



# UNMC College of Allied Health Professions

## Radiation Science Technology Education Program Guide

Listed are MCC courses that satisfy the University of Nebraska Medical Center Radiation Science Technology admission requirements.

For more information contact:

Office of Student Services  
**Metropolitan Community College**  
**Elkhorn Valley Campus**  
 (402) 289-1205  
**Fort Omaha Campus**  
 (402) 457-2705  
**South Omaha Campus**  
 (402) 738-4505  
**Sarpy Center**  
 (402) 537-3800  
**Fremont Area Center**  
 (402) 721-2507  
**Applied Technology Center**  
 (402) 763-5800  
[www.mccneb.edu](http://www.mccneb.edu)

University of Nebraska  
**Medical Center**  
 College of Allied Health Professions  
 Academic & Student Affairs  
 (402) 559-6673  
[cahpadmissions@unmc.edu](mailto:cahpadmissions@unmc.edu)  
[www.unmc.edu/alliedhealth](http://www.unmc.edu/alliedhealth)

UNMC Admission Course Requirements	Metropolitan Community College Courses			Quarter Hours
English Composition	ENGL	1010	English Composition I	4.5
	ENGL	1020	English Composition II	4.5
Statistics	MATH	1410	Statistics	4.5
College Algebra or Calculus	MATH	1420	College Algebra... <b>OR</b> a higher algebra or calculus class	5
Medical Terminology	HIMS	1120	Medical Terminology I	4.5
Chemistry with Lab	CHEM	1010	College Chemistry	6
Anatomy & Physiology	BIOS	2310	Human Anatomy and Physiology I	6
General Physics	PHYS	110ABC	Principles of Physics IA, IB, IC	7.5
Communications	SPCH	1110	Public Speaking	4.5
Humanities or Social Sciences	ARTS	1110	Art History – Ancient to Gothic	4.5
Select 2 courses	ARTS	1120	Art History – Renaissance to Modern	4.5
Preferred courses are marked *	ECON	1000	Macroeconomics	4.5
	ECON	1100	Microeconomics	4.5
	HIST	1010	United States History to 1877	4.5
	HIST	1020	United States History from 1877 to Present	4.5
	HIST	2050	Modern Europe Since 1815	4.5
	PHIL	1010	Introduction to Philosophy	4.5
	PHIL	1100	Critical Reasoning	4.5
	PHIL	2030	Introduction to Ethics	4.5
	POLS	2050	American National Government	4.5
	POLS	2070	Contemporary Social/Political Issues	4.5
	PSYC	1010	Introduction to Psychology *	4.5
	SOCI	1010	Introduction to Sociology *	4.5
	SOCI	1250	Introduction to Anthropology	4.5
	SOCI	2050	Current Social Problems	4.5
	<b>Recommended Electives</b>	BIOS	1010	Introduction to Biology
22.5 quarter hours required for core programs	BIOS	2150	Microbiology	6
	BIOS	2320	Human Anatomy and Physiology II	6
	ENGL	1310	Creative Writing	4.5
	HIMS	1130	Medical Terminology II	4.5
	INFO	1001	Information Systems & Literacy	4.5
	PHYS	111C	Principles of Physics IIA, IIB, IIC	7.5
		Any additional Humanities or Social Sciences course listed above.		

### UNMC Program Notes

- A minimum of 75 quarter hours (50 semester hours) is necessary before a student can be accepted into the Radiography program.
- Application deadline is January 15 for enrollment into the following Fall semester.
- Completion of all the required courses does not guarantee admission to the Radiation Science Technology Education programs.
- The Radiation Science Technology Education programs admit students in the fall of each year. Admission into the Radiation Science Technology Education programs is very competitive. The following are considered for admission:
  - Students should have a minimum total GPA of 3.0 to be competitive.
  - Interview with admissions committee, if invited.
  - Job Shadowing, volunteer work, activities, work experience and good references.
  - A thorough understanding of the diagnostic medical imaging professions.

See page two for information on the Radiation Sciences Technology Education Program and its many possible related career specialties.



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### Information about Radiation Sciences Technology

UNMC offers several programs in the Radiation Science areas. The Radiologic Technology and Nuclear Medicine Technology are two-year core programs. UNMC also offers certification in the following second modalities: Sonography, Radiation Therapy, Computed Tomography/Magnetic Resonance Imaging, and Cardiovascular/Interventional Technology (CVIT). To complete these programs, the student would take an additional year of coursework after completion of a two-year core program.

#### What is Radiography?

Radiography is a clinical specialty which combines the art and science of using ionizing radiation to obtain detailed images of the human body. These images are used by a radiologist to assess patient condition and accurately diagnose disease processes. Imaging specialties found within the radiography profession include: Mammography, Surgical Radiography, Computed Tomography, Bone Densitometry, Magnetic Resonance Imaging, Quality Management and CVIT.

#### What is Nuclear Medicine Technology?

Nuclear Medicine is the healthcare field which applies radioactive pharmaceuticals in the diagnosis, treatment and investigation of human disease. Nuclear Medicine is unique in that it documents organ function and structure, providing vital information to assess the patient's condition. Nuclear Medicine technologists are a part of the health care team, imaging patients, treating disease and working with Physicians to provide high quality care.

#### What is Diagnostic Medical Sonography?

Sonography, or ultrasound, uses high frequency sound waves (not x-rays) to obtain diagnostic images. Ultrasound imaging is used to evaluate many parts of the body, such as the abdomen, blood vessels, fetus of pregnant women, superficial body structures and newborn brains. The sound waves used to obtain these images are at a frequency above the range of human hearing. Sound waves are emitted from the ultrasound machine into the body. The waves enter the body and are returned to the ultrasound machine where they are electronically converted into an image. These images are interpreted by a radiologist to provide a diagnosis for the referring physician.

#### What is Radiation Therapy?

Radiation Therapy is a clinical specialty in which high energy x-rays are used to manage and treat different types of cancer and occasionally some non-malignant conditions. The radiation "ionizes" or breaks apart the cells, causing the cells to lose their ability to reproduce. Radiation therapy may be used alone or in conjunction with surgery and/or chemotherapy in the treatment of cancer. The Radiation Therapist is a professional who works closely with the Oncologist to deliver a precise treatment to their patients. Therapists have a special rapport with their patients due to the fact treatments are scheduled daily for approximately 6-8 weeks. Therapists are able to communicate at a level more extensive than many health care professions giving their patients an added comfort during a difficult time in their lives.

#### What is Computed Tomography?

Computed Tomography (CT) uses a number of thin, rotating x-ray beams and a computer to create cross sectional (axial) images. The computer measures the intensity of x-rays which are transmitted through the patient and displays the information as an image on a television type monitor.

#### What is Magnetic Resonance Imaging?

Magnetic Resonance Imaging (MRI) uses a strong magnetic field and radio waves to create images of the body. The magnetic field causes atoms inside the human body to become aligned. After alignment, a radio wave is used to "excite" the atoms. Once the radio signal is turned off the atoms give off a small characteristic signal. The small signals are measured with a sensitive antenna called an MRI coil. This process is repeated many times until enough measurements are detected to create a series of detailed images. MRI does not use any ionizing radiation, and can create images of almost any body part oriented in any direction.

#### What is CVIT?

Cardiovascular/Interventional Technology (CVIT) is an integral and advancing component of diagnostic and therapeutic radiologic procedures. CVIT include angiography, nonvascular procedures, interventional procedures (i.e. angioplasty), venography as well as central venous access procedures using sophisticated equipment (eg. catheters, dilators, guidewires, stent, and embolization material) and imaging techniques (fluoroscopy, and digital imaging).