



KAISER PERMANENTE®
School of Allied Health Sciences (KPSAHS)

KPSAHS CATALOG
Effective Years: 2010 -2012

KPSAHS

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“The School of Choice!”
“Learn, Achieve, Thrive!”

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ACADEMIC CALENDAR 2010

Quarter	First Day of Quarter	Last Day of Class	Final Exams	Inter-Quarter Break Period	Observed Holidays
Winter Rad-D: Qtr 2 & 6 Rad-E: Qtr 3 & 7 Sono, Nuc Med, RTT: Qtr 6	January 4, 2010	March 19, 2010	March 22-26, 2010	March 29-April 2, 2010	MLK Birthday January 18, 2010 (Closed to public) President's Day February 15, 2010
Spring Rad-D: Qtr 3 & 7 Rad-E: Qtr 4 & 8 Sono, Nuc Med, RTT: Qtr 1	April 5, 2010	June 18, 2010	June 21-25, 2010	June 28-Jul 2, 2010	Memorial Day May 31, 2010 Independence Day July 4-5 (Closed to Public)
Summer Rad-D: Qtr 4 & 8 Rad-E: Qtr 1, 5& 9 Sono, Nuc Med, RTT: Qtr 2	July 6, 2010	September 17, 2010	September 20-24, 2010 KPSAHS Graduation Sept 24, 2010 (Closed to public)	September 27- October 1, 2010	Labor Day September 6, 2010 KPSAHS Graduation Sept 24, 2010 (Closed to public)
Fall Rad-D: Qtr 1 & 5 Rad-E: Qtr 2 & 6 Sono, Nuc Med, RTT: Qtr 3	October 4, 2010	December 17, 2010	Dec 20-24, 2010	Dec 27-31, 2010	Thanksgiving Nov 25-26, 2010 (Closed to public) Dec 20-31, 2010 (Closed to Public)

***Dates are subject to change due to KPSAHS events. KPSAHS may observe additional holidays.**

Rad-D	Radiography Day Program
Rad-E	Radiography Evening/Weekend Program
Sono	Sonography Program
NucMed	Nuclear Medicine Program
RTT	Radiation Therapy Program

ACADEMIC CALENDAR 2011-2012

Quarter	First Day of Quarter	Last Day of Class	Final Exams	Inter-Quarter Break Period	Observed Holidays
Winter Rad-D: Qtr 2 & 6 Rad-E: Qtr 3 & 7 Sono, Nuc Med, RTT: Qtr 4	Jan 3, 2011	March 18, 2011	March 21-25, 2011	Mar 28-- Apr 1, 2011	MLK Birthday January 17, 2011 (Closed to public) President's Day February 21, 2011
Spring Rad-D: Qtr 3 & 7 Rad-E: Qtr 4 & 8 Sono, Nuc Med, RTT: Qtr 5	April 4, 2011	June 17, 2011	June 20-24, 2011	June 27-Jul 1, 2011	Memorial Day May 30, 2011
Summer Rad-D: Qtr 4 & 8 Rad-E: Qtr 1, 5& 9 Sono, Nuc Med, RTT: Qtr 2	July 5, 2011	September 16, 2011	September 19-23, 2011 KPSAHS Graduation Sept 22, 2011	September 26-30, 2011	Independence Day July 4, 2011 Labor Day September 5 KPSAHS Graduation Sept 22 (Closed to public)
Fall Rad-D: Qtr 1 & 5 Rad-E: Qtr 2 & 6 Sono, Nuc Med, RTT: Qtr 3	October 3, 2011	December 16, 2011	Dec 19-23, 2011	Dec 26-30, 2011	Thanksgiving Nov 24-25, 2011 (Closed to public) Dec 26-30, 2011 (Closed to Public)
Winter Rad-D: Qtr 2 & 6 Rad-E: Qtr 3 & 7 Sono, Nuc Med, RTT: Qtr 4	Jan 3, 2012	March 16, 2012	March 19-23, 2012	Mar 26-30, 2012	January 2, 2012 (Closed to public Observe Jan 1 st . Holiday) MLK Birthday January 16, 2012 (Closed to public) President's Day February 20, 2012
Spring Rad-D: Qtr 3 & 7 Rad-E: Qtr 4 & 8 Sono, Nuc Med, RTT: Qtr 5	April 2, 2012	June 15, 2012	June 18-22, 2012	June 25-29, 2012	Memorial Day May 28, 2012

*Dates are subject to change due to KPSAHS events. KPSAHS may observe additional holidays.

Rad-D	Radiography Day Program
Rad-E	Radiography Evening/Weekend Program
Sono	Sonography Program
NucMed	Nuclear Medicine Program
RTT	Radiation Therapy Program

GENERAL INFORMATION ABOUT KPSAHS

MISSION STATEMENT

The mission of the Kaiser Permanente School of Allied Health Sciences (KPSAHS) is to prepare qualified students in the field of allied health through traditional educational methods and distance learning. Through a combination of didactic and clinical education, our programs and courses provide a Certificate of Completion. Graduates are prepared to sit for the examinations administered by the licensing, certifying, or registering body within their field of study.

All programs and courses uphold the responsibility of guiding students toward achieving educational goals and strive for excellence in assessing student learning. Students are provided opportunities to develop skills in team building, critical thinking, cultural sensitivity, and effective communication. Clinical experience instills appropriate attitudes, and fosters affective growth in providing care and responding to the needs of a diverse service population. KPSAHS promotes professional growth and life-long learning with emphasis on ethical behavior in all aspects of the educational experience.

HISTORY

KPSAHS was established in 1989 as a hospital-based School of Radiology, fully accredited by the Joint Committee on Education in Radiologic Technology (JRCERT). The first campus was located at 1025 MacDonald Avenue in Richmond, CA, and was developed to meet the demands of technologist shortages and provide community outreach and vocational training.

In response to Kaiser's needs and regulatory changes, advance certificate programs in mammography, fluoroscopy, and venipuncture were developed in 1995. In 2000 a Diagnostic Medical Sonography program was developed and implemented, with a Nuclear Medicine Technology certificate program following in 2002. With the growth of enrollment, the School relocated to 325 Harbour Way in Richmond. The name of the School changed to Kaiser Permanente School of Allied Health Sciences to reflect a changing program mix and long term strategic plans.

In 2003 the School relocated to its present location at 938 Marina Way South in Richmond, CA to accommodate further student enrollment growth. In the same year, KPSAHS was granted approval to operate as a vocational school by the California Bureau of Private Post-Secondary and Vocational Education. A phlebotomy certificate program and Health Academy was also developed and implemented that year. In 2004 a Radiation Therapy Program was developed and implemented, with an Electroneurodiagnostic Technology certificate program following in 2008.

KPSAHS provides educational programs and promotes learning to develop a skilled allied health work force, and to improve the quality and access of health care services in the communities it serves. To assist students achieve these outcomes, KPSAHS, as the "School of Choice", provides quality teaching, curriculum and support services. Further, KPSAHS uses current technology in the classroom and laboratory setting including computer-based training, clinical simulators, and videoconference equipment for distance learning.

GOALS

KPSAHS will provide its community access to the educational programs and services in order to strengthen the economic and social environment, and add cultural diversity. The institution will support lifelong educational development to meet the needs, interests, and abilities of its students. KPSAHS will offer programs and services that are responsive and flexible and will maintain an organizational review that verifies and improves educational effectiveness and ensures successful outcomes of its graduates.

ORGANIZATION STRUCTURE, PROGRAM ACCREDITATIONS, AND APPROVALS

Kaiser Permanente Medical Group and Kaiser Foundation Hospitals

Kaiser Permanente was founded in 1945 and is the nation's largest nonprofit health plan, extending across 9 states and the District of Columbia. Kaiser Permanente serves over 3 million members in Northern California and provides full-service clinical partners for our educational programs throughout the greater Bay Area and Sacramento region. Kaiser Permanente aspires to be the world leader in improving health through affordable, integrated care. Its strong social mission and an enduring partnership between our health plan and our medical groups distinguish Kaiser Permanente.

Ownership

KPSAHS is an operating department within a type C Corporation of The Permanente Medical Group, Inc. (TPMG).

Program Accreditation

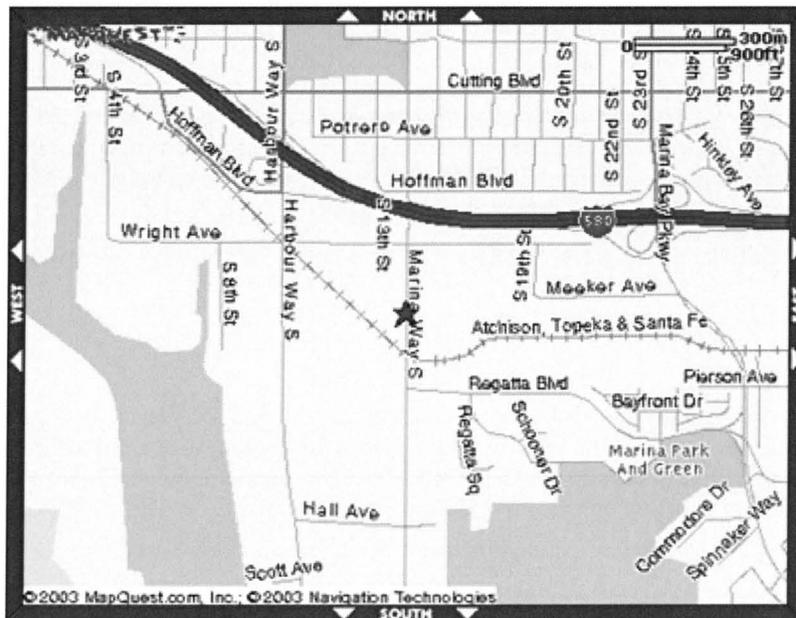
Organization	Address	Accreditation Status and Accredited Programs
California Department of Public Health (CDPH)	California Department of Public Health, MS 7610 P.O. Box 997414 Sacramento, CA 95899-7414 Phone (916) 327-5106	The Program is a recognized provider of education in Radiologic Technology by the California Department of Health Services, California Department of Public Health. Radiology School Code: 0028 Fluoroscopy School Code: 0099 Mammography School Code: 0013 Radiation Therapy School Code: 0060
Joint Review Committee on Education in Radiologic Technology (JRCERT)	20 N. Wacker Drive Suite 2850 Chicago, IL 60606-3182 Phone: (312) 704-5300 Fax: (312) 704-5304 E-mail: mail@jrcert.org	Radiography Program JRCERT Program Number: 47850000 Radiation Therapy Program JRCERT Program Number: 09090000
Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS)	2025 Woodlane Drive St. Paul, MN 55125-2998 651-731-1582 jrc-dms@jcahpo.org www.jrcdms.org	Diagnostic Medical Sonography Program JRC-DMS Program Number: 110109
The Commission on Accreditation of Allied Health Education Programs (CAAHEP)	1361 Park Street Clearwater, FL 33756 Phone: (727) 210-2350 Fax: (727) 210-2354	The Commission on Accreditation of Allied Health Education Programs (CAAHEP) certifies that the Diagnostic Medical Sonography Program has completed an accreditation review and is judged to be in compliance with the nationally established standards.
Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT)	2000 W. Danforth Rd., Ste. 130 #203 Edmond, OK 73003 Telephone: (405) 285-0546 Fax: (405) 285-0579 Email: jrcnmt@coxinet.net	Nuclear Medicine Program JRCNMT Program Code: 905860
State of California Department of Public Health. Laboratory Field Services	East Bay District Office 850 Marina Bay Parkway Building P, 1st Floor Richmond, CA 94804	Phlebotomy Program

Institutional Recognition

Kaiser Permanente School of Allied Health Sciences (KPSAHS) was approved to operate as a certificate granting institution by the former Bureau for Private Postsecondary and Vocational Education. This approval continues to be operational. KPSAHS' application for approval to operate as a degree granting institution is pending review by the Bureau for Private Postsecondary Education.

LOCATIONS

- **RICHMOND CAMPUS**
938 Marina Way South
Richmond CA 94804



- **DAVIS SATELLITE CLASSROOM**
1955 Cowell
Davis, CA 95616

Satellite Classroom for Radiography Program, Day-track only

KPSAHS utilizes a satellite classroom located in Davis, California. Students at satellite classroom receive identical didactic instruction as students at the main Richmond campus. Due to the limited amount of space at the satellite classroom, it may be necessary to assign students to these sites on a lottery basis. Assignment of students to this site is performed as follows:

- ◇ Students will be surveyed regarding the use of the satellite classroom
- ◇ If the number of students who request the satellite classroom exceeds capacity, assignment will be made by lottery.
- ◇ The lottery will be held during the orientation period prior to start of the program
- ◇ All interested students will be assigned an identification number
- ◇ The numbers will be placed in a container and withdrawn one at a time
- ◇ Numbers will be drawn until all available space has been filled
- ◇ Students who are assigned to the satellite classroom may not exchange their assignment with any other student in the program.
- ◇ Students who are assigned to a satellite classroom are required to perform all of their didactic studies at that campus.
- ◇ If an opening occurs at a satellite classroom or a student assigned to a satellite classroom wants to give up their assignment, the reassignment of the opening is the responsibility of the Program. The student may not offer or give their assignment to another student in the program.
- ◇ If an opening occurs during the course of the program, the reassignment of the opening will be made according to the procedures stated in this policy.
- ◇ Students are allowed only one transfer among classrooms for the duration of the program.
- ◇ All selections are final
- ◇ Assignments are for the entire length of the program

ACADEMIC PROGRAMS OFFERED AT KPSAHS

CERTIFICATE PROGRAMS

Radiography Program

KPSAHS offers 2 Radiography programs: the 24 month (8 quarters) Day Time Program and the 27 month (9 quarters) Evening and Weekend Program. Each track provides didactic and clinical education in radiography. Clinical experience occurs at partnering clinical education sites throughout Northern California. Program participants can expect substantial off-campus study and preparation for classroom lecture and lab exercises.

Upon completion of this program, graduates are eligible to apply for state and national certification examinations.

Sonography Program

The 18-month (6 quarters) Sonography Program provides didactic and clinical education in abdominal, obstetrical and gynecologic specialty areas. The program is a general concentration curriculum with a limited introduction to basic vascular sonography. Clinical experience occurs at partnering clinical education sites throughout Northern California. Program participants can expect substantial off-campus study and preparation for classroom lecture and lab exercises.

Upon completion of the program, graduates are eligible to sit for the national registry examinations in Physics, Abdomen and OB/Gyn.

Nuclear Medicine Technology Program

The 18-month (6 quarters) Nuclear Medicine Program provides didactic and clinical education in Nuclear Medicine. Clinical experience occurs at partnering clinical education sites throughout Northern California. Program participants can expect substantial off-campus study and preparation for classroom lecture and lab exercises.

Upon completion of this program, graduates are eligible to apply for state and national certification examinations.

Radiation Therapy Program

The 18-month (6 quarters) Radiation Therapy Program provides didactic and clinical education in radiation therapy. Clinical experience occurs at partnering clinical education sites throughout Northern California. Program participants can expect substantial off-campus study and preparation for classroom lecture and lab exercises.

Upon completion of this program, graduates are eligible to apply for state and national certification examinations.

Phlebotomy Basic and Advance Program

The 320 hour Basic/ Advanced Certified Phlebotomy Technician (CPT) I & II Program provide didactic and clinical education for individuals who seek to work in a clinical laboratory as a Phlebotomy Technician with California CPT I & II Certification.

Graduates of the Basic/Advanced CPT Program will receive a CPT I Certificate of Completion and will be eligible to sit for the national certification examination. Graduates from the CPT I program interested in obtaining CPT II certification must submit additional documentation that they have completed 20 arterial punctures. Clinical training for arterial punctures is not included in the KPSAHS curriculum. Graduates must complete the required arterial punctures on their own. Once a graduate has submitted documentation verifying completion of 20 arterial punctures, KPSAHS will provide a CPT II Certificate of completion.

PROGRAMS OF STUDY

RADIOLOGIC SCIENCES

Radiography Program

Program Staff

Program Director: Gregory Wheeler, BA, CRT (F)
Assistant Program Director: Steve Diaz, BVE, CRT (F), RT (R)

Faculty: Kelly Angel, MEd, CRT (M) (F), RT (R) (M) (CT) (MR)
Michelle Henderson, BS, CRT, RT(R)
Audrey Lee, BA, CRT (F) (M), RT (R) (CT)
Lindsey Swift, CRT (F), RT (R)

Program Description

The Radiography Program trains students in methods of obtaining high-quality diagnostic images. Students learn techniques involved in conscientious selection of exposure factors, optimal positioning of anatomy and diligent application of safety measures to protect the patient and others in close proximity from the potentially harmful effects of x-rays.

Radiographer Duties

The radiographer is responsible for producing diagnostic images using various types of x-ray producing equipment and image-processing and recording devices.

Program Structure (Day Track)

The 24-month (8 Quarters, 88 weeks, 2727 total hours = 122 credits) continuous Radiography program provides didactic and clinical education for potential Radiographers. Clinical experience occurs at partnering medical centers and medical offices in Northern California. Program participants can expect substantial off-campus study and preparation for classroom lecture and lab exercises. Major holidays are observed and break periods are observed between academic quarters. Annual academic calendars are published in advance. Upon completion of this program, graduates are eligible to sit for state and national certification examinations.

Program Structure (Evening Track)

The 27-month (9 Quarters, 99 weeks, 2727 total hours = 122 credits) continuous Evening/Weekend Track is a full-time Radiography program that is designed for the working adult. Didactic courses are offered on the main campus in Richmond Monday through Friday in the evenings with clinical rotations scheduled for weekday evenings and Saturdays.

Prerequisite Requirements

All prerequisite requirements **must be completed prior to applying** to the program.

High School Diploma or the equivalent.

All applicants must have completed the following college level courses with a minimum of 3 credits and a grade of "C" or better.

- Intermediate Algebra
- Human Anatomy & Physiology with a lab (college level)
- Written Communication
- Oral Communication
- Computer Science

The following courses are suggested additional courses (college level):

- Medical Terminology
- Human Biology
- Social Sciences
- Arts/Humanities

Note: All foreign diplomas and transcripts must include a notarized translation in English and must be evaluated by a foreign transcript agency prior to submission.

Physical Requirements

- Stand and/or walk up to 8 hours throughout an 8-hour shift.
- Lift and move a maximum of a 290-pound patient in a 2-person/3-person transfer.
- Must be able to operate and manipulate all radiography equipment.
- Reach above shoulders up to 6 hours throughout an 8-hour shift.
- Reach forward 18 inches holding an object up to 15 pounds.
- Bend, crouch, or stoop 20 times per hour.
- Push a patient in a wheelchair or gurney 300 feet or further, as required by structural design of the building.
- Move loads of up to 45 pounds 25 times per hour.

Graduation Requirements

To graduate with a certificate of completion from any of the KPSAHS programs, students are required to successfully complete all didactic and clinical education courses and hours, including co-requisites if applicable. In addition, all financial obligations to the program must be fulfilled.

Completion of the Program is a prerequisite for eligibility to sit for the State of California and American Registry of Radiologic Technologists (ARRT) licensure examinations.

State of California Certification from the California Department of Public Health is required for radiographers and therapists to work in California. Examination options can vary and details regarding this will be discussed with second-year students prior to application for this examination. Therapy students must complete the entire program for testing eligibility.

Radiography Program Courses

RAD 100: Radiographic Procedures I

3 credits

This course is designed to provide the first year student with a working knowledge of routine radiographic positioning for visualization of the chest, abdomen, and bones of the upper and lower extremities (excluding the shoulder and pelvic girdle). Terminology, accessory devices, equipment used in radiographic procedures, and the application of protective devices will be discussed. To develop the student's critical thinking skills, radiographic phantoms will be used to demonstrate the principles of exposure. The group process will be used to demonstrate and practice radiographic positioning, critique.

RAD 101: Radiographic Physics

3 credits

This course presents the first-year student with the principles of physics relevant to the production of x-rays. The course includes the following subject areas: fundamental physics concepts, mass-energy relationship, atomic structure, electromagnetic radiation, magnetism and devices, electricity and devices, design of x-ray producing devices, primary control factors, and the fundamental principles of radiation protection.

RAD 102: Introduction to Medical Imaging

3 credits

This course is designed to provide first year students with an overview of the diagnostic imaging profession and those factors which impact the technologist in his/her ability to produce imaging media of the highest quality. Discussion will include: allied health education, the roles and expectations of all members of the health care team, ethical behavior, medical-legal obligations, liabilities, interpersonal communication, inter and intra personal behavior, basic radiation safety principles, hospital departmental organizational, licensure, labor unions, Diversity, Age Specific Competency, political and social change within the health care environment, standard precautions, disease control and transmission and general preparation for entry into the clinical environment.

RAD 103: Medical Terminology

3 credits

Medical Terminology is the study of the language of medicine. All those who practice in the medical field need a common language and knowledge base in order to communicate effectively.

RAD 104: Clinical Education I

2 Credits

This course presents the first-year student with an introduction to the clinical environment (to be carried out in an assigned clinical site). Emphasis is placed on patient care and positioning in addition to conducting an orientation to the hospital and radiology department, patient registration, appointment scheduling, medical records, darkroom/film processing area, quality assurance, equipment, department safety, radiographic procedures and ancillary imaging areas.

RAD 200: Radiographic Procedures II

3 credits

This course is designed to provide the first year student with a working knowledge of routine radiographic positioning for visualization of the shoulder girdle, pelvic girdle, and axial skeleton excluding the skull. Terminology, accessory devices, equipment used in radiographic procedures, and the application of protective devices will be discussed. To develop the student's critical thinking skills, radiographic phantoms may be used to demonstrate the principles of exposure. The group process will be used to demonstrate and practice radiographic positioning, critique radiographs, and learn good departmental principles and practice.

RAD 201: Image Production I

3 credits

This course is designed to introduce the first year student to the clinical applications of imaging systems to include grid characteristics, radiographic film, intensifying screens, and the principles of image processing. Students will be introduced to the characteristics of x-rays, x-ray production, x-ray emission and interaction with matter. Scatter radiation, its effects on the finished radiograph, and methods of controlling scatter radiation are discussed. Primary controlling factors will be presented in the context of their influence on x-ray beam characteristics and minimizing patient dose.

RAD 202: Patient Care Procedures

3 credits

This course builds on materials introduced in the introductory course, especially information dealing with patient care, aseptic technique and disease transmission. With respect to disease transmission and epidemiological field approach for evaluation is used. Information about risk factors are introduced, and finally contrast media, medications, vital signs and emergency care of patients is discussed.

RAD 203: Clinical Education II

5 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 300: Radiographic Procedures III

3 credits

This course is designed to provide the first year student with a working knowledge of routine radiographic positioning for visualization of the cranium, and facial bones. Terminology, accessory devices, equipment used in radiographic procedures, and the application of protective devices will be discussed. To develop the student's critical thinking skills, radiographic phantoms will be used to demonstrate the principles of exposure. The group process will be used to demonstrate and practice radiographic positioning, critique radiographs, and learn good departmental principles and practice.

RAD 301: Image Production II

3 credits

This course is designed to provide first year students with a working knowledge of factors that govern and influence the production of radiographic images. Laboratory materials are utilized to demonstrate the clinical applications of theoretical principles and concepts.

RAD 302: Computer Applications in Medical Imaging

3 credits

This course is designed to introduce the student to the fundamental principles of computer technology and how they interface with diagnostic imaging. This course provides a broad framework for understanding the technical aspects of computers, which would lay the foundation needed for use in the radiology department. Because Computed Radiography (CR) and Digital Radiography (DR) are rapidly replacing traditional film based systems, imaging technologists will need to understand these new technologies. This course addresses those new technologies. The course provides students with an in-depth knowledge of the technologies behind CR and DR, digital image formation, processing, and quality. Discussion will include technique selection for exposure and Quality Control. The course answers many of the questions a new imaging technologist may have concerning higher or lower dose with digital systems as compared to traditional imaging systems. Also discussed will be retakes versus image post processing, grids, and artifacts. This course will assume that the student has a good understanding of traditional film-screen radiography.

RAD 303: Clinical Education III

5 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 400: Radiographic Procedures IV

3 credits

This course is designed to provide first year students with a working knowledge of routine radiographic positioning for visualization of the digestive and urinary system. Positioning of the critical patient and the pediatric for various procedures is addressed. The group process will be used to demonstrate and practice radiographic positioning, critique radiographs and to learn good departmental principles and practice.

RAD 401: Image Evaluation and Quality Control

3 credits

This course is designed to discuss the process of image analysis and quality control. Students will develop and apply the critical thinking process to the art of image critique. The following imaging standards will be discussed: interpretation of clinical data, identification of the examination to be performed, rationale for the radiographic examination, accurate patient identification, positioning of the part according to established protocols, radiation protection, and factors affecting radiographic quality. Medical-legal considerations for the radiographer are also discussed. Practical case studies and critical reviews are conducted in the classroom setting with clinical correlation.

RAD 402: Radiation Biology and Protection

3 credits

This is an introductory course which introduces the first year student to the fundamentals of radiobiology and the effects of radiation on living tissue. This course evaluates the effects of radiation from the cellular level to its epidemiological effects, along with basic principles of radiation protection. Specific topics include, cellular biology, early and late effects of radiation, case studies, risk assessment, safety handling and containment of naturally occurring sources and state and federal regulations.

RAD 403: Clinical Education IV

8 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 501: Sectional Anatomy

3 credits

This course is designed to familiarize the student with the various anatomic structures and their locations, as demonstrated by sectional imaging techniques. This course will utilize Sonography, CT and MRI images to cover the following areas: thorax, abdomen, pelvis and brain. Images obtained from clinical practices at Kaiser Medical Centers will be used to enhance the student's learning process.

RAD 502: Advanced Imaging Procedures

3 credits

This course introduces the student to procedures and special modalities used in Radiology to achieve diagnostic and sometimes therapeutic results. The specific procedures include both invasive and non-invasive methods. The primary goal of the course is to present to the student an overview of the most common procedures performed in Radiology. Focus is on the direct role of the technologist as an integral part of a health care team.

RAD 503: Clinical Education V

11 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 600: Applied Pathology for Radiographers

3 credits

This course is designed to provide second-year students with an understanding of the systematic classification of disease. Signs and symptoms of common diseases, radiographic examination and treatment of diseases will be discussed. Special imaging modalities will be presented in their application of the diagnosis of disease. Image evaluation and technique will be applied with critical thinking skills.

RAD 603: Clinical Education VI

11 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 602: Fluoroscopy and Quality Assurance

3 credits

This course is designed to familiarize the student with the concepts of quality management practices as they related to diagnostic radiology. The benefits and the elements of a quality management program are reviewed and explored. Regulatory requirements are examined. In recognition of the fact that monitoring and maintenance of medical imaging equipment requires specialized training, this course does not attempt to teach these disciplines, but rather uses the Fluoroscopy unit as a tool to demonstrate those routine services and evaluations which should be performed by a trained service person or physicist.

RAD 700: Applied Radiographic Topics

3 credits

This course provides the student with the opportunity to conduct and deliver research on recent technological advances in diagnostic radiology. Students are expected to conduct conventional literature reviews and utilize the World Wide Web as an adjunct source of information. The research topics to be investigated are selected by the instructor and are assigned to groups of students. For the benefit of peers, the student groups deliver classroom oral/media presentations on their respective topics. The course also provides the student with an opportunity to investigate how s/he contributes to the output of a task group and how individual partners uniquely participate.

RAD 701: Professional Development

3 credits

This course presents the second-year student with a discussion and analysis of relevant topics in imaging sciences. Advanced imaging modalities, applied critical thinking to case studies in medical ethics, and new developments in the field are topics of discussion. The importance of continuing education and professional development to the future of medical imaging is discussed.

RAD 702: Clinical Education VII

10 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 800: Program Review

3 credits

This course is designed to promote competence in critical thinking and problem-solving skills in the second-year radiography student. The student will be given various scenarios and situations typically encountered in the clinical environment; s/he will apply skills learned in the first seven program-sections to solve these problems. Discuss and analyze relevant topics to the Radiologic Sciences that include: trauma radiography, pediatric radiography, projection and technique manipulation due to disease process, equipment safety, and equipment failure.

RAD 801: Clinical Education VIII

10 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

Evening Track Clinical Courses

RAD 104: Clinical Education I

2 credits

This course presents the first-year student with an introduction to the clinical environment (to be carried out in an assigned clinical site). Emphasis is placed on patient care and positioning in addition to conducting an orientation to the hospital and radiology department, patient registration, appointment scheduling, medical records, darkroom/film processing area, quality assurance, equipment, department safety, radiographic procedures and ancillary imaging areas.

RAD 203: Clinical Education II

7 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 303: Clinical Education III

7 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 403: Clinical Education IV

7 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 503: Clinical Education V

8 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 603: Clinical Education VI

8 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 702: Clinical Education VII

8 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 801: Clinical Education VIII

8 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

RAD 901: Clinical Education IX (evening track only)

9 credits

This course is a clinical practicum in a medical-imaging department of an affiliated clinical training center.

Sonography Program

Program Staff

Interim Program Director: Debra Crandell, B.S., RDMS

Faculty: Debra Crandell, B.S., RDMS

Program Description

The Sonography Program trains students in the use high-frequency sound waves to image organs, masses, and fluid accumulations within the body. Students learn the theoretical and abstract principles that form the technological basis of diagnostic medical Sonography, as well as the basic techniques and skills for patient care in a clinical environment. Ultrasound images result from the reflection of the sound waves by the body. The images are viewed on a computer screen and may be recorded on film for permanent record and use in interpretation and diagnosis by a physician.

Sonographer Duties

Sonographers, also known as ultrasound technologists, use high-frequency sound waves to image organs, masses, and fluid accumulations within the body. The technology is advancing rapidly which requires sonographers to be flexible and adaptable team players who are committed lifelong learners.

Program Structure

The 18-month (6 Quarters, 72 weeks, 2420 total hours = 120 credits) Sonography Program provides didactic and clinical education in abdominal, obstetrical, and gynecologic specialty areas. The program is a general concentration curriculum with a limited introduction to basic vascular sonography. Clinical education occurs at partnering medical centers and medical offices throughout Northern California. Program participants can expect substantial off-campus study and preparation for classroom lecture and lab exercises. Major holidays are observed and break periods are observed between academic quarters. Annual academic calendars are published in advance. Upon completion of the program, graduates are eligible to sit for the American Registry of Diagnostic Medical Sonographers (ARDMS) national registry examinations in Physics, Abdomen and OB/Gyn.

Prerequisite Requirements

All prerequisite requirements must be completed prior to submitting an application to the program.

Applicants must be a graduate of an accredited 18-24 month Allied Health program with current certification/registration in their health specialty. Allied Health occupations include, but are not limited to: Radiologic Technology, Medical Technology, Nursing, and Respiratory Therapy.

- OR -

Applicants can also meet program requirements by completing 60 college credits with a cumulative minimum grade point average of 2.75.

All applicants must complete the following college level courses with a minimum of 3 credits and a grade of "C" or better:

- General Physics (curriculum must cover heat waves, sound, light, and motion)
- Human Anatomy & Physiology with lab
- Intermediate Algebra
- Written Communication
- Oral Composition
- Medical Terminology

The following courses are recommended additional courses:

- Computer Science
- Ethics

Note: All foreign diplomas and transcripts must include a notarized translation in English and must be evaluated by a foreign transcript agency prior to submission.

Physical Requirements

- Stand and/or walk up to 8 hours throughout an 8-hour shift.
- Lift and move a maximum of a 290-pound patient in a 2-person/3-person transfer.
- Must be able to operate and manipulate all sonography equipment.
- Reach above shoulders up to 6 hours throughout an 8-hour shift.
- Reach forward 18 inches holding an object up to 15 pounds.
- Bend, crouch, or stoop 20 times per hour.
- Push a patient in a wheelchair or gurney 300 feet or further, as required by structural design of the building.
- Move loads of up to 45 pounds 25 times per hour.

Graduation Requirements

To graduate with a certificate of completion from any of the KPSAHS programs, students are required to successfully complete all didactic and clinical education courses and hours, including co-requisites if applicable. In addition, all financial obligations to the program must be fulfilled.

Completion of the Diagnostic Medical Sonography Program is a pre-requisite for obtaining eligibility to the American Registry Diagnostic Medical Sonographers (ARDMS) registry examination. Students are permitted to apply for this exam sixty (60) days prior to the anticipated date of program completion. ARDMS registry is withheld until the Program Director has verified student competency and program completion.

National certification is available through the American Registry for Diagnostic Medical Sonographers (ARDMS). To possess the RDMS (Registered Diagnostic Medical Sonographer) credential, an individual must pass the Ultrasound Physics and Instrumentation examination in addition to at least one of the following specialty exams: Obstetrics and Gynecology, Abdomen, Breast, Neurosonology, or Ophthalmology. Graduating students are eligible to take the Physics and Instrumentation examination as well as the OB/Gyn and Abdomen specialty examinations.

Sonography Program Courses

DMS 100: Introduction to Sonography

5 credits

The purpose of this course is to give the students exposure to the basic techniques and skills for patient care in a clinical environment to include the sonographer's responsibilities to the patient, infection control, isolation techniques, medical and surgical asepsis, monitoring vital signs, proper body mechanics, responding to medical emergencies, care of patients with special problems, patient confidentiality, and legal issues in sonography. This course also serves as an introduction to the clinical rotation; the laboratory portion of this course includes a scheduled observation at an ultrasound department of an affiliated Clinical Education Center.

DMS 101: Ultrasound Physics & Instrumentation I

5 credits

This course explores the theoretical and abstract principles that form the technological basis of diagnostic medical sonography. Topics will include elementary principles of sound, sound propagation, pulse-echo instrumentation, image formation, transducers, and system operation. Throughout this course, these theoretical concepts will be presented in a manner that emphasizes practical clinical applications.

DMS 102: Abdominal Sonography I

13 credits

This course is an in depth study of abdominal ultrasound of the Gastro-Intestinal System including cross-sectional anatomy, physiology, pathology, and pathophysiology. The Sonographic appearance of normal anatomical structures of the peritoneum and retroperitoneum will be studied. The sonographically significant abnormalities affecting the abdomen along with their clinical and sonographic presentation are also discussed. Emphasis is placed on the interpretation of clinical tests and basic scanning techniques relative to the development of a differential diagnosis. The laboratory course offers beginning sonography students hands-on and experiential learning in the basics of selected sonographic examination techniques. Under direct supervision of faculty and affiliate clinical preceptors, students will apply the didactic information presented in the classroom to the laboratory setting.

DMS 200: Critical Thinking I

3 credits

This course is designed to introduce the students to the art of differential diagnosis. Students will learn to apply what they are studying to situations in the clinical environment and will have the opportunity to practice differential diagnosis skills through the presentation of case studies.

DMS 201: Ultrasound Physics & Instrumentation II

5 credits

This course continues exploring the theoretical and abstract principles that form the technological basis of diagnostic medical sonography. Topics will include, Doppler physics and instrumentation, artifacts, quality assurance, and bio-effects.

DMS 202 Abdominal Sonography II

7 credits

This course is an in-depth study of the Genito-Urinary System and Retroperitoneal Structure including cross-sectional anatomy, physiology, pathology, and pathophysiology. The sonographic appearance of abnormalities that affect the anatomical structures of the peritoneum and retroperitoneum will be studied. The sonographically significant abnormalities affecting the abdomen along with their clinical and sonographic presentation are also discussed. Emphasis is placed on the interpretation of clinical tests and basic scanning techniques relative to the development of a differential diagnosis. The laboratory course offers beginning sonography student's hands-on and experiential learning in the basics of selected sonographic examinations with emphasis on pathology and their sonographic appearances. Under direct supervision of faculty and affiliate clinical preceptors, students will apply the didactic information presented in the classroom to the laboratory setting.

DMS 203: Clinical Education I

8 credits

This course is a supervised clinical experience and practice designed to introduce the student to the diagnostic ultrasound department. Students will be introduced to administrative functions within the department, basic equipment operation and general scanning techniques. Students will observe, assist, and practice scanning organ systems and landmarks found in the normal abdomen and pelvis. Rudimentary fine motor skills will be developed to form a foundation for advanced scanning practice. Emphasis will be placed on normal anatomy of the peritoneal and retroperitoneal organs as depicted by grayscale imaging, landmark recognition, and scanning through the viscera completely in long and transverse axes.

DMS 300: Critical Thinking II

3 credits

This course is designed to strengthen the students' understanding of differential diagnosis in Sonography. Students will learn to apply what they are studying to situations in the clinical environment and will have the opportunity to practice differential diagnosis skills through the presentation of case studies.

DMS 301: OB/Gyn Sonography I

7 credits

This course is a study of the principles and practices of diagnostic medical sonography in gynecology and first trimester obstetrics. Normal female pelvic anatomy and physiology is presented and correlated with sectional and real-time sonographic imaging. Ovarian, uterine, adnexal and associated pathologic conditions are discussed along with the common clinical and sonographic findings and imaging approaches associated with each condition. A strong emphasis is placed on the normal physiology of the menstrual cycle as well as physical, endocrinological and clinical changes that occur in early pregnancy and in the postmenopausal patient. Sonographic and clinical considerations of the first trimester pregnancy are considered as well as first trimester pregnancy complications.

DMS 302: Clinical Education II

8 credits

This course continues clinical education in a diagnostic ultrasound department of an affiliated Clinical Education Center. Students will continue to observe, assist, and practice scanning organ systems and landmarks found in the normal abdomen and pelvis. Emphasis will be placed on identifying standard imaging protocols of the clinical education center.

DMS 400: Selected Topics

6 credits

This course is a study of miscellaneous topics to include the sonographic evaluation of superficial structures such as the thyroid and parathyroid glands, breast, testicles, and prostate gland. An introduction to neurosonology and ultrasound guided interventional procedures will also be presented.

DMS 401: OB/Gyn Sonography II

4 credits

This course is an in-depth study of the role of the use of sonography during 2nd & 3rd trimester of pregnancy. Students are provided extensive didactic instruction in the development of comprehensive sonographic examination protocol for second and third trimester obstetrics following AIUM guidelines. Sonographic evaluation of infertility and patients with a multifetal gestation will be discussed. Extensive didactic instruction will be provided in fetal biometric measurements and the evaluation of fetal growth. The normal anatomy and physiology of the placenta, umbilical cord, amniotic fluid, fetal face and neck are presented along with the sonographic evaluation of pathological conditions affecting these structures.

DMS 402: Clinical Education III

8 credits

This course continues clinical education in an ultrasound department of an affiliated Clinical Education Center. Basic normal anatomy depiction and abnormal anatomy recognition will be emphasized. Students will practice the scanning protocols established at their clinical site and will develop confidence in performing abdominal, obstetrical, and gynecological, and superficial structure ultrasound examinations.

DMS 500: Introduction to Vascular Sonography

6 credits

This course is designed to introduce the students to basic vascular evaluation techniques including ankle-brachial indexes (ABI), arterial vs. venous scanning, and basic protocols for carotid artery, duplex evaluation of the upper and lower extremities, upper and lower extremity venous Doppler protocols, and vein mapping.

DMS 501: OB/GYN Sonography III

4 credits

This course is an advanced study of the sonographic evaluation of fetal pathologic processes, including anomalies/abnormalities affecting the fetal neural axis, musculoskeletal system, thorax and heart, abdomen and abdominal wall, and genitourinary system. Advanced gestational dating methods and the evaluation of fetal well-being will also be discussed.

DMS 502: Clinical Education IV

8 credits

This course continues clinical education in an ultrasound department of an affiliated Clinical Education Center. Basic normal anatomy depiction and abnormal anatomy recognition will be emphasized. Students will practice the scanning protocols established at their clinical site and will develop confidence in performing abdominal, obstetrical, and gynecological, and superficial structure ultrasound examinations.

DMS 600: Advanced Physics

4 credits

This course is designed to prepare the graduating student for the Physics specialty examination administered by the American Registry of Diagnostic Medical Sonographers. The entire Physics curriculum, as pertinent to the Registry, will be presented and reviewed. Test preparation techniques will be presented and students will be given the opportunity to practice these techniques during mock registry quizzes. The review will conclude a full-scale mock Registry examination.

DMS 601: Advanced Abdominal

4 credits

This comprehensive course is designed as a review of the principles and practices of diagnostic medical abdominal sonography. This course will aid the student's understanding of the ARDMS examination content for abdomen, identification of student's weak areas, provide guidelines for independent study and will provide a general review of all examination content areas.

DMS 602: Advanced OB/Gyn

4 credits

This comprehensive course is designed as a review of the principles and practices of diagnostic medical sonography in obstetrics and gynecology. The course will aid the students' understanding of the ARDMS examination content for OB/GYN, identify of the students' weak areas, provide guidelines for independent study and will provide a general review of all examination content areas.

DMS 603: Clinical Education V

8 credits

This course is a supervised clinical experience and practice designed to continue the student's development of ultrasound scanning skills and techniques. Upon successful completion of this course, the student will be able to perform required daily tasks in obstetrical, gynecological, and abdominal ultrasound examinations as an entry-level diagnostic medical sonographer.

Nuclear Medicine Program

Program Staff

Program Director: Art Meyers, Ed.D, MHSA, ARRT (N), NMTCB (N)

Faculty: George Morris, BA, CRT, RT (N)

Program Description

The Nuclear Medicine program prepares students to use high-tech equipment and radioactive tracers in the physiological assessment of various organ systems. The Program combines the didactic classroom theoretical concepts with clinical education at various hospitals and clinics throughout Northern California to full integrate the student's experience in the excited field of Nuclear Medicine Technology.

Nuclear Medicine Technologist Duties

The Nuclear Medicine Technologist has many facets of his/her job and responsibility. These include: preparation and injection of radiopharmaceuticals, patient care, learning to utilize sophisticated equipment to obtain high quality images of various abnormalities demonstration by the distribution of these tracers, quality control on all equipment and many aspects of radiation safety.

Program Structure

The 18-month (6 Quarters, 72 weeks, 1732 total hours = 77 credits) continuous Nuclear Medicine program provides didactic and clinical education for potential Nuclear Medicine Technologists. Clinical experience occurs at partnering medical centers and medical offices in Northern California. Program participants can expect substantial off-campus study and preparation for classroom lecture and lab exercises. Major holidays are observed and break periods are observed between academic quarters. Annual academic calendars are published in advance. Upon completion of this program, graduates are eligible to sit for state and national certification examinations.

Prerequisite Requirements

All prerequisite requirements **must be completed prior to applying** to the program.

All applicants must be a graduate of an 18-24 month accredited Allied Health degree program with current registration. Allied health occupations include, but are not limited to Radiologic Technologist, Sonographers, Certified Medical Technologist, and Registered Nurses.

- OR -

Applicants may complete a minimum 60 college credits with a cumulative minimum grade point average of 2.75.

All applicants **must complete** the following college-level courses with a minimum of 3 credits and a grade of "C" or better:

- Human Biology
- General Chemistry with a lab
- Human Anatomy & Physiology with a lab
- Intermediate Algebra
- Written Communication

The following courses are recommended additional courses:

- Oral Communication
- Computer Science
- Medical Terminology

Note: All foreign diplomas and transcripts must include a notarized translation in English and must be evaluated by a foreign transcript agency prior to submission.

Physical Requirements

- Stand and/or walk up to 8 hours throughout an 8-hour shift.
- Lift and move a maximum of a 290-pound patient in a 2-person/3-person transfer.
- Must be able to operate and manipulate all nuclear medicine equipment.
- Reach above shoulders up to 6 hours throughout an 8-hour shift.
- Reach forward 18 inches holding an object up to 15 pounds.
- Bend, crouch, or stoop 20 times per hour.
- Push a patient in a wheelchair or gurney 300 feet or further, as required by structural design of the building.
- Move loads of up to 45 pounds 25 times per hour.

Graduation Requirements

To graduate with a certificate of completion from any of the KPSAHS programs, students are required to successfully complete all didactic and clinical education courses and hours. In addition, all financial obligations to the program must be fulfilled.

Completion of the Nuclear Medicine Program is a prerequisite to obtaining eligibility to the American Registry Radiologic Technologists (ARRT) for Nuclear Medicine. Nuclear Medicine students may apply for the ARRT examination up to 90 days prior to their anticipated program completion date.

Nuclear Medicine students may also sit for the Nuclear Medicine Technology Certification Board (NMTCB) licensing examination. Students are permitted to apply for this exam two months prior to the anticipated date of program completion but may not sit for the exam until after program completion.

State of California Certification from the California Department of Public Health is required for nuclear medicine technologists to work in California. Second-year Nuclear Medicine students are permitted to complete an examination administered through the Radiologic Health Branch (RHB) prior to graduation. Examination options can vary and details regarding this will be discussed with second-year students prior to application for this examination. Nuclear Medicine certification is withheld until the Program Director has verified student competency and program completion.

Nuclear Medicine Program Courses

NM 100: Introduction to Nuclear Medicine

4 credits

This course is designed to provide the student with the principles of imaging and non-imaging disciplines within the field of radiologic sciences. Students are introduced to basic theory and concepts utilized in medical imaging and the principles and practice of patient care and medical terminology.

NM 101: Introduction to Radiation Safety

4 credits

This course is designed to provide the first year student with a working knowledge of radiation science and safety. This includes interactions of radiation with matter, radiation quantities and protection standards, dosimetry, radioactive decay, and the biological effects of radiation. The student will also be introduced to an overview of nuclear medicine equipment.

NM 102: Clinical Education I

2 credits

This course presents the student with an introduction to the clinical environment (to be carried out in an assigned clinical site). Emphasis is placed on patient care and positioning in addition to conducting an orientation to the hospital and medical imaging department, patient registration, appointment scheduling, medical records, darkroom/film processing area, quality assurance, equipment, department safety, Nuclear Medicine procedures and other imaging areas.

NM 200: Radiopharmaceuticals

4 credits

This course is designed to provide the student with the principles regarding the production, distribution, dose calculation, and imaging of radioactive tracers. Emphasis is on the rationale of radiopharmaceutical choice and radionuclide characteristics. Lab exercises in proper handling of radionuclides including practical experience at an off-site radiopharmaceutical laboratory.

NM 201: Physics and Instrumentation in Nuclear Medicine

4 credits

This course is designed to provide the student with the principles and application of radiation detection equipment and instrumentation employed in nuclear medicine procedures. Theory and laboratory application of quality control procedures specific to each instrument are included, as well as application of imaging parameters. The student will understand the functions, operations, limitations, and applications of the imaging and non-imaging detection instruments used in the current practice of nuclear medicine.

NM 202: Clinical Education II

5 credits

This course is a clinical practicum in a nuclear medicine department of an affiliated clinical training center. During this course the student will also rotate through a commercial radiopharmaceutical facility to gain knowledge of radiopharmaceutical production and preparation.

NM 300: Nuclear Cardiology and ECG Interpretation

4 credits

This course is designed to provide the student with the theory and principles of nuclear medicine cardiac imaging. It includes a comprehensive examination of cardiovascular terminology, pathology, and computer analysis. ECG interpretation and comprehension of life-threatening and dangerous cardiac rhythms are also examined.

NM 301: Nuclear Medicine Imaging and Pathophysiology I

4 credits

This course is designed to provide the student with preparation, performance, and evaluation of planar and SPECT procedures. Emphasis will be on the location, biodistribution of the radiopharmaceutical used, and the disease states that can be identified regarding the G.I., Hepatobiliary, Skeletal, Lung, and CNS systems.

NM 302: Clinical Education III

5 credits

This course is a clinical practicum in a medical imaging department of an affiliated clinical training center. The student is introduced to a second clinical site to have the opportunity to see procedures and equipment not previously observed.

NM 400: In Vitro and Radionuclide Therapy

4 credits

The utilization of saturation analysis and non-imaging in vivo procedures is examined. This includes laboratory quality assurance programs; the operation of electronic equipment for radioassay and quality control. Pathology, choice of radiopharmaceuticals, dose calculation, administration and patient management related to radionuclide therapy will be discussed, as well as new therapy advancements.

NM 401: Nuclear Medicine Imaging and Pathophysiology II

4 credits

A survey of in vivo nuclear medicine procedures and pathology related to the endocrine, genitourinary, central nervous systems, tumor/inflammatory, bone marrow and advanced imaging procedures. Principles of sensitivity, specificity, accuracy and predictive values of diagnostic testing are described. The student will acquire an in-depth knowledge of the diagnostic imaging aspects of the above nuclear medicine procedures by integrating technical considerations with anatomy, physiology, pathology, and patient care considerations.

NM 402: Clinical Education IV

5 credits

This course is a clinical practicum in a medical imaging department of an affiliated clinical training center.

NM 500: PET and PET/CT Imaging I (6 weeks)

2 credits

This course is designed to give the student an overall understanding of the basic principles and theories of Positron Emission tomography (PET) and Computed Tomography imaging. Aspects of PET imaging that will be discussed include: instrumentation, quality control, and radiation safety concerns.

NM 501: Management & Research in Healthcare I (6 weeks)

2 credits

This course is designed to give the student an overview of research methodologies and concepts in Management in healthcare. The curriculum will have extensive interactive learning components, in which the student will be responsible for developing critical thinking skills using problem-based learning.

NM 502: Clinical Education V

11 credits

This course is designed to facilitate the student's application of their didactic education to the practical aspects of nuclear medicine technology. While performing this clinical externship, the student will be evaluated on mandatory imaging competencies required by the JRCNMT. The student will be required to attend the clinical site 40 hours a week for the first six weeks of the quarter.

NM 600: PET and PET/CT Imaging II (6 weeks)

2 credits

This course is a continuation of the NM 500 PET and PET/CT Imaging I course and is designed to give the student an overall understanding of the basic principles and theories of Positron Emission tomography (PET) and Computed Tomography imaging. Aspects of PET imaging that will be discussed include: instrumentation, quality control, and radiation safety concerns.

NM 601: Management & Research in Healthcare II (6 weeks)

2 credits

This course is a continuation of the NM 501 Management & Research in Healthcare course and is designed to give the student an overview of research methodologies and concepts in Management in healthcare. The curriculum will have extensive interactive learning components, in which the student will be responsible for developing critical thinking skills using problem-based learning.

NM 602: Clinical Education VI

5 credits

This course is designed to facilitate the student's application of their didactic education to the practical aspects of nuclear medicine technology. While performing this clinical externship, the student will be evaluated on mandatory imaging competencies required by the JRCNMT. The student will also experience a rotation in the PET environment during this course to enhance the knowledge gained from the classroom course.

NM 603: Registry Review (6 weeks)

2 credits

During this six-week course, the student will be prepared to take the national certification and state licensing examinations. An extensive review of all course materials will be followed by a mock-registry exam.

NM 604: Film Critique (6 weeks)

2 credits

This six-week course will be devoted to reviewing nuclear medicine images and evaluating them for quality and pathology. The student will learn the basis of image production to maximize for diagnostic value.

Radiation Therapy Program

Program Staff

Program Director: Roma - Dakini Alexander, M.S., CRT (R) (T) (F), RT (R) (T)

Faculty: Bert Christensen, B.S., CRT (R) (T), RT (R) (T)

Program Description

Radiation Therapy utilizes ionizing radiation in a strictly controlled environment to treat disease, primarily cancer. High energy x-rays, gamma rays, and electron beams are common forms of ionizing radiation used. Ionizing radiation can be administered using external beam therapy or by placing a radioactive material directly into a body tissue or cavity. The ultimate goal of radiation therapy is to destroy all abnormal cells while sparing the surrounding normal tissue.

Radiation Therapist Duties

Radiation Therapists are part of a multi-disciplinary cancer management team. They are responsible for accurately positioning the patient for treatment, equipment operation, quality assurance, and calculating radiation dose to be delivered. Radiation Therapists also have considerable responsibility for providing competent, concerned patient care. The therapist monitors patients throughout treatment, which often lasts several weeks.

Program Structure

The 18-month (6 Quarters, 72 weeks, 2087 total hours = 90 credits) continuous Radiation Therapy program provides didactic and clinical education for potential Radiation Therapists. Clinical experience occurs at our partnering medical centers and oncology clinics in Northern California. Participants of the program can expect substantial off-campus study and preparation for program courses. Major holidays are observed and break periods are observed between academic quarters. Annual academic calendars are published in advance. Program graduates are eligible to sit for the National Radiation Therapy Registry examination.

Prerequisite Requirements

All prerequisite requirements **must be completed prior to applying** to the program.

All applicants must be a graduate of an 18-24 months accredited Allied Health Degree Program with current registration. Allied Health Occupations include, but are not limited to, Radiographers, Sonographers, Certified Medical Technologist, and Registered Nurses.

- OR -

Applicants may complete a minimum 60 college credits with a cumulative minimum grade point average of 2.75 at the time of application.

All applicants **must complete** the following college-level courses with a minimum of 3 credits and a grade "C" or better:

- General Physics
- Human Anatomy & Physiology with a Lab
- Intermediate Algebra
- Written Communication
- Oral Communication
- Medical Terminology

The following courses are suggested:

- Computer Science
- Ethics
- Pathology

Note: All foreign diplomas and transcripts must include a notarized translation in English and must be evaluated by a Foreign Transcript agency prior to submission.

Physical Requirements

- Stand and/or walk up to 8 hours throughout an 8-hour shift.
- Lift and move a maximum of a 290-pound patient in a 2-person/3-person transfer.
- Must be able to operate and manipulate all radiation therapy equipment.
- Reach above shoulders up to 6 hours throughout an 8-hour shift.
- Reach forward 18 inches holding an object up to 15 pounds.
- Bend, crouch, or stoop 20 times per hour.
- Push a patient in a wheelchair or gurney 300 feet or further, as required by structural design of the building.
- Move loads of up to 45 pounds 25 times per hour.

Graduation Requirements

To graduate with a certificate of completion from any of the KPSAHS programs, students are required to successfully complete all didactic and clinical education courses and hours, including co-requisites if applicable. In addition, all financial obligations to the program must be fulfilled.

Completion of the Program is a prerequisite to obtaining eligibility to the American Registry of Radiologic Technologists (ARRT) licensure examination. Students may apply for the examination up to 90 days prior to their anticipated program completion date.

State of California Certification from the California Department of Public Health is required for radiographers and therapists to work in California. Second-year Radiography students are permitted to complete an examination administered through the Radiologic Health Branch (RHB) prior to graduation. Examination options can vary and details regarding this will be discussed with second-year students prior to application for this examination. Therapy students must complete the entire program for testing eligibility.

Any ARRT or RHB certification is withheld until the Program Director has verified student competency and program completion.

Radiation Therapy Program Courses

RTT 100: Introduction to Radiation Therapy

3 credits

Content is designed to provide the student with an overview of the foundations in radiation therapy and the practitioner's role in the health care delivery system. This course will provide students with a historical overview of radiation therapy and its role in medicine. An introduction to radiation therapy treatment techniques, equipment, terminology, and professional responsibilities will be included.

RAD 101: Radiation Physics

4 credits

This course is designed to introduce the first-year student to: Radiation Concepts, Definitions, Prime Factors, X-ray Emission, Intensifying Screens, Radiographic Film, Film Processing, Beam Restriction, Grids, X-ray Interaction with Matter, Patient Dose, Patient as the Beam Emitter and Pathology.

RTT 102: Clinical Education I

2 credits

The purpose of this course is to introduce the student to procedures performed in Radiation Therapy, and to provide the student with the opportunity to gain practical experience. During this first quarter of clinical education, the student is expected to develop the competency to perform simple clinical procedures with progressively less assistance. Emphasis is placed on the development of professional responsibility and the practice of total patient care.

RTT 200: Radiation Therapy Physics

3 credits

Content is designed to establish a basic knowledge of physics pertinent to developing an understanding of radiations used in the clinical setting. Fundamental physical units, measurements, principles, atomic structure and types of radiation are emphasized. Also presented are the fundamentals of x-ray generating equipment, x-ray production and its interaction with matter.

RAD 202: Patient Care Procedures

3 credits

This course builds on material introduced in the introductory course, especially information dealing with patient care, aseptic technique and disease transmission. Exploration of microorganisms and how they impact the home and health care environment are evaluated through an epidemiological field approach. Information about risk factors associated with stress are linked and contrasted to other potential risk factors. Contrast media, medications, vital signs and emergency care of patients are discussed.

RTT 201: Techniques and Applications

4 credits

This course will provide the student with the concepts of treatment, dosimetry and planning. Various external beam techniques and applications, depth dose data, and summation of isodose curves are discussed. Modalities of treatment, patient setup, dose measurement, dose calculation and verification are also included.

RTT 202: Clinical Education II

5 credits

The purpose of this course is to introduce the student to procedures performed in Radiation Therapy, and to provide the student with the opportunity to gain practical experience. During this second quarter of clinical education, the student is expected to develop the competency to perform simple-intermediate clinical procedures with progressively less assistance. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care.

RAD 501: Sectional Anatomy

3 credits

This course is designed to familiarize the student with the various anatomic structures and their locations as demonstrated by sectional imaging techniques. This course will utilize sonography, CT, and MRI images to cover the following areas: thorax, abdomen, pelvis and brain. Images obtained from clinical practices will be used to enhance the student's learning process.

RTT 300: Oncologic Patient Care

3 credits

This course will provide the student with basic concepts of patient care specific to radiation therapy including consideration of physical and psychological conditions. Handling of patients, patient examinations, asepsis, local and systemic reactions, nutrition and medications are discussed. Factors influencing patient health during and following a course of radiation will be identified.

RTT 301: Clinical Education III

11 credits

The purpose of this course is to further introduce the student to procedures performed in Radiation Therapy, and to provide the student with greater opportunities to gain practical experience. During this third quarter of clinical education, the student is expected to develop the competency to perform intermediate clinical procedures with progressively less assistance. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices.

RTT 502: Radiation Biology

3 credits

This is an introductory course that introduces the student to the fundamentals of radiobiology and the effects of radiation on living tissue. This course evaluates the effects of radiation from the cellular level, to the epidemiological effects on communities and potential offspring. Specific topics in radiobiology include; basic radiation interactions, cellular biology review, short and long-term effects of radiation, risk factors, containment and handling of live sources, reduction of patient dose, radiation monitoring and applicable state and federal regulations. Information presented is required by the ASRT curriculum guide and ARRT national certification board. This course is a component of the radiation therapy programs master plan of education.

RTT 400: Pathology and Treatment Principles I

3 credits

This course will provide the student with the fundamentals of each disease process. Malignant conditions, etiology and epidemiology, patient workup and methods of treatment are discussed. Attention is given to patient prognosis, treatment results and the effects of combined therapies.

RTT 401: Clinical Education IV

11 credits

The purpose of this course is to further introduce the student to procedures performed in Radiation Therapy, and to provide the student with greater opportunities to gain practical experience. During this fourth quarter of clinical education, the student is expected to develop the competency to perform simple clinical procedures independently, under the direct supervision of a qualified professional or radiation therapist. Perform intermediate - complex clinical procedures with progressively less assistance. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices.

RTT 503: Research Methodology in Radiation Oncology

1 credit

The purpose of this course is to introduce the student to the logic, method, variation and precision of thought required in the practice and/or consumption of research.

RTT 500: Radiation Therapy Treatment Planning

3 credits

Content is designed to establish factors that influence and govern clinical planning of patient treatment. Encompassed are isodose descriptions, patient contouring, radiobiologic considerations, dosimetric calculations, compensation and clinical application of treatment beams. Optimal treatment planning is emphasized along with particle beams. Stereo tactic and emerging technologies are presented.

RTT 501: Pathology and Treatment Principles II

3 credits

This course is a continuation of Pathology and Treatment Principles I. Content will provide the student with the fundamentals of each disease process. Malignant conditions, etiology and epidemiology, patient workup and methods of treatment are discussed. Attention is given to patient prognosis, treatment results and the effects of combined therapies

RTT 504: Clinical Education V

11 credits

This course allows the student to become proficient in all radiation therapy clinical procedures. During this fifth quarter of clinical education, the students are introduced to dosimetry procedures and are expected to develop the competency to perform complex clinical procedures independently, under the direct supervision of a qualified professional or radiation therapist. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices

RTT 600: Radiation Therapy Capstone

3 credits

This course is designed to integrate the various professional courses into a single perspective as it relates to radiation oncology. Professional concerns will be addressed and attention will be given to issues related to the workplace, continued professional development, and the need for lifelong learning. Extensive review of physics, protection and radiation therapy procedures is covered.

RTT 601: Quality Management and Radiation Protection in Radiation Oncology

3 credits

Content is designed to focus on the evolution of quality management (QM) programs and continuing quality improvements in radiation oncology. Topics will include the need for quality assurance (QA) checks; QA of the clinical aspects and chart checks; film checks; the various types of evaluations and tests performed on simulators, megavoltage therapy equipment and therapy planning units; the role of radiation therapists in quality management programs; legal and regulatory implications for maintaining appropriate QM guidelines as well as the role computers and information systems serve within the radiation oncology department.

RTT 602: Clinical Education VI

8 credits

This course allows the student to become proficient in all radiation therapy clinical procedures. During this sixth quarter of clinical education, the students are further introduced to dosimetry procedures and are expected to have attained competency to perform all clinical procedures independently, under the direct supervision of a qualified professional or radiation therapist. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices.

HEALTH ACADEMY

KPSAHS' Health Academy provides short term certificate training programs and continuing education courses.

Program Staff

Program Director: Cathleen Taylen, MSN, RN

Faculty: Geneva M. Kyles, NCPT(MMCI), CPTI (CA-DHS)
Christine Lush, MSN, RN, PHN
Candra R. Raynor, NCPT(MMCI), CPTI (CA-DHS)
Agnes F. Wright, A.A., NCPT(MMCI), CPTI (CA-DHS)

CLINICAL LABORATORY SCIENCES

Phlebotomy Basic and Advanced Program

Program Description

The Phlebotomy Basic and Advance Programs train students in the primary responsibilities of a Certified Phlebotomy Technician I by providing didactic and clinical education for students who seek to work in a clinical laboratory as a Phlebotomy Technician with California CPT I or II Certification.

Phlebotomist Duties

The primary responsibilities for the Certified Phlebotomy Technician I involve venipuncture, skin puncture, specimen processing and patient registration.

Program Structure

The 320-hour Basic/ Advanced Phlebotomy Technician Program provide didactic and clinical education for individuals who seek to work in a clinical laboratory as a Phlebotomy Technician with California CPT I or II Certification.

Graduates of the Basic/Advanced Phlebotomy Program will receive a Certificate of Completion and will be eligible to sit for National certification examinations and apply for State Certification. Graduates of from either program interested in obtaining CPT II certification must submit additional documentation that they have completed 20 arterial punctures. Clinical training for arterial punctures is not included in the KPSAHS curriculum. Graduates must complete the required arterial punctures on their own. Once a graduate has submitted documentation verifying completion of 20 arterial punctures, KPSAHS will provide a Certificate of Completion.

Prerequisites

To maintain eligibility, applicants must submit a **completed application packet** and complete and pass the mandatory background check and drug screening policy. Failure to complete requirements will result in the loss of applicant eligibility. **APPLICANTS MUST BE AT LEAST 18 YEARS OF AGE TO APPLY. No exceptions will be made.**

A completed application packet includes the following:

1. Current, signed, and dated application.
2. **Non-refundable \$25.00 application fee for accepted applications only. Checks must be made payable to KPSAHS. Visa, MasterCard, and money orders are also accepted. CASH WILL NOT BE ACCEPTED.**
3. **Official sealed High School Transcripts, GED, or official sealed college transcripts** documenting 12 credits from an accredited college. **All foreign diplomas and documents must include an official notarized translation in English and be evaluated by a foreign transcript evaluating agency prior to submission. Photocopies are not accepted. No exceptions.**

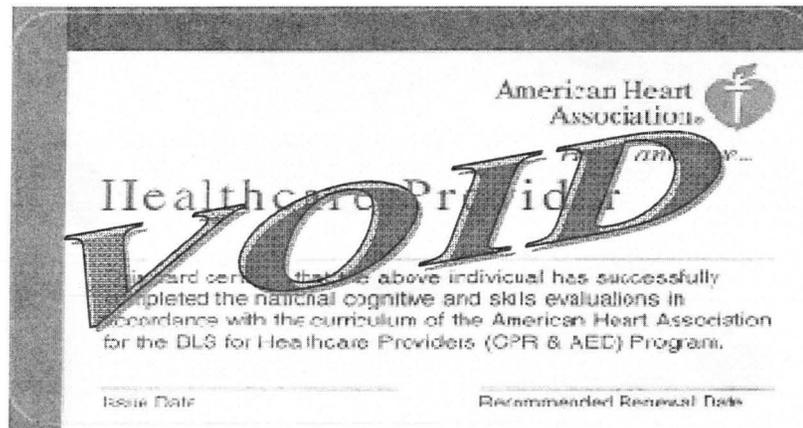
4. Documentation of Physical Examination: valid throughout the completion date of the program. Exam must be documented on letterhead from the Physician's Office or Medical Facility and include the applicant's name. The exam must display **original signature/initials from the Physician or authorized personnel. Photocopies are not accepted. No exceptions.**
5. Documentation of Immunizations:
Please have your HealthCare Provider or Authorized Medical Personnel complete the following "Immunization Form" (page C). The immunization form and official immunization documents must be included with the application.

All documentation must remain valid throughout the duration of the completion date of the program.

Proof of Immunization Records is solely the responsibility of the applicant. KPSAHS cannot view or retrieve immunization records from the Kaiser Permanente computer system.

6. Valid CPR card from the American Heart Association, Healthcare Provider Level, Basic Life Support course, **two (2) year certification**. Applicant must present a valid CPR card at the time of submitting an application. Letters of course completion cannot be submitted in lieu of card. **No exceptions will be made.**

"SAMPLE ONLY"



Physical Requirements:

Students should be physically capable to:

- Stand and/or walk up to 6½ hours throughout an 8-hour shift
- Lift and move a minimum of 50 pounds
- Operate all laboratory equipment
- Reach forward 18 inches, bend, crouch, or stoop 20 times per hour

Graduation Requirements

All students must be in attendance the entire 320 hours of the program. The State of California mandated educational requirements cannot be met if a student has excessive absence or tardiness. The 320 hour Basic Educational Course is offered approximately every 6 weeks.

SHORT-TERM & CONTINUING EDUCATION COURSES

Anatomy & Physiology I

Course Description

This course will provide participants with instruction on the principles of human anatomy and physiology emphasizing the integration of structure and function. The topics covered are terminology, chemistry, cells, histology, articulations, and the integument, skeletal, muscular, nervous systems. In this course a variety of approaches are taken to master the material including lectures, hands-on laboratory work, computer lab, medical imaging, discussion, and textbook reading. This course is designed to meet prerequisite requirements for KPSAHS programs including radiography, sonography, nuclear medicine, and radiation therapy only. External programs may not accept this class as part of their entrance requirements.

Course Duration

33 Lecture / 22 Lab Hours, 11 Week Course

Course Prerequisite Requirements

Anatomy & Physiology II

Course Description

This course will provide participants with instruction on the principles of human anatomy and physiology emphasizing the integration of structure and function. The topics covered are terminology, cardiovascular, lymphatic, respiratory, digestive, urinary, endocrine and reproductive systems. In this course a variety of approaches are taken to master the material including lectures, hands-on laboratory work, computer lab, medical imaging, discussion, and textbook reading. This course is designed to meet the prerequisite requirements for KPSAHS programs including radiography, sonography, nuclear medicine, and radiation therapy only. External programs may not accept this class as part of their entrance requirements.

Course Duration

33 Lecture / 22 Lab Hours, 11 Week Course

Course Prerequisite Requirements

KPSAHS-Anatomy & Physiology I

Fluoroscopy Permit Course

Course Description

This course prepares the student to take the State of California Department of Health Service's Fluoroscopy Permit examination. The course covers radiation safety issues consistent with Title 17 and regulatory provisions. Included in the course topics is an overview of Anatomy and Physiology, biologic effects of radiation on human tissue, image intensification, image recording systems, radiation protection materials and procedures, personnel monitoring, quality control, equipment maintenance, registration and regulations.

ASRT Approved Category "A" Credit

This course has been approved by the American Society of Radiologic Technologist (ASRT) for **40 CE Category "A" Credits** and meets the American Registry of Radiologic Technologists (ARRT) criteria for Category "A" continuing education credit.

Course Duration

40 Contact Hours, One Week Course

Course Prerequisite Requirements

This course is open to Certified Radiologic Technologists licensed by the State of California.

Venipuncture Training Course

Course Description

This course will provide participants with training and certification in the techniques required to start an IV for contrast injection. The course provides information on Universal Precautions, Anatomy and Physiology of the vasculature of the upper extremity, response to anaphylactic reactions, puncture techniques, contrast media and electrolyte balance and management and care of the puncture site (both pre and post injection). Ten (10) venipunctures must be performed under the direct supervision of a nurse or physician for final proficiency sign-off.

Course Duration

8 Contact Hours, One Day Course

ASRT Approved Category "A" Credit

This course has been approved by the American Society of Radiologic Technologist (ASRT) for **8 CE Category "A" Credits** and meets the American Registry of Radiologic Technologists (ARRT) criteria for Category "A" continuing education credit.

Course Prerequisite Requirements

This course is open to Certified Radiologic Technologists.

Mammography Training Course

Course Description

This course is designed to educate radiographers in the art and science of mammography. Enrollees in the course must have a California Certified Radiologic Technologist (CRT) license OR be a recent KPSAHS graduate. The course will consist of 40 hours of lecture and hands-on laboratory. The clinical portion is NOT included and the enrollee is responsible for securing a clinical site if needed. This course will assist in preparation for the California Mammography Certificate exam and the ARRT Post-Primary Certification in Mammography.

Course Duration

40 Contact Hours

ASRT Approved Category "A" Credit

This course has been approved by the American Society of Radiologic Technologist (ASRT) for **40 CE Category "A" Credits** and meets the American Registry of Radiologic Technologists (ARRT) criteria for Category "A" continuing education credit.

Course Prerequisite Requirements

This course is open to Certified Radiologic Technologists.

IV Therapy/Blood Withdrawal Certification Course

Course Description:

This course will provide participants with training and certification in the techniques required to start an IV infusion as well as withdrawal of blood for testing. The course provides information on Universal Precautions, Anatomy and Physiology of the vasculature of the upper extremity, response to anaphylactic reactions, puncture techniques, fluid and electrolyte balance and management and care of the site (both pre and post insertion). In addition, participants will learn the techniques for blood withdrawal including selection of equipment, site selection and preparation, order of draw, and after-withdrawal care. **Course participants will attend laboratory practice to perform three (3) successful blood withdrawals and three (3) successful IV starts.** Certificates will not be issued to students who fail to successfully complete all laboratory practices.

BVNPT approval

This course has been approved by the Board of Vocational Nursing and Psychiatric Technicians (BVNPT) for **30 CE Contact Hours** and meets the BVNPT criteria for continuing education credit for California licensed vocational nurses. This course is in compliance with California Health & Safety Code §2547.3(a).

Prerequisite:

This course is open to California Licensed Vocational Nurses, graduates of a California BVNPT vocational nursing program, and Registered Nurses for remediation only. Only licensed LVNs will qualify for continuing education contact hours. Pre-licensure VN graduates will receive a certificate once licensure is obtained and documented. Class is limited to 12 participants.

ADMISSIONS, REGISTRATION, & FINANCIAL INFORMATION

ADMISSIONS

Admission to a program at KPSAHS is a selective process. All aspects of a student's record are evaluated in making an admission decision, with an emphasis placed on a student's academic success and potential. All components of the application must be completed prior to review by KPSAHS.

KPSAHS utilizes a selective process for its student enrollment therefore is not obligated to admit all applicants who meet the minimum admission criteria. Final selection of students shall be made by KPSAHS, which reserves the right to deny admission to any applicant for any lawful reason. Qualified students are admitted in compliance with federal and state non-discrimination laws. KPSAHS complies with the Rehabilitation Act of 1973 and the Americans with Disability Act, as set forth in the Services for Students with Disabilities policy.

KPSAHS admissions' policy requires applicants to fulfill program specific prerequisite requirements.

Application Requirements

Applications will be accepted year-round, except during the fall inter-quarter break. (Please refer to the Academic Calendar).

To maintain eligibility, applicants must submit all required information and documentation by the stated deadlines. No exceptions will be made.

Imaging, Treatment, and Diagnostic Programs

- All prerequisite courses **must be completed before an application is submitted.**
- All applicants must complete both Application Forms-A & B. Application Form-B will be provided at the time of the Assessment Examination.
- All applicants must successfully pass an assessment test.
- A non-refundable application fee is required for each program application.
- Applications must include two current signed letters of reference (Original letters signed and dated within 6 months of the application date). Applications with fewer than two letters of reference will not be considered.
- Official academic transcripts are required to document completion of prerequisite courses. To maintain eligibility, official **sealed** academic transcripts must accompany application at the time of submission.

Health Academy Programs and Courses

Phlebotomy Program

- All applicants must complete both Application Forms-A & B. Application Form-B will be provided at the time of their Assessment Examination
- All applicants must successfully pass an assessment test.
- **A non-refundable application fee is required for each program application**
 - Valid CPR card; American Heart Association, Healthcare Provider Basic Life Support, **two (2)** year certification
 - Documented physical examination
 - Documented immunizations as stated on application
 - Phlebotomy applicants are required to complete and pass a criminal background check and drug screening from the designated agency as a requirement for enrollment into the program.
 - Minimum payment of 50% of program tuition is paid at the start of class. Any remaining tuition balance must be paid in full prior to the start of the student's clinical rotation.

Short-term & Continuing Education Courses

- All applicants must complete both Application Forms-A & B.
- Non-refundable registration fee
- Tuition paid in full

