

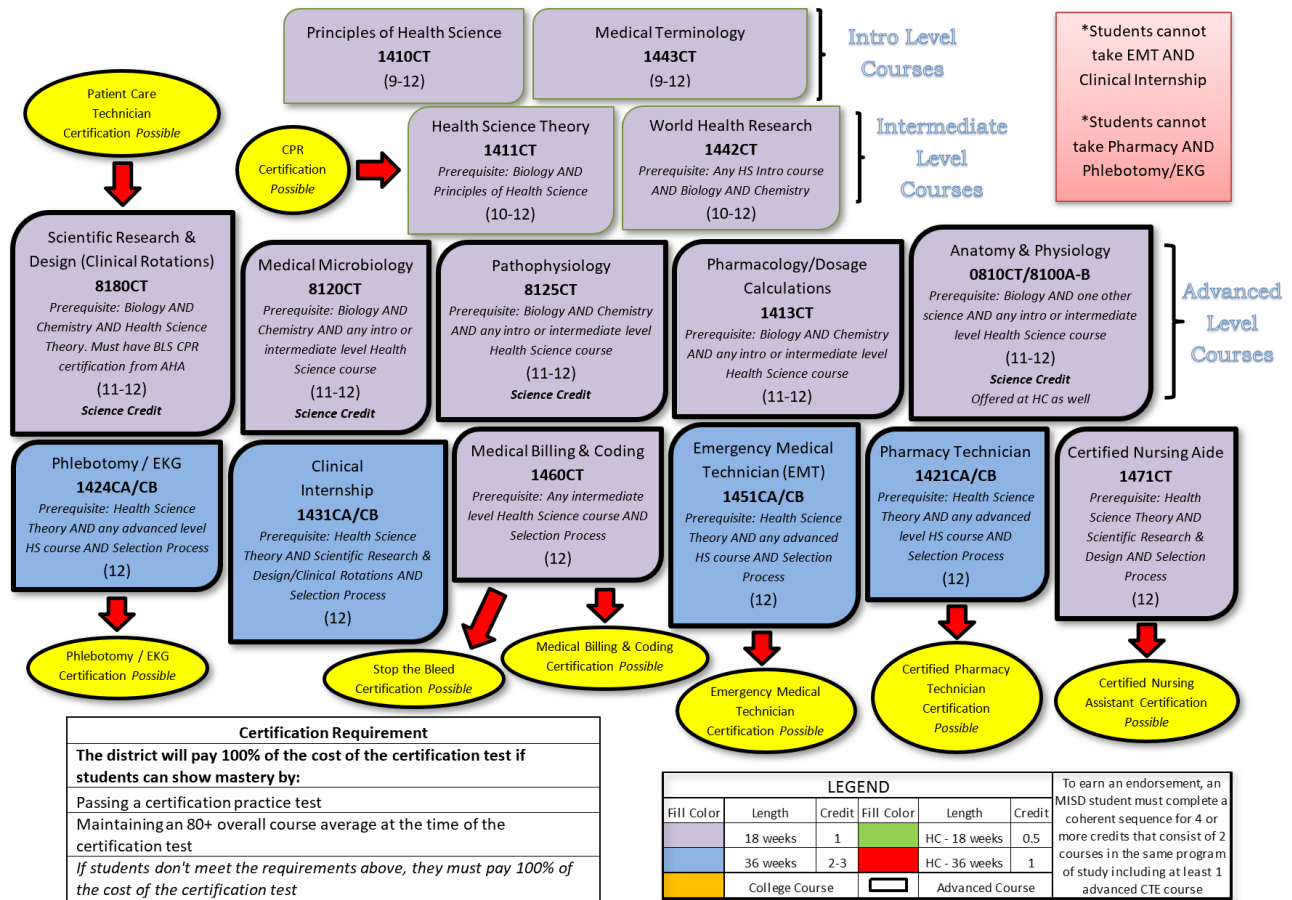
# Health Science

## Program of Study



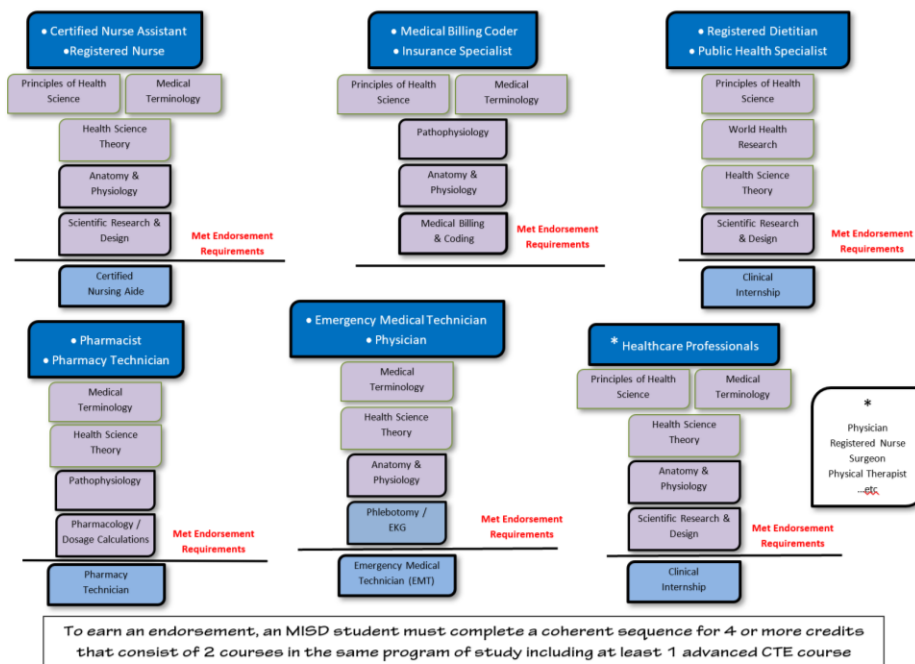
# HEALTH SCIENCE

## Endorsement: Public Services



## Health Science

### Recommended Career Pathways



# Principles of Health Science



**Prerequisite:** None

**Course:** 141OCT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 9-12

## Course Description

Principles of Health Science provides an introduction to careers in health care and explores the education and skills needed to attain various health care degrees. Students will gain insight into the functionality of the teamwork environment now utilized in the field of health care. This course strives to enhance the student's ability to successfully secure employment or pursue advanced education in health care, in order to one day transition to clinical or work-based experiences in health care.

## Student Activities

Students will have the opportunity to explore: how to build effective communication skills; examine medical ethics and legal responsibilities; discuss standards of patient care and safety; and explore the medical language used in a variety of health care settings.

## Advancement

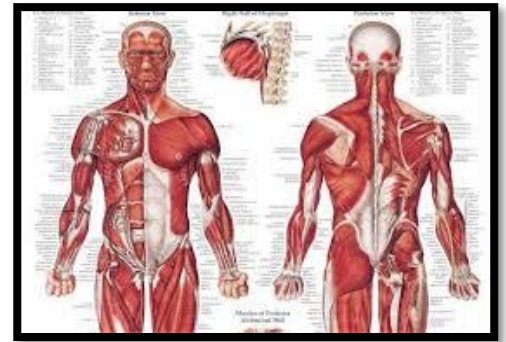
Principles of Health Science is designed to serve as an intro-level course required for eligibility into intermediate-level health science courses. This course is a prerequisite for many upper level Health Science Technology (HST) courses. Advancement in HSTE will be determined based on the student's class participation, grade, conduct, attendance, attitude, safety, and teacher recommendation.

## Organizations/After School/Competitions

Mansfield Medical Club



# Medical Terminology



**Prerequisite:** None

**Course:** 1443CT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 9-12

## Course Description

Learn the language of medicine while applying it to real-life emergency situations. Medical Terminology takes students from prefixes, suffixes and root words to dissecting the most complicated of medical terms. Be ahead of your peers and sound like a professional as you progress through the Health Science Program of Study.

## Student Activities

Bring language alive as you discuss, research, dissect terms, and create products to help you and your classmates learn medical terminology.

## Organizations/After School/Competitions

Mansfield Medical Club



**Start Learning Now!**

# Health Science Theory



**Prerequisite:** Principles of Health Science AND Biology

**Course:** 1411CT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 10-12

## Course Description

This course will give students the opportunity to further investigate areas of the health care field (diagnostic, therapeutic, health informatics, support services, and biotechnology research and development) and consider the importance of professional integrity as it relates to medical ethics and communication. Students will learn skills to prepare them for upper-level courses and a career in the medical field.

**This course is a prerequisite for ALL health science practicum courses.**

## Student Activities

Students will have the opportunity to learn patient assessment skills such as vital signs, and how to appropriately respond to emergency situations. Students will be trained in CPR and basic first aid. Multiple Project Based Learning opportunities will be available throughout this course.

## Advancement

This course is a prerequisite for all upper level Health Science Technology courses. Advancement in HSTE will be determined by the students' class participation, grade, conduct, attendance, attitude, safety, and teacher recommendation.

## Organizations/After School/Competitions

Mansfield Medical Club



## Certifications

CPR Certification Possible

Student Cost: \$6

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

## Additional Considerations

Cannot modify curriculum due to certification.



# World Health Research



**Prerequisite:** Any intro level Health Science course AND Biology AND Chemistry  
**Course:** 1442CT      **Credits:** 1      **Length:** 18 weeks      **Placement:** 10-12

## Course Description

This is a research-based course that examines the major health issues facing our world and the emerging technologies that may provide solutions to current medical problems. This course is designed to improve the student's understanding of the cultural, infrastructural, political, educational, and technological constraints that affect how health care is administered in the United States and in other parts of the world. World Health Research aims to inspire ideas for appropriate technological solutions to global health care issues.

## Student Activities

Students will have the opportunity to explore the developing world as they research the culture, economy, politics, and specific health concerns that people in developing countries face. Units covered in World Health Research include: history of disease and technology; worldwide health care systems; global health and economic data; globalization of health care; public health and epidemiology; chronic and age-related diseases; infectious diseases; mental health and illnesses; maternal and perinatal conditions; immunity and disease; and cutting-edge medical technology. A significant portion of this course revolves around a research project that gives students the chance to explore the major health issues that affect least-developed countries (LDC's).

## Doctors Without Borders



## Organizations/After School/Competitions

Mansfield Medical Club



# Scientific Research & Design



**Prerequisite:** Biology AND Chemistry AND Health Science Theory

**Course:** 818OCT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 11-12

## Course Description

This course expands on knowledge and skills attained in Medical Terminology & Health Science Theory. Students will develop an understanding of the human body, applying classroom concepts in a clinical setting while studying and achieving competency in skills needed to obtain a provisional certification as a Certified Patient Care Technician.

This course is for students interested in Clinical Internship and CNA.

This course can be used as a science credit.

## Student Activities

Students will have an opportunity to achieve competency in five domains needed to achieve the PCT certification: patient care, compliance, safety & professional responsibility, infection control, phlebotomy and ECG. **All students will complete a research project.**

**Course Fee:** a \$25 activity fee to help cover the cost of Liability Insurance, TB test, urine drug screening, back ground checks and patch.

## Organizations/After School/Competitions

Mansfield Medical Club  
SkillsUSA

## Certifications

Patient Care Certification Possible

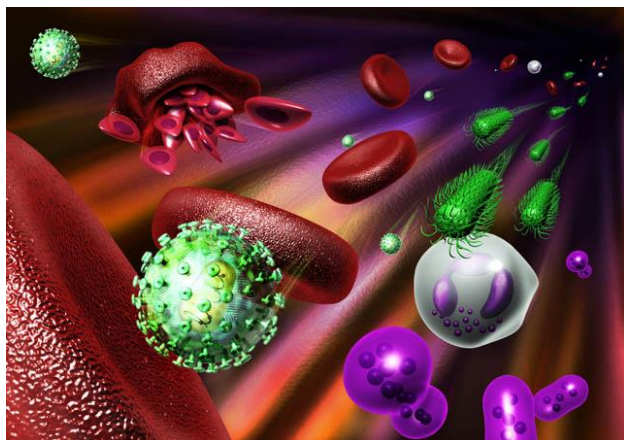
Student Cost: \$224

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

## Additional Considerations

Cannot modify curriculum due to certification.

# Medical Microbiology



**Prerequisite:** Biology AND Chemistry AND any intermediate level HS course

**Course:** 812OCT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 11-12

## Course Description

Students will study the relationships of microorganisms to wellness and disease. Students will develop knowledge and skills related to disease prevention by learning chain of infection, asepsis, and standard precautions. Pathogenic and nonpathogenic organisms will be identified to assist the understanding of specific diseases, causative agents, and treatment options.

**Note:** Course can be used as an additional science credit for graduation.

## Student Activities

This course will include the following laboratory activities: microscope use, slide fixation, medium fixation, staining (both simple and gram), and microorganism identification. This course will also contain, but is not limited to, projects over community awareness, pathogens, and diseases.

## Additional Considerations

Students must have successfully completed Biology and Chemistry without modification. Students need fine motor skills and mobility to work with sharp instruments.

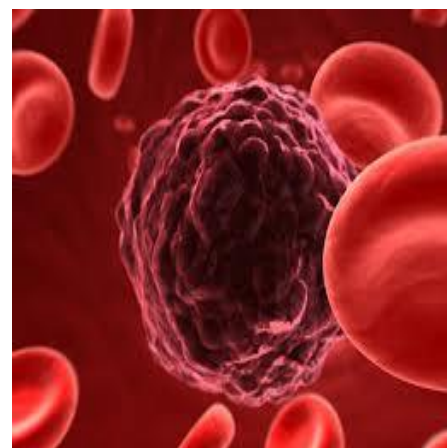
## Organizations/After School/Competitions

Mansfield Medical Club





# Pathophysiology



**Prerequisite:** Biology AND Chemistry & any intermediate level HS course

**Course:** 8125CT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 11-12

## Course Description

Students will study disease processes, and how the human systems are affected. Emphasis is placed on prevention and treatment of diseases. Students will differentiate normal and abnormal physiology.

**Note:** Course can be used as an additional science credit for graduation.

## Student Activities

This course requires students to develop microscope mastery, lab safety protocol, and demonstrate proper techniques to perform autopsies on animal specimens. Students will research mechanisms of disease, to include etiology, signs and symptoms, diagnosis, treatment, and prognosis of system specific disorders.

## Organizations/After School/Competitions

Mansfield Medical Club



# Pharmacology/ Dosage Calculations



**Prerequisite:** Biology AND Chemistry AND any intermediate level HS course

**Course:** 1413CT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 11-12

## Course Description

The objective of the class will be to introduce the general principles and practical application of pharmacology to future health professionals. This course is designed to strengthen the mathematical abilities of students so that they can be successful in the medical industry. This class should be used as an alternative for students who do not wish to obtain a pharmacy technician certification.

## Student Activities

The course content will provide students with an overview of drug classifications, drug actions, routes of administration, therapeutic uses, and adverse effects. Students will demonstrate mathematical knowledge and skills required to calculate medical dosages. Students will be evaluated through examinations and hands-on activities.

## Advancement

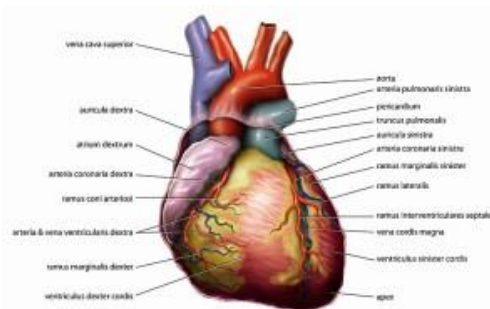
This course is a prerequisite for all upper level Health Science Technology courses. Advancement in HSTE will be determined by the students' class participation, grade, conduct, attendance, attitude, safety, and teacher recommendation.

## Organizations/After School/Competitions

Mansfield Medical Club



# Anatomy & Physiology



**Prerequisite:** Biology AND 1 other science AND any intermediate level HS course  
**Course:** 0810CT/8100 HC **Credits:** 1 **Length:** 18/36 we **Placement:** 11-12

## Course Description

Students will study the structure and function of the human body and the interaction of body systems for maintaining homeostasis.

**Note:** Course can be used as an additional science credit for graduation.

## Student Activities

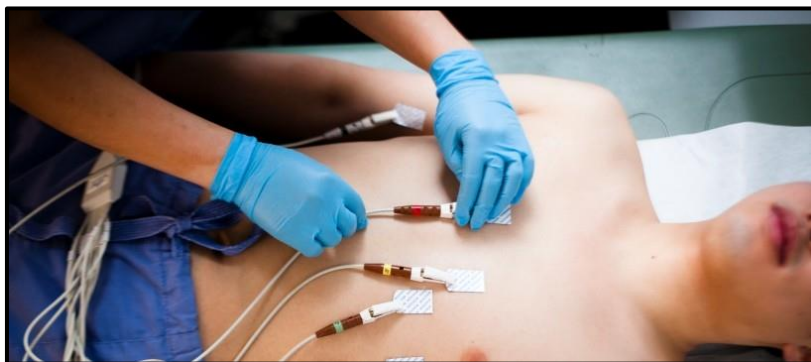
Students will do a comparative study of mammals with an in depth mammalian dissection. Human development, maintenance of homeostasis, transport systems and energy processes will also be topics of study. As part of the laboratory investigative process, students will be active in the dissection of prepared specimens.

## Organizations/After School/Competitions

**Mansfield Medical Club**



# Phlebotomy/EKG



**Prerequisite:** HS Theory AND any adv level HS Course AND selection process  
**Course:** 1424CT      **Credits:** 2      **Length:** 36 weeks      **Placement:** 12

## Course Description

This is a combines course which includes instruction in both electrocardiogram and Phlebotomy. Students will learn the needed knowledge, skills, vocabulary, mindset and professionalism to be successful in the healthcare field.

**Students cannot take Phlebotomy & EKG AND Pharmacy Technician**

## Student Activities

**EKG** – Students will learn the “how and why” of applying, obtaining and interpreting an ECG on both simulated and real-world patients.

**Phlebotomy** – Students will demonstrate tactile skill and practical knowledge which will allow them to effectively locate veins and obtain blood samples from both manikins and human subjects. Students will obtain the required minimum 25 successful venipunctures and 5 sticks per NCCT requirements.

## Certifications

Phlebotomy Certification Possible  
Student Cost: \$117  
EKG Certification Possible  
Student Cost: \$115

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

## Additional Considerations

Cannot modify curriculum due to certification.

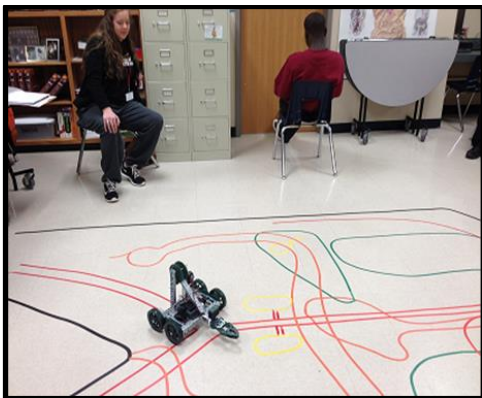
## Organizations/After School/Competitions

Mansfield Medical Club





# Clinical Internship



**Prerequisite:** Health Science Theory AND Scientific Research & Design/Clinical Rotations AND Selection Process

**Course:** 1431CA/1431CB    **Credits:** 2    **Length:** 36 weeks    **Placement:** 12

## Course Description

The Clinical Internship class is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. Students are responsible for independent study supervised by instructor and clinical supervisors. Students must provide their own transportation to internship sites. Prerequisite courses are Medical Terminology/Principles of HealthCare and Skills/A&P and advancement through the selection process.

**Students cannot take Clinical Internship AND EMT**

## Student Activities

Students spend a portion of class time at off campus internships in health care settings. In class activities are largely centered around project based lessons on many interesting and relevant health care topics. Students develop patient care skills such as phlebotomy, IV therapy, foley catheter insertion and childbirth. Students will also have the opportunity to develop their speaking and leadership skills in many varied situations.

There is a \$25 course fee to help cover the cost of Liability Insurance, TB test, urine drug screening, background checks and patch.

## Organizations/After School/Competitions

Mansfield Medical Club



## Additional Considerations

Students must provide their own transportation and complete independent internship. Students need fine motor skills and mobility.

# Medical Billing & Coding



**Prerequisite:** Any intermediate Health Science course AND Selection Process

**Course:** 1460CT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 12

## Course Description

The medical billing and coding program offers a unique opportunity for students to learn the business side of medicine. A detailed curriculum takes the students through every step of this of growing field and prepares each student for a future in the medical industry.

## Student Activities

This course requires students to develop patient bill routines, entering patient demographics, generating financial reports, posting transactions and entering payments, medical administrative duties, and medical records management.

Recommended courses include Pathophysiology and Medical Terminology/CPR/First Aid.

## Certifications

Upon successful completion of the Medical and Billing Program, students will be qualified to sit the national certification exam through the **National Certified Insurance Coding Specialist**. (NCICS)

Medical Billing & Coding Certification Possible  
Student Cost: \$90  
Stop the Bleed Certification Possible  
Student Cost: \$0

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

## Organizations/After School/Competitions

Mansfield Medical Club



## Additional Considerations

Cannot modify curriculum due to certification.

# Emergency Medical Technician (EMT)



**Prerequisite:** Health Science Theory AND Selection Process

**Course:** 1451CA/1451CB    **Credits:** 3    **Length:** 36 weeks    **Placement:** 12

## Course Description

This 3.0 credit senior level course is designed to prepare the student to perform at minimum entry-level emergency care in the pre-hospital environment. Emphasis of this course includes recognizing the nature and seriousness of the patient's condition, administering appropriate emergency medical care, moving and positioning the patient to minimize discomfort and prevent further injury.

**Students cannot take EMT and Clinical Internship**

## Student Activities

Students will master skills such as patient assessment, vital sign monitoring, splinting fractures, immobilizing the neck and spine, moving and transporting patients, oxygen administration, various drug administrations, and Basic Life Support. Once the student has passed the National Skills test, the student will rotate through hospital emergency rooms and fire department ambulance services.

There is a \$100 course fee to help cover the cost of Liability Insurance and TB test and a security background check and drug screening through MedStar. A uniform is required for this class. Students are required to purchase pants, shoes, undershirt, watch and belt.

## Certifications

Emergency Medical Technician Certification  
Possible  
Student Cost: \$85

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

Student must be 18, a high school graduate, meet course requirements and pass skills testing to be eligible to take the certification exam

## Competitions

Mansfield Medical Club



## Additional Considerations

Students need fine motor skills and mobility.  
If seeking certification, curriculum cannot be modified

# Pharmacy Technician



**Prerequisite:** Health Science Theory AND Selection Process

**Course:** 1421CA/1421CB    **Credits:** 2    **Length:** 36 weeks    **Placement:** 12

## Course Description

The curriculum will place emphasis on the pharmaceutical knowledge and laboratory skills required of health care workers while offering students the opportunity to add an industry certification to their professional portfolio. Those who successfully complete this course will be expected to take the National Pharmacy Technician Certification exam upon graduation.

**Students cannot take Pharmacy Technician AND Phlebotomy & EKG**

## Student Activities

Students will be introduced to industry standards in the pharmacy classroom lab designed to utilize the skills required of a pharmacy technician.

Students who enroll in this course will be required to participate in 36 hours of clinical externship portion of the class and must meet the requirements of the Texas State Board of Pharmacy to be approved as a Pharmacy Technician Trainee. Students will be responsible for their own transportation to the approved clinical externship sites during after school hours.

There is a \$25 course fee to help cover the cost of Liability Insurance, TB test, urine drug screening, back ground checks and patch. Students must obtain a Pharmacy Technician Trainee certificate (approximate cost \$97).

## Certifications

Emergency Medical Technician Certification Possible  
Student Cost: \$130

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test  
Student must be a high school graduate to take certification test

## Organizations/After School/Competitions

Mansfield Medical Club

## Additional Considerations

Cannot modify curriculum due to certification.





# Certified Nursing Aide



**Prerequisite:** HS Theory AND Scientific Research AND Selection Process

**Course:** 1471CT

**Credits:** 1

**Length:** 18 weeks

**Placement:** 12

## Course Description

The course prepares students to provide direct care to residents under the supervision of a registered nurse or other member of the medical staff. Classroom and clinical instruction will prepare students to handle a wide range of tasks related to resident care.

## Student Activities

Students will be expected to assist patients with activities of daily living, bedside care, obtaining vital signs and other basic nursing skills.

There is a \$25 course fee to help cover the cost of Liability Insurance, TB test, urine drug screening, back ground checks and patch.

## Certifications

Certified Nursing Assistant Certification  
Possible

Student Cost: \$95

Certification paid for by CTE if student has an 80+ GPA in course and passes a practice test

## Organizations/After School/Competitions

Mansfield Medical Club

## Additional Considerations

Students need fine motor skills and mobility.  
Cannot modify curriculum due to certification.



# Health Science Certifications

Name	Course	Provider	Cost
CPR	Health Science Theory	American Heart Association	Student Pays: \$6
The certification will be completed in the classroom at Ben Barber and there are no age restrictions. There is a written exam and students must successfully perform skills related to AED and CPR for adults, children & infants.			
Certified Nursing Aide	Certified Nursing Aide	Texas Department of Aging & Disability Pearson-Yue	Student Pays: \$95
Students must complete 100 hours of instruction before taking the exam. 60 hours are classroom activities and 40 hours are clinical internships in our community partner's facilities. The test is taken online at Ben Barber. It consists of 70 questions and there is a 2 hour time limit. Students must also successfully demonstrate their ability to complete 5 skills test. Students must be 16 years or older to take the CNA exam.			
National Certified Insurance Coding Specialist	Medical Billing & Coding	National Center for Competency Testing	Student Pays: \$90
Students must complete all Medical Billing & Coding coursework before they sit for the exam. The certification exam is taken at Ben Barber and consists of 130 questions that must be completed in 2 ½ hours. The topics tested on the exam include medical insurance, medical billing, collections, claim processes, ICD-10, HCPCS, CPT and law & ethics.			
Emergency Medical Technician - B	Emergency Medical Technician	National Registry of Emergency Medical Technicians	Student Pays: \$85
Students must be 18 years or older to take this certification exam. Students are also required to complete 2 - 16 hour rotations with an approved Fire Department's EMS unit and 3 - 12 hour rotations at an approved hospital's emergency room. The certification consists of a written, multiple choice exam and psychomotor skills assessment over all components of EMS.			
Certified Pharmacy Technician	Pharmacy Technician	Pharmacy Technician Certification Board	Student Pays: \$129
Students must be 17 years or older and a high school graduate to take this certification exam. Test must be taken at a Pearson-Yue Testing Facility and the closest site is in Hurst, Texas. There is a course requirement that all students complete a 20 hour externship at an approved pharmacy before taking the certification exam. The test consists of 90 questions and must be completed in 1 hour, 50 minutes.			
EKG	Phlebotomy/EKG	National Centers for Competency Testing	Student Pays: \$115
<a href="https://www.ncctinc.com/Documents/ECG%20Technician%20Detailed%20Test%20Plan.pdf">https://www.ncctinc.com/Documents/ECG%20Technician%20Detailed%20Test%20Plan.pdf</a>			
Phlebotomy	Phlebotomy/EKG	National Centers for Competency Testing	Student Pays: \$117
<a href="https://www.ncctinc.com/Documents/PT%20Detailed%20Test%20Plan.pdf">https://www.ncctinc.com/Documents/PT%20Detailed%20Test%20Plan.pdf</a>			
Patient Care Technician	Scientific Research & Design	National Centers for Competency Testing	Student Pays: \$224

<https://www.ncctinc.com/Documents/Patient%20Care%20Technician%20Detailed%20Test%20Plan.pdf>

Stop the Bleed

Medical Billing & Coding

American College of  
Surgeons

Student Pays: \$ 0

<https://www.bleedingcontrol.org/>