legal implications in the HCI, and infection control before participating at a clinical experience at Lehigh Valley Hospital. As a senior elective, the class meets one block for two semesters and does not meet the requirements for certification or NOCTI testing. However, students receive an American Heart Association (AHA) CPR certification (BLS Healthcare Provider) valid for 2 years.

Although the students have a strong foundation for entry-level employment in the HCI, professional careers will require a minimum of a Baccalaureate Degree, while many careers now require advanced degrees. Most example, most nursing positions now require a BSN (Bachelor of Science in Nursing), physician assistant education is a graduate degree requiring 5 or 6 years of college education, and the requirements for Physical Therapist and Pharmacist have been raised to PhD level.

Average pay: According to salary.com, pay ranges in the HCI are:

RN - \$56,000-\$110,000+

OT - \$90,000

PT - \$90,000

NP - \$115,000

PA - \$115,000

Physician - \$220,000

Physician (Specialist) - \$400,000-\$650,000+

Reference Material:

Textbooks:

The Essentials of Medical Terminology, Juanita Davies, 3rd Ed 2008

Introduction to Health Care, Dakota Mitchell and Lee Haroun, 3rd Ed 2012

Clinical Rotations, Lois Thomson, 2nd Ed 2014

American Heart Association - Basic Life Support for Health Care Professionals, 2016

Additional reading:

Lehigh Valley Health Network Student Orientation Materials, www.lvhn.org

The Last Lecture, Randy Pausch, 2008

Independent Reading options: Hot Zone, Toxin, Chromosome 6, Powerful Medicines, Complications, Better, Partners of the Heart, Scalpel and the Soul

Classroom Tools:

CPR manikins and Hands-only CPR manikins

AED trainers

Sphygmomanometers

Stethoscopes

Suture and sterile dressing supplies

Sterile and non-sterile gloves

Electrocardiography machines and supplies

IV, phlebotomy, and injection supplies and simulation arms

Respiratory supplies (including ambu bags, peak flow meters)

PPE

Laparoscopic surgical supplies and simulation

Medical research – computers, textbooks, medical journals

Course Syllabus

First Semester (First Marking Period)

Projects:

Medical Terminology

Introduction to Medical Journals – *Reading the Literature*

Video / Essay- professional goals

The Last Lecture *Randy Pausch* Book Review, video

Quizzes (2) and Exams (3)

Diagnosis 101 Assignment

Cornell Notetaking

Healthcare System Critique

Introduction to Medical Math

Duty and Tasks Covered:

100 Orientation and Safety

- 101 Identify school rules, regulations and attendance requirements.
- 102 Recognize school layout, resources, evacuation procedures.
- 103 Identify general course objectives.
- 104 Identify shop rules and regulations.
- 106 Recognize the grading procedure.
- 107 Differentiate between hospitals, LTC, HHA s to their purpose and what each expects of the health care professional.
- 109 Identify and describe OSHA standards and standard precautions.

500 Safety and Body Mechanics

- 501 Follows safety and emergency procedures.
- 504 Utilizes proper body mechanics.
- 505 Report nonfunctioning equipment
- 507 Discuss the significance of MSDS, OSHA as it pertains to the health care environment.

600 Emergency and Disaster Preparedness

603 Follow Emergency Response/Crisis Plan Procedures in the facility.

604 ID potential fire hazards.

1600 Medical Terminology

1601 Differentiate roots, prefixes, suffixes.

1603 Differentiate medical specialties.

1604 Demonstrate proper use of medical language.

1605 Identify anatomy, functions, and common diseases of body systems.

1800 Anatomy, Physiology, and Pathophysiology

1800 Identify the basic structure of the human body.

1801 Label body planes, direction and cavities.

1804 Identify organs of the integumentary system.

1805 Describe the function of the organs of the integumentary system.

1805 Identify disease processes of the integumentary system.

Career Exploration Outcomes: Students begin to explore the HCI and are introduced to medical terminology, reading the medical literature, and medical math.

First Semester (Second Marking Period)

Projects:

Medical Terminology and Medications

Summary writing - Medical Journals

Hands-Only CPR Class Project Begins

Quizzes (3) and Exams (4)

Diagnosis 101 Assignment

Medical Math (continued)

Miller Blood Bank site visit and review of blood donations

Leukemia/Lymphoma Society visit and introduction to fundraising

Brochure Assignment

Advanced Directives

Introduction to PPE and hand hygiene

Duty and Tasks Covered:

100 ORIENTATION and SAFETY

- 110 Explain right to know.
- 112 Demonstrate effective interpersonal conflict management skills.

200 LEGAL and ETHICAL ISSUES

- 201 Identify advanced directives.
- 205 Identify legal responsibilities of the health care professional.
- 206 Discuss ethics as related to the health care professional.

400 INFECTION CONTROL

- 401 Identify diseases and their mode of transmission.
- 402 Demonstrate proper hand washing and hand hygiene techniques.
- 403 Apply principles of standard precautions and infection control.
- 404 Discuss the following: blood borne pathogens, sharps disposal, and biohazard.
- 405 Demonstrates proper donning and removal of non-sterile gloves.

500 SAFETY and BODY MECHANICS

- 502 Report Emergencies accurately and immediately.

700 HUMAN NEEDS and HUMAN DEVELOPMENT.

- 701 Identify the ways to meet the client's basic human needs for life and well-being.
- 702 Identify and respect cultural diversity.
- 703 Recognize how age, illness, and disability affect psychosocial changes in the client.

1500 DEATH and DYING

- 1501 Discuss own feelings and attitude about death (verbal and/or written)
- 1502 Explain how culture and religion influence a person's attitude toward death.
- 1503 Discuss the goals of hospice care.
- 1504 Discuss the stages of dying.

1600 MEDICAL TERMINOLOGY

- 1602 Identify abbreviations
- 1604 Demonstrate and interpret proper use of medical language.
- 1605 Identify anatomy, functions, and common diseases of the body systems.

1800 ANATOMY, PHYSIOLOGY and PATHOPHYSIOLOGY

- 1802 Identify organs of respiratory system.
- 1803 a Describe function of each organ-respiratory sys.
- 1803 b Identify disease processes-respiratory sys.
- 1803 c Identify organs of the circulatory system.
- 1804 a Describe functions of each organ of the circulatory sys.
- 1804 b Identify disease processes of the circulatory sys.
- 1805 c Identify organs of the musculoskeletal sys.
- 1806 a Describe functions of each organ of the musculoskeletal sys.
- 1806 b Identify disease processes of the musculoskeletal sys.

Second Semester (Third Marking Period)

Projects:

Medical Terminology and Medications

Hands-Only CPR Class Project (continued)

Quizzes (3) and Exams (4)

Introduction to surgical technique and laceration repair

Blood Chemistry and testing

Medical Math (continued)

Lehigh Valley Hospital site visit

Hands-on PPE and hand hygiene

Preparation for hospital clinical experience

Lehigh Valley Hospital clinical experience begins

Duty and Tasks Covered:

100 ORIENTATION

- 105 Identify dress code and the essence of good grooming.
- 111 Recognize both the physical and psychological indicators of stress in self and others and identify stress reduction techniques.
- 112 Demonstrate effective interpersonal conflict management skills.

200 LEGAL and ETHICAL

- 202 Maintain confidentiality of medical records and information as required by HIPAA.

300 COMMUNICATION

- 303 Document observations using appropriate terms.
- 305 Communicate in a respectful, adult manner, according to the clients stage of development and cultural background.
- 306 Identify chain of command in the organizational structure of health care and scope of practice.

500 SAFETY and BODY MECHANICS

- 502 Report Emergencies accurately and immediately.

700 HUMAN NEEDS and HUMAN DEVELOPMENT

- 701 Identify the ways to meet the client's basic human needs for life and well-being.
- 702 Identify and respect cultural diversity.
- 703 Recognize how age, illness, and disability affect psychosocial changes in the client.

1100 NUTRITION AND HYDRATION

- 1101 List general principles of basic nutrition/food pyramid.
- 1102 Identify and plan therapeutic diets.

1500 DEATH and DYING

- 1501 Discuss own feelings and attitude about death (verbal and/or written)
- 1502 Explain how culture and religion influence a person's attitude toward death.
- 1503 Discuss the goals of hospice care.

1900 MATHEMATICS IN ALLIED HEALTH

- 1901 Utilizes math applications according to allied health technology.

2000 CLINICAL ROTATIONS

- 2001 Demonstrates professional demeanor while at clinical site.
- 2002 Interacts appropriately with health care professionals, peers, clients.
- 2003 Employs protocol of health care facility.
- 2004 Observe and documents clinical experience in multiple health care disciplines.

Second Semester (Fourth Marking Period)

Projects:

- Medical Terminology and Medications
- Hands-Only CPR Class Project (continued)
- Quizzes (3) and Exams (2)
- Medical Math (continued)

Hands-on PPE and hand hygiene

Lehigh Valley Hospital clinical experience

Medical Case Study research and presentation (culminating project)

Duty and Tasks Covered:

500 SAFETY and BODY MECHANICS

502 Report Emergencies accurately and immediately.

600 EMERGENCY CARE and DISASTER PREPAREDNESS

601 Recognize signs when a client is choking or may have an obstructed airway.

602 Demonstrate knowledge of Basic Life Support with AED and Basic First Aid.

603 Follow Emergency Response/Crisis Plan Procedures in the facility.

604 Identify potential fire hazard.

700 HUMAN NEEDS and HUMAN DEVELOPMENT

701 Identify the ways to meet the client's basic human needs for life and well-being.

702 Identify and respect cultural diversity.

703 Recognize how age, illness, and disability affect psychosocial changes in the client.

2000 CLINICAL ROTATIONS

2001 Demonstrates professional demeanor while at clinical site.

2002 Interacts appropriately with health care professionals, peers, clients.

2003 Employs protocol of health care facility.

2004 Observe and documents clinical experience in multiple health care disciplines.

Supplemental Learning Activities

Students who participate in this program will also have opportunities to participate in the following program and school-sponsored activities:

SkillsUSA and HOSA: Students are eligible to participate on an individual or group basis at the SkillsUSA and HOSA Regional, State, National, and International Competitions.

Clinical Observation Experience: Students experience up to 50 hours of direct observation of healthcare workers at facilities such as Lehigh Valley Hospital (Cedar Crest and Muhlenberg), Miller Blood Bank, DeSales University, Moravian University, and Temple University Hospital.

Job Shadowing: Students are eligible to shadow health care employees in nursing, physical therapy, occupational therapy, medicine, and biomedical sciences.

Field Trips: Students in this program will attend field trips that expose them to educational experiences within the health career field, including Lehigh Valley Hospital, Miller Blood Bank, and The Mutter Museum (Philadelphia).

College Credit: Students will learn about earning college credit through the CLEP program and have the opportunity to concurrently take college courses at local community colleges and universities.

Leukemia & Lymphoma Society Student of the Year Campaign: Students are invited to apply and participate in a philanthropic leadership program where students can foster professional skills, such as entrepreneurship, marketing, and project management.

Hands-Only CPR Project: Students participate in a year-long project in conjunction with the Pennsylvania EMS Council teaching this life-saving skill in their communities. Pennsylvania public schools now require some sort of CPR training prior to graduating high school. Hands-only CPR training takes only a few minutes and meets this requirement.