NORTHWESTERN COLLEGE

RADIOGRAPHY PROGRAM STUDENT HANDBOOK

Alternative Learning (Distance/Hybrid Delivery)

Academic Year 2022-2023

Part 1- Didactic & General Information

9400 S. Cicero
Oaklawn, IL 60453
Telephone: 708-237-5097

Created: October 9, 2009, Revised January 25, 2010, Jan.02, 2011, June 22, 2011, September 18, 2012, September 26, 2013, June 23, 2014, June 12, 2015, December 14, 2016, July 10, 2017, July 10, 2019, August 28, 2020, October, 10, 2021,12/13/2022

The Northwestern College Catalog may be accessed by visiting the College's website:
https://www.nc.edu/

For information about the Radiologic Technology program, visit the College's website at:
https://www.nc.edu/

NORTHWESTERN COLLEGE

School Of Health Sciences

Radiography Program Student Handbook

GENERAL INFORMATION

Policies and information included in the Student Handbook are specific to the Radiography Program. All students are responsible for reading and understanding all content outlined within the Student Handbook.
The students are also responsible for reading and understanding all policies and information included in the College catalog.

The College catalog may be found on the NC Moodle home page: https://moodle.nc.edu/ and the College Website: https://www.nc.edu/

The Radiography Program Student Handbook can be found at www.trajecsys.com and the College Website: https://www.nc.edu/

Receipt of this handbook is neither a contract, nor an offer of a contract.

TABLE OF CONTENTS

PART 1

Northwestern College School of Health Sciences
Radiologic Technology Associate Degree Program
Curriculum/Course Sequence

COLLEGE TERM PRECEDING START OF PROGRAM

It is required that prior to the start of the clinical rotations, students have the following:

- Documented active certification in CPR for the healthcare provider
- Clearance of Criminal Background and drug screening.
- Completion of all required immunizations and properly documented.

CURRICULUM SEQUENCE

Students must complete at least 108 credit hours in order to earn an Associate in Applied Science Degree in Radiologic Technology.

YEAR 1

QUARTER 1 CREDIT HOURS: 14

COLL.104 College Success. 1
HLTH.141 Medical Terminology. 3
RADS.100 Fundamentals of Radiography 3
RADS.104 Patient Care in Radiography. 3
RADS.110 Radiographic Procedures I 3
RADS.111 Radiographic Procedures I Lab 1

QUARTER 2 CREDIT HOURS: 16

RADS.101 Radiographic Exposure I 3
RADS.105 Radiation Protection..... 3
RADS.120 Radiographic Procedures II 3
RADS.121 Radiographic Procedures II Lab 1
SCIE.115 Anatomy and Physiology I with Lab 6

QUARTER 3 CREDIT HOURS: 15

RADS.102 Radiographic Exposure II 3
RADS.112C Clinical I..... 2
RADS.130 Radiographic Procedures III..... 3
RADS.131 Radiographic Procedures III Lab 1
SCIE.125 Anatomy and Physiology II with Lab 6

QUARTER 4 CREDIT HOURS: 13

RADS.106 Radiographic Exposure III 3
RADS.112C Clinical II 2
RADS.140 Radiographic Procedures IV 3
RADS.141 Radiographic Procedures IV Lab 1
ENGL..100 Composition 4

YEAR 2

QUARTER 5 CREDIT HOURS: 16

RADS.108 Image Systems I 3
RADS.210 Radiographic Procedures V 3
RADS.211 Radiographic Procedures V Lab 1
RADS.132C Clinical III……..2
HLTH.255 Med Laws and Ethics for Imaging Professionals..3
Math. 112 College Mathematics……4

QUARTER 6 CREDIT HOURS: 13

RADS.201 Radiation Physics I 3
RADS.205 Radiation Biology 3
RADS.162C Clinical IV 3
SOCS.200 Introduction to Psychology 4

QUARTER 7 CREDIT HOURS: 11

RADS.202 Radiation Physics II 3
RADS.203 Radiographic Pathology 3
RADS.219 Introduction to Registry Review 2
RADS.212C Clinical V 3

QUARTER 8 CREDIT HOURS: 10

RADS.206 Digital Imaging Critique & Technical Evaluation 3
RADS.220 Registry Review 3
RADS.222C Clinical VI..... 3
COLL.295 Professional Development for Rad Sciences 1

Note: All professional/occupational courses must be taken as sequenced.

Related Courses: **19 credit hours**

HLTH.141 Medical Terminology in Medical Imaging 3
HLTH.245 Medical Law and Ethics for Radiographer..... 4
SCIE.115 Anatomy & Physiology I with Lab 6
SCIE.125 Anatomy &Physiology II with Lab 6

General Education Courses: **14 credit hours**
Communications 4
ENGL.100 (4)

Life Skills 2
COLL. 104 (1) and COLL.295 (1)

Math 4
MATH.112 (4)

Social Sciences 4
SOCS.200 (4)

Total 33 credit hours: In Related courses and General Education courses

General education and Related Courses may be completed prior to but no later than the quarter in which they are scheduled (see curriculum sequence by quarter on the previous page).

All professional/occupational courses must be taken in sequence and passed in sequence with a letter grade of C or better.

RADIOGRAPHY PROGRAM DIRECTOR

Gruenewald, Gary, M.S., R.T. (R)

Mr. Gruenewald graduated from Ravenswood Hospital School of Radiologic Technology in 1985 and accepted employment from the hospital from 1985 to 1992. During this time, Mr. Gruenewald held the positions of staff and special procedures radiographer in Diagnostic Radiology (1985-1988) and cardiovascular procedures radiographer in Cardiovascular Services (1988-1990). Mr. Gruenewald joined the school's staff, accepting the position of radiography instructor, until 1992. In 1992 he became the director of Decatur Memorial Hospital's radiography program (Decatur, IL). In August, 1994, Mr. Gruenewald rejoined the Advocate staff as radiography instructor.

Mr. Gruenewald received his radiography certification through the ARRT in 1985 and acquired a bachelor of science in Health Arts through the University of St. Francis (Joliet, Illinois) in 1990. In May 2004 he received his master of science degree in Health Services Administration from the University St. Francis.

Mr. Gruenewald is noted as a gifted radiography instructor. He has been described as fair, interesting, challenging, patient and dedicated.

RADIOGRAPHY PROGRAM FACULTY

Autumn Woldman, B.S. R.T. (R)

Autumn Woldman earned her baccalaureate degree in Biomedical Science with an emphasis in Nutrition from National University of Health Sciences in 2018. She then continued her education at Northwestern College, where she earned her Associate in Applied Science degree in Radiologic Technology in 2021. Mrs. Woldman has since been employed as a registered radiologic technologist (ARRT) and is fully licensed to practice radiography in Illinois (IEMA). Mrs. Woldman is a compassionate, enthusiastic educator committed to the success of her students.

Please refer to the College Catalog for the names and credentials of the College's faculty, staff, and academic administration.

EQUAL OPPORTUNITY STATEMENT

Northwestern College is committed to an educational and working environment that provides equal opportunity to all members of the College community. In accordance with federal and state law, the College prohibits unlawful discrimination on the basis of race, color, religion, national origin, gender, age, disability, citizenship, sexual orientation, and veteran status.

PROGRAM MISSION STATEMENT

The Radiography Program at Northwestern College is committed to excellence in radiologic technology education and its administration. Consistent with the mission of Northwestern College, the program "educates, prepares, and empowers its diverse student body to pursue their professional goals." The purpose of the program is to graduate competent and caring entry–level radiographers to meet the health care needs of our community.

PROGRAM PHILOSOPHY

The program views education as an on-going and multifaceted process of change and growth involving the whole individual. It strives to develop and challenge students' academic abilities, clinical skills, commitment to meeting the needs of others, accountability of self and participation as a health care team member. The program seeks to develop students' personal growth and foster an appreciation for lifelong learning.

PROGRAM GOALS

Consistent with its mission statement, the goals of the program are that graduates/students will:

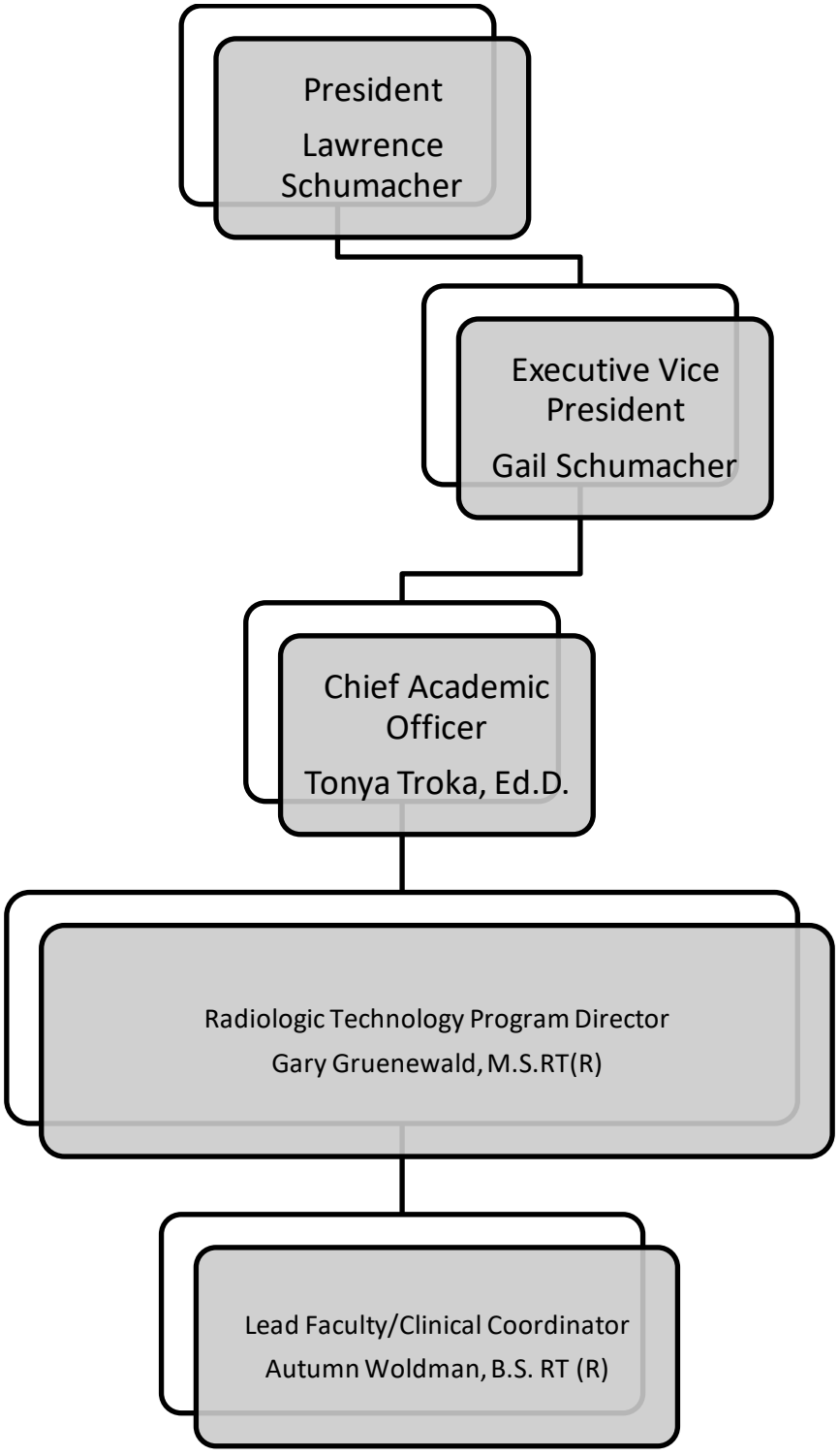
1. Be clinically competent entry level radiographers.
2. Communicate effectively.
3. Use critical thinking and problem solving skills.
4. Evidence the importance of professional responsibility, development and lifelong learning.

STUDENT LEARNING OUTCOMES:

1. Apply positioning skills, practice radiation safety, and evaluate radiographic images as clinically competent entry level radiographers.
2. Use of effective oral communication skills and practice effective writing skills, in both the laboratory and classroom setting.
3. Select radiographic technical factors and perform non-routine radiographic procedures using critical thinking and problem-solving skills.
4. Demonstrate professional behavior and prepare for initial employment and career advancement evidencing the importance of professional growth and development.

Programmatic Organizational Chart

Northwestern College: Radiography Program



ACCREDITATIONS AND APPROVALS

Northwestern College is accredited by the Higher Learning Commission, 230 S. LaSalle Street, Suite 7-500, Chicago, IL 60604 (312)263-0456, www.hlcommission.org/.

Northwestern College is approved by the Board of Higher Education–State of Illinois. http://www.ibhe.org/. Complaints can be filed at http://complaints.ibhe.org/.

Northwestern College is approved for veterans training under the G.I. Bill for Veterans Educational Assistance.

Northwestern College is approved by the United States Department of Justice, Immigration and Naturalization Service, as an institution of higher education for training international students.

The Northwestern College School of Health Sciences Radiologic Technology associate in applied science degree program is accredited by the **Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 North Wacker Drive, Suite 2850, Chicago, Illinois 60606-3182, 312-704-5300, www.jrcert.org, mail@jrcert.org.** This committee establishes, maintains and promotes the educational standards of the profession. The U.S. Department of Education recognizes the JRCERT as the accrediting body of educational programs in radiography.

Students have the right to submit allegations against a JRCERT-accredited program if there is reason to believe that the program has acted contrary to JRCERT accreditation standards or that conditions at the program appear to jeopardize the quality of instruction or the general welfare of its students. *Outlined below is the policy and procedure for submitting complaints to JRCERT.*

> "Contact of the JRCERT should not be a step in the formal institutional/program grievance procedure. The individual must first attempt to resolve the complaint directly with institution/program officials by following the grievance procedures provided by the institution/program. If the individual is unable to resolve the complaint with institution/program officials or believes that the concerns have not been properly addressed, he or she may submit allegations of non-compliance directly to the JRCERT."

RADIOGRAPHY PROGRAM ADMISSION REQUIREMENTS and STEPS

Radiography program admission requirements are published on Northwestern College's web site and as part of our Radiography Program Information/Application Folder available on campus, Admission's Office.

The program's admissions requirements are published in the College Catalog which can be accessed on the College's website at https://www.nc.edu/

NEW STUDENT ORIENTATION

In addition to the attendance of a one on one new student orientation offered through the College, radiography students are required to attend a scheduled program orientation facilitated by the radiography faculty. Invitation letters are sent to all enrolled students who have completed the admissions process. Students learn about the following program requirements and have the opportunity to ask questions:

Required immunizations, criminal background check, drug screening, required texts, liability insurance, medical insurance, CPR, dress code, course schedule, and clinical site orientation requirements.

HOURS OF STUDY

The program is based on eight quarters over 24 months of full-time study. Classes are scheduled throughout the entire year. Students enroll on a full-time basis participating in classroom, laboratory and clinical courses that may require attendance up to, but no more than, forty (40) contact hours per week in accordance with the requirements for radiography program accreditation.

Classroom courses are generally scheduled Monday through Friday. Clinical assignments are typically 8 hours long. Start times vary based on quarterly clinical schedules. Approximate total program clinical clock hours are 1,350 hours.

Clinical assignments are scheduled on weekdays Monday through Friday. Some assignments may include a limited number of weekend and night rotations. Students are assigned to medical centers, hospitals and clinics.

Clinical and classroom schedules are posted and distributed each quarter. Schedules extend for the duration of the school quarter. For each required course of instruction, students receive classroom and clinical course syllabi that identify clinical assignment/classroom meeting dates, times and locations.

PROGRAM DEFINITIONS: Fully On-line, Hybrid, and Fully On-Ground Courses

- **All Online Courses**: Will possess **1 hour of Synchronous (face to face) Virtual lecture/instruction every week**. Additional course information is provided through recorded lectures, power point slides, instructional videos, and other-directed readings. Attendance is taken and Lecture is interactive with instructor.

- **All Hybrid Courses**: Meet **1 day a week on campus 1hr 45 min and Virtually 1 day a week for 1 hour of Synchronous lecture/ instruction.** (All our didactic classes our 3 Credit hour courses.) Attendance is taken and Lecture is interactive with instructor.

- **Fully On-Ground: Course** is taught fully on campus (100% of instruction is face to face). Attendance is taken and lecture is interactive with instructor.

**Course scheduling is subject to change*

STUDENT EVALUATION PROCESS

Evaluations

Students are made aware of the requirements of each course per the given course syllabus. Grades are entered into the learning platform, Moodle and the College's web based electronic gradebook (WebAdvisor), by the individual course instructor in a timely manner. Viewing of course grades and progress is easily accessible by the individual student. Scheduled consultations occur as needed. During the meeting, the student receives an individual consultation with the program director and faculty in order that all parties are kept informed of the student's academic and/or clinical progress.

Attendance – Didactic and Laboratory Courses

Per the policy of the program, absences and tardiness will affect final grades. Students who are absent are still responsible for completing course requirements and assignments.

Didactic Courses

Attendance of course lectures is required.

For didactic courses that meet twice a week, three absences per course in a given quarter will not incur a penalty. The fourth absence in a course will result in the first letter grade reduction from the calculated course grade. Subsequent course absences will accordingly result in further letter grade reductions.

- 1st absence recorded.
- 2nd absence recorded.
- 3rd absence recorded.
- 4th absence recorded with letter grade reduction from calculated course grade, e.g. A to B.
- 5th absence recorded with 2nd letter grade reduction, e.g. B to C.
- 6th absence recorded with 3rd letter grade reduction, e.g. C to D.
- 7th absence recorded with 4th letter grade reduction, e.g.. D to F.

For didactic courses that meet 1 day a week, one absence per course in a given quarter will not incur a penalty. The second absence will result in the first letter grade reduction from the calculated course grade. Subsequent absences will accordingly result in further letter grade deductions.

- 1st absence recorded.
- 2nd absence recorded with letter grade reduction from calculated course grade, e.g. A to B.
- 3rd absence recorded with 2nd letter grade reduction, e.g. B to C.
- 4th absence recorded with 3rd letter grade reduction, e.g. C to D.
- 5th absence recorded with 4th letter grade reduction, D to F.

Missed Examinations/Quizzes:

All RADS Non-Procedure Courses:

All scheduled examinations/quizzes that are missed, must be taken **within one week** of the scheduled exam date and will suffer a seven percentage point reduction in grade.

- Examinations not taken within this time-frame will be recorded as a zero percentile.
- The examination must still be taken and passed as a requirement for passing the course.
- All exams that are given in a radiography procedures course must achieve an 80% (C) or higher to continue on.
- Exceptions are at the discretion of the instructor and must be made in advance.

Missed Examinations/Quizzes:

Students must schedule all missed exams and re-takes with the course instructor.

Re-take Specifications:

All **RADS Procedure Courses** must be taken until proficiency is demonstrated.

If the student does not successfully pass the exam on the first try then they are to follow the proper sequence for re-testing.

- Re-take #1: Student is encouraged to seek a tutoring session with a peer tutor or the course professor. Grade is recorded as a Quiz grade
- Re-take #2: Student is encouraged to seek a tutoring session with a peer tutor or the course professor prior to the re-take. Grade recorded as a Quiz grade and averaged with the 1st re-take.
- Re-take #3- If exam is successfully passed, the grade will be recorded as a Quiz grade and averaged in to the prior retake examinations.

- If after the 3rd attempt the student is unable to satisfactorily pass the exam, he/she may be dismissed from the Radiography Program and must meet with the Program Director.
- If the Re-take exam is not taken on the assigned date it will be recorded as a zero.

For Example: Student missed the assigned Re-take #1
Re-take #1 will be recorded as Quiz grade with a zero percentile. Re-take #2 will then be scheduled with instructor. The grade will be recorded as a Quiz grade and averaged with the 1st re-take.

Northwestern College Late policy for Assignments:

Homework assignments must be submitted on or before the next scheduled meeting date, failure to do so will result in the following:

1-2 days late- 10% deduction in grade
3-4 days late- 20% deduction in grade
5-7 days late- 30% deduction in grade
Beyond 7 days late- assignments will not be accepted
Late assignments will not be accepted past the last day of the quarter.

Tutoring Sessions:

If tutoring remediation is necessary it is the responsibility of the student to seek assistance by contacting the peer tutor or course instructor via the email provided in the course syllabi.

Tardiness greater than 10 minutes or leaving greater than 10 minutes before the end of class will result in a documented absence.

Leaving class is only allowed for the purpose of using the restroom. Any other reason will be recorded as a documented absence from that class.

PROGRAM GRADE SCALE

Percentile	Letter Grade
94-100	A
87-93	B
80-86	C
73-79	D
0-72	F

PROGRAM ACADEMIC PROGRESSION REQUIREMENTS

- All courses with a RADS prefix (professional courses) must be taken in sequence. Students may only enroll once in courses with a RADS prefix.
- Students must earn a grade of C (80%) or higher in all courses with a RADS or HLTH prefix. Failure to earn a letter grade of C (80%) or higher in all RADS or HLTH prefix courses will result in dismissal from the program.
- Any student dismissed for academic performance or who voluntarily withdraws from the program and wishes to seek reinstatement must meet with the Radiography Admission Committees and participate in

the interview process. Re-Instatement to the program is at the discretion of the Radiography Admission Committee.

- Satisfactory completion of the clinical and academic curriculum must be within 150% of the stated program's length.
- Students must earn a letter grade of C or higher in courses with a SCIE prefix. A student earning a letter grade below a C will be required to repeat the course to earn an acceptable letter grade of C or higher.
- Students must maintain a minimum cumulative GPA of 2.0 for continued enrollment in the Program.
- Two (2) general education course failures for the Radiography program will result in dismissal
- from the Radiography Program.
- Students must maintain and meet the following requirements: BLS/CPR certification, Health Insurance coverage, Liability insurance, Physical Examination, Successful Criminal Background Check and Drug Screen, current Immunizations, TB test, Influenza immunization, and complete all clinical affiliate HIPAA and Safety requirements. Failure to meet these requirements by the end of the quarter prior to the start of clinical will result in dismissal from the Radiography Program. In alignment with all clinical affiliate vaccination mandates, the COVID-19 vaccination is required for continued progression through the Radiography Program

VOLUNTARY WITHDRAWAL

A student who voluntarily withdraws from the program must submit a written resignation to the program director with completion of a withdrawal form that is obtained from the student Advisor. Withdrawal without notice will result in forfeiture of all claims. Additionally, all financial accounts with the College must be current for a release of official transcripts.
Please refer to the College catalog for further information and process.

MANDATORY WITHDRAWAL

A student may be dismissed or asked to withdraw from the program for reasons of health, attendance, tardiness or for reasons of unsatisfactory academic and/or clinical performance, integrity, and/or unprofessional conduct as determined by the faculty and the director.

GRADUATION REQUIREMENTS

In addition to the NC's graduation requirements:

- Satisfactory completion of the clinical and academic curriculum within 150% of the stated program's length.
- Successful achievement of all learning objectives as identified through the student's satisfactory completion of all classroom and clinical course requirements. A minimum cumulative GPA of 2.0 is required for both clinical and classroom courses.
- Return of radiation monitoring badge(s).
- Completion of radiography program exit survey.

STUDENT AWARDS

Degree

On completion of the graduation requirements, the student is granted an Associate of Applied Science degree.

Professional Credentials: Graduation from the program qualifies the graduate to apply for national certification and state licensure in radiography.

National
The American Registry of Radiologic Technologists administers the national certification exam in radiography. On passing the examination, the graduate is professionally recognized as a Registered Technologist in Radiography [R.T. (R)].
State
The graduate applies to the Illinois Emergency Management Agency (IEMA) for state licensing credentials.

HEALTH SERVICES

Students are required to have health insurance throughout the radiography program

MALPRACTICE INSURANCE

Students must provide proof of malpractice insurance prior to the start of classes. **Program enrollment may be prohibited/denied without proof of physical fitness, hospitalization and liability insurance.**

REPORT OF COMMUNICABLE DISEASE, EXTENDED ILLNESS OR CONDITION

A communicable disease, by definition, is any disease which may be transmitted directly or indirectly from one individual to another. Students with a proven or suspected communicable disease must adhere to the following guides to assure their proper care and treatment and to also limit or prevent their exposure to others.

Step 1 Report of Illness
Should the student suspect he/she may have an infectious disease or condition, notify (telephone) the clinical coordinator or director at the appropriate time.

Step 2 Following Report of Illness
Given the information the student reports, the director/coordinator may advise him/her to see their personal physician or seek treatment through a hospital emergency department before attending classes/clinicals.

Step 3 Limitation of Radiography Instruction
Students who are suspected of or who have confirmed their having an infectious condition or communicable disease will be restricted from didactic/clinical instruction. The extent of these restrictions will be consistent with the policies the College and the clinical education setting in which the student is assigned.

Step 4 Documentation & Resuming Education
On confirmation of an infectious condition or communicable disease, the student must provide written documentation from a licensed practitioner (MD/DO/NP/PA) that the student has been under medical care for treatment. The student must also provide written documentation from a practitioner that he/she is in good health and is able to resume didactic/clinical participation without restriction. Absences of more than 3 consecutive class or clinical assignment days require a physician's document verifying eligibility to resume class or clinical assignment.

HOLIDAYS, BREAKS Students are not assigned to classes or clinical practicum on recognized legal holidays, on days there are no classes 'officially' scheduled or when the college is 'officially' closed. See NC catalog for official College calendar.

COURSE DESCRIPTIONS

RADS Didactic Courses

HLTH 141, ALL PROCEDURES, HLTH 145, RADS 250

RADS.100 - Fundamentals of Radiography
This course introduces the beginning radiography student to the following: organization of medical centers/hospitals, diagnostic imaging departments and the radiography program. Basic information regarding health and safety procedures within the clinical area, radiation protection, x-ray production, image formation, patient care guidelines, professional ethics and medical law are reviewed.
Prerequisite: Admission into the Radiography Program

RADS.101 - Radiographic Exposure I
This course introduces the beginning radiography student to the nature and properties of x-rays. Areas of focus include: radiographic image quality and the influencing factors of recorded detail, distortion, contrast and density, the construction of the x-ray tube and production of x-rays, basic x-ray equipment, primary and secondary radiations, filtration and an analysis of the radiographic image.
Prerequisite: Admission into the Radiography Program

RADS.102 - Radiographic Exposure II
A continuation of RADS.101, students further develop their knowledge of x-radiation and how it interacts with matter. The control of primary and secondary radiations using grids, filtration and beam restricting devices is studied. Fixed and variable kilovoltage exposure systems are reviewed. The properties of attenuation and the absorption of radiation and how it is influenced by pathology are also studied. Using information learned in this course, the students continue their analysis of the radiographic image.
Prerequisite: RADS.101 with grade of C or better or consent of the instructor

RADS.104 - Patient Care in Radiography
This course focuses on nursing procedures and techniques used by radiographers in the general care of the patient. Areas covered include: factors influencing relationships with patients and professional peers, medical ethics, communication techniques, patient care and assessment, infection control, medications and medication administration, contrast media administration, and responses to emergency medical situations, including contrast media reactions. Human diversity/cultural differences, communication styles, socioeconomic influences, health risks and life stages are also discussed in this course.
Prerequisite: Admission into Radiography Program

RADS.105 - Radiation Protection
Students are introduced to the principles of, and the reasons for, radiation protection. The responsibilities of the radiographer and protective measures for patients, personnel and the public are studied. Also covered is discussion of the sources of radiation, the units of radiation measurement, and Federal and State radiation health and safety regulations.
Prerequisite: RADS.100 and RADS.101 with a grade of C or better or consent by instructor

RADS.106 - Radiographic Exposure III
As a continuation of RADS.102, students will study and understand the concepts, methods and utilization of digital imaging and PACS in providing optimal imaging for enhanced diagnoses and improved patient care.
Prerequisite: RADS.102 with grade of C or better or consent by instructor

RADS.108 - Imaging Systems I
Covered in this course are the principles of image intensification, automatic exposure control and the magnification technique. Also covered are an introduction to body section (linear and computed) tomography and digital radiography.
Prerequisite: RADS.101 with a grade of C or better or consent by instructor

RADS.109 1 credit hour (Conditional Admission Course)
Academic Skills for the Radiologic Technology Program The purpose of this course is to prepare students for academic success in the radiography education program. Students will learn test taking skills and will review content in reading, mathematics, science, and English language usage.
Prerequisite: Conditional Admission to Radiologic Technology Program

RADS.110 - Radiographic Procedures I
This course introduces the beginning student to the anatomical planes of the body and positioning terminology. Radiographic anatomy, the principles of radiographic positioning, procedural steps and radiographic image evaluation for the following anatomical areas are covered: visceral thorax, abdomen and upper extremities. Mobile, pediatric and geriatric radiography are also topics that are covered in this course.
Prerequisite: Admission into the Radiography Program

RADS.111 - Radiographic Procedures I Lab
This course is comprised of discussion, demonstration, practice and evaluation of students' simulated performance of radiographic examinations, which correspond to those studied in RADS.110. Radiographic images of the studied anatomy are also analyzed.
Prerequisite: Admission into the Radiography Program

RADS.120 - Radiographic Procedures II
In this course, radiographic anatomy, the principles of radiographic positioning, procedural steps and radiographic image evaluation for the following anatomical areas are covered: the lower extremities, the gastrointestinal system, biliary and urinary systems. Contrast media, its classifications, precautions, selection and adverse patient reactions as it relates to the studied procedures is discussed.
Prerequisite: RADS.110 with a grade of C or better or consent of the instructor

RADS.121 - Radiographic Procedures II Lab
This course is comprised of discussion, demonstration, practice and evaluation of students' simulated performance of radiographic examinations, which correspond to those studied in RADS.120. Radiographic images of the studied anatomy are also analyzed.
Prerequisite: RADS.111 with a grade of C or better or consent of the instructor

RADS.130 - Radiographic Procedures III
This course covers radiographic anatomy, the principles of radiographic positioning, procedural steps and radiographic image evaluation for the vertebral column and bony thorax. An introduction to venipuncture is also taught in this course.
Prerequisite: RADS.120 with a grade of C or better or consent of the instructor

RADS.131 - Radiographic Procedures III Lab
This course is comprised of discussion, demonstration, practice and evaluation of students' simulated performance of radiographic examinations, which correspond to those studied in RADS.130. Radiographic images of the studied anatomy are also analyzed.
Venipuncture is also demonstrated and practiced in this course. The student's simulated performance of venipuncture is evaluated.
Prerequisite: RADS.121 with a grade of C or better or the consent of the instructor

RADS.140 - Radiographic Procedures IV
This course includes radiographic anatomy, the principles of radiographic positioning, procedural steps and radiographic image evaluation of the skull.
Prerequisite: RADS.130 with a grade of C or better or the consent of the instructor

RADS.141 - Radiographic Procedures IV Lab
This course is comprised of discussion, demonstration, practice and evaluation of students' simulated performance of radiographic examinations, which correspond to those studied in RADS.140. Radiographic images of the studied anatomy are also analyzed.
Prerequisite: RADS.131 with a grade of C or better or consent of the instructor

RADS.201 - Radiation Physics I
This course introduces the student to basic x-radiation physics. Areas covered in this course include:
units of radiation measurement, the physical concepts of energy, the structure of matter and the basic principles and nature of electricity and magnetism.
Prerequisite: RADS.108 with a grade of C or better or consent by instructor

RADS.202 - Radiation Physics II
This course is a continuation of Radiation Physics I. In this course, there is in-depth discussion on the following topics: the nature and production of x-rays, x-ray tube construction and factors which govern tube life, x-ray circuitry, the interaction of radiation and matter and a survey of radiographic equipment evaluation methods and tools.
Prerequisite: RADS.201 with a grade of C or better or consent of the instructor

RADS.203 - Radiographic Pathology
Students will study the classification, origin, symptoms and radiographic manifestation of diseases. There is an emphasis on body conditions as they relate to radiographic examination of the patient and the selection of appropriate exposure factors. This course requires the development and presentation of a research paper.
Prerequisite: SCIE.110, RADS.210, RADS.211, and RADS.212C with a grade of C or better or consent of the instructor

RADS.205 - Radiation Biology
This course focuses on the effects of radiation on the human body at the cellular, tissue, organ and systemic levels.
Prerequisite: SCIE.110, RADS.105 with a grade of C or better or consent of the instructor

RADS.206 - Image Analysis
Student performed radiographic examinations, with an emphasis on second year clinical course content, are evaluated. The course challenges the students' knowledge of exposure and positioning principles, anatomy and pathology. A continued development of the student's problem solving skills and critical thinking based on principles of analysis, formulation of hypotheses and the testing of theories is stressed.

RADS.210 - Radiographic Procedures V
This course focuses on specific interests and needs of students, with an emphasis on developing critical thinking and problem solving skills. There is discussion of specialized radiographic exams/views and positions. The course content varies and may include guest lecturers.
Prerequisite: RADS.140 with a grade of C or better or consent of instructor

RADS.211 - Radiographic Procedures V Lab
This course is comprised of discussion, demonstration, practice and evaluation of students' simulated performance of radiographic examinations, which correspond to those studied in RADS.210. Radiographic images are analyzed.
Prerequisite: RADS.141 with a grade of C or better or consent of the instructor

RADS.219 2 credit hours-Introduction to Registry Review
This course is the first of two courses to provide students with an introductory review of curriculum content and Radiography Examination Content Specifications, as outlined by the national certifying organization. Simulated registry examinations are conducted throughout the course.
Prerequisite: RADS.201, RADS.205, RADS.210, RADS.211, and RADS.162C

RADS.220 - Registry Review
This course provides the soon-to-be graduating student with a comprehensive review of curriculum content as preparation for the national certifying examination. Methods of studying and test taking strategies are discussed. Several simulated registry examinations are conducted throughout the course.
Prerequisite: RADS.202, RADS.205, and RADS.212C with a grade of C or better or consent of instructor

Clinical Course/Practicum

RADS.112C - Clinical I
In this beginning course of clinical instruction, the student is oriented to the clinical education sites/centers. Varied clinical assignments introduce the students to the department's work flow and radiographic equipment. The student also learns how to operate various picture archiving and communication systems (PACS). Students learn by observing and progress to minimal assistance, leading to their radiographic performance under the direct supervision of qualified radiographers. Students will participate and perform radiographic examinations of the visceral thorax, abdomen and upper extremities. Clinical learning is supported by correlated laboratory and classroom instruction.
Prerequisite: Admission into the Radiography Program

RADS.122C - Clinical II
This clinical course continues the integration of classroom learning with the clinical curriculum.
The clinical assignments reinforce previous knowledge and application of newly introduced classroom and laboratory information. Following classroom and laboratory instruction, the students observe, assist and perform radiographic examinations on lower extremities and the digestive, biliary and urinary systems.
Prerequisite: RADS.112C with a grade of C or better or consent of the instructor

RADS.132C - Clinical III
This clinical course continues the integration of classroom learning with the clinical curriculum.
Following classroom and laboratory instruction, the students observe, assist and perform radiographic examinations of the vertebral column and bony thorax. The application of venipuncture may be included. There is continued development of competency and instructional content from previous clinical courses.
Prerequisite: RADS.122C with a grade of C or better or consent of the instructor

RADS.162C - Clinical IV
This clinical course continues the integration of classroom learning with the clinical curriculum.
Following classroom and laboratory instruction, the students observe, assist and perform radiographic examinations of the vertebral column, bony thorax and skull. There is continued development of competency and instructional content from previous clinical courses. The application of venipuncture may be included in this course.
Prerequisite: RADS.152C with a grade of C or better or consent of the instructor

RADS.212C - Clinical V
This clinical course continues the integration of classroom learning with the clinical curriculum.
The clinical assignments reinforce previous knowledge and application of introduced classroom and laboratory information from the previous four clinical courses. The student is introduced to other imaging modalities, i.e. sonography, invasive cardiology, nuclear medicine. Indirect supervision of students is stressed to promote independent problem solving and overall confidence in clinical abilities. The student will focus on developing basic scanning knowledge and skills to achieve limited clinical competencies in CT. The application of venipuncture may be included.
Prerequisite: RADS.162C with a grade of C or better or consent of the instructor

RADS.222C - Clinical VI
In this course, students continue elective assignments to other imaging modalities, i.e. sonography, invasive cardiology, nuclear medicine. The clinical assignments reinforce previous knowledge and application of introduced classroom and laboratory information from the previous five clinical courses. Indirect supervision of students is stressed to promote independent problem solving and overall confidence in clinical abilities. The student will focus on developing basic scanning knowledge and skills to achieve limited clinical competencies in CT.
Prerequisite: RADS.212C with a grade of C or better or consent of the instructor

Note: Course content is subject to change.

Please refer to the College Catalog for descriptions on related courses and general educations courses **.**

Related Courses:

- HLTH.141 Medical Terminology for Imaging Professionals
- HLTH.245 Medical Law & Ethics for Radiologic Sciences
- SCIE.115 Anatomy and Physiology I (with Lab component)
- SCIE.125 Anatomy and Physiology II (with Lab component)

General Education Courses:

- ENGL.100 Composition
- COLL.104 College Success
- COLL.295 Professional Development for Radiologic Sciences
- MATH.112 General Education Mathematics
- SOCS.200 Intro to Psychology

JRCERT
2021 Standards
For an Accredited Educational Program in Radiography
www.jrcert.org

"The Joint Review Committee on Education in Radiologic Technology (JRCERT) **Standards for an Accredited Educational Program in Radiography** are designed to promote academic excellence, patient safety, and quality healthcare. The **STANDARDS** require a program to articulate its purposes; to demonstrate that it has adequate human, physical, and financial resources effectively organized for the accomplishment of its purposes; to document its effectiveness in accomplishing these purposes; and to provide assurance that it can continue to meet accreditation standards.

The JRCERT accreditation process offers a means of providing assurance to the public that a program meets specific quality standards. The process helps to maintain program quality and stimulates program improvement through program assessment."

***Excerpt taken from the JRCERT at www.jrcert.org

American Registry of Radiologic Technologists (ARRT)
Standards of Ethics

"The Standards of Ethics provides proactive guidance on what it means to be qualified and to motivate and promote a culture of ethical behavior within the profession. The ethics requirements support ARRT's mission of promoting high standards of patient care by removing or restricting the use of the credential by those who exhibit behavior inconsistent with the requirements."

1. The radiologic technologist acts in a professional manner, responds to patient needs and supports colleagues and associates in providing quality patient care.
2. The radiologic technologist acts to advance the principal objective of the profession to provide services to humanity with full respect for the dignity of mankind.
3. The radiologic technologist delivers patient care and service unrestricted by concerns of personal attributes or the nature of the disease or illness, and without discrimination on the basis of race, color, creed, religion, national origin, sex, marital status, status with regard to public assistance, familial status, disability, sexual orientation, gender identity, veteran status, age, or any other legally protected basis.
4. The radiologic technologist practices technology founded upon theoretical knowledge and concepts uses equipment and accessories consistent with the purpose for which they were designed and employs procedures and techniques appropriately.
5. The radiologic technologist assesses situations; exercises care, discretion and judgment; assumes responsibility for professional decisions; and acts in the best interest of the patient.
6. The radiologic technologist acts as an agent through observation and communication to obtain pertinent information for the physician to aid in the diagnosis and treatment of the patient and recognizes that interpretation and diagnosis are outside the scope of practice for the profession.
7. The radiologic technologist uses equipment and accessories, employs techniques and procedures, performs services in accordance with an accepted standard of practice and demonstrates expertise in minimizing radiation exposure to the patient, self and other members of the health care team.
8. The radiologic technologist practices ethical conduct appropriate to the profession and protects the patient's right to quality radiologic technology care.
9. The radiologic technologist respects confidences entrusted in the course of professional practice respects the patient's right to privacy and reveals confidential information only as required by law or to protect the welfare of the individual or the community.
10. The radiologic technologist continually strives to improve knowledge and skills by participating in continuing education and professional activities, sharing knowledge with colleagues and investigating new aspects of professional practice.
11. The Registered Technologist refrains from the use of illegal drugs and/or any legally controlled substances which result in impairment of professional judgement and/or ability to practice radiologic technology with reasonable skill and safety to patients.

*****Excerpt taken from the American Registry of Radiologic Technologists at http://www.arrt.org**

NORTHWESTERN COLLEGE
SCHOOL OF HEALTH SCIENCES
RADIOGRAPHY PROGRAM

Effective: 3/12/2018
Review/Revision:

Radiologic Technology Program-Grievance Process

Purpose: To have a standard procedure within the radiologic technology program to provide guidelines for timely and fair resolution of complaints or problems related to grades or other academic matters within the radiography program.
Grievance: As explained by the Joint Review Committee on Education in Radiologic Technology, "A grievance is defined as a claim by a student that there has been a violation, misinterpretation, or inequitable application of any existing policy, procedure, or regulation."
Policy:

1. Any student with a complaint should immediately discuss the matter with the person or persons involved to resolve the issue.

2. If the complaint is not resolved to the satisfaction of the student, he or she should discuss the matter with the Program Director.

3. If a student initiates a complaint to the Radiography Program Director a response in writing will be issued to the student within 3 working days.

4. If the problem is resolved following initial response by the Program Director, no further action is needed.

5. If necessary, a meeting will be scheduled by the Program Director with the student within the next 3 working days to discuss the complaint.

6. If the problem is resolved through program meeting, no further action is needed.

7. If further resolution action is needed beyond the Program Director for the Radiography program, the student may appeal through established college procedures. Refer to Student Grievance Procedures in the College catalog. https://www.nc.edu/

Conditional Admission

Applicants who do not meet these specific Admissions Requirements may be enrolled conditionally into the Radiologic Technology program to begin their general education course work. Conditionally admitted students who meet the following requirements will be officially admitted to the Radiologic Technology Program.

1. Successfully complete 1 quarter of General Education coursework with a C or higher.
2. Meet or exceed the minimum scores on the ATI TEAS after no more than three attempts.
3. Be in good standing based on conduct and academic performance.
4. Completion of interview with program admission committee.
5. One letter of recommendation from an instructor, academic advisor, employer, or coworker and a written Statement of Purpose from the student.

CURRICULUM – CONDITIONAL ADMISSION – Effective Summer 2019 Quarter
108 Total Credit Hours

Radiologic Technology Courses: 76 credit hours
RADS.100 Fundamentals of Radiography 3
RADS.101 Radiographic Exposure I 3
RADS.102 Radiographic Exposure II 3
RADS.104 Patient Care in Radiography 3
RADS.105 Radiation Protection 3
RADS.106 Radiographic Exposure III 3
RADS.107 Radiography Patient Care Activities 1
RADS.108 Image Systems I 3
RADS.109 Academic Skills for the Radiologic Technology Program… 1
RADS.110 Radiographic Procedures 3
RADS.111 Radiographic Procedures Lab 1
RADS.112C Clinical I 2
RADS.120 Radiographic Procedures II 3
RADS.121 Radiographic Procedures II Lab 1
RADS.122C Clinical II 2
RADS.130 Radiographic Procedures III 3
RADS.131 Radiographic Procedures III Lab 1
RADS.132C Clinical III 2
RADS.140 Radiographic Procedures IV 3
RADS.141 Radiographic Procedures IV Lab 1
RADS.162C Clinical IV 3
RADS.201 Radiation Physics I 3
RADS.202 Radiation Physics II 3
RADS.203 Radiographic Pathology 3
RADS.205 Radiation Biology 3
RADS.206 Digital Imaging Critique & Technical Evaluation ...3
RADS.210 Radiographic Procedures V 3
RADS.211 Radiographic Procedures V Lab 1
RADS.212C Clinical V 3
RADS.220 Registry Review 3
RADS.222C Clinical VI 3

Related Courses: 19 credit hours
HLTH.141 Medical Terminology in Medical Imaging 3
HLTH.245 Medical Law and Ethics for Radiographers 4
SCIE.115 Anatomy & Physiology I with Lab 6
SCIE.125 Anatomy &Physiology II with Lab 6

General Education Courses: 13 credit hours
Communications 4
ENGL.100 (4)
Life Skills 1
COLL.295 (1)
Math 4
MATH.112 (4)
Social Sciences 4
SOCS.200 (4)

CURRICULUM – FULL ADMISSION
108 Total Credit Hours

Radiologic Technology Courses: 75 credit hours
RADS.100 Fundamentals of Radiography 3
RADS.101 Radiographic Exposure I 3
RADS.102 Radiographic Exposure II 3
RADS.104 Patient Care in Radiography 3
RADS.105 Radiation Protection 3
RADS.106 Radiographic Exposure III 3
RADS.107 Radiography Patient Care Activities 1
RADS.108 Image Systems I 3
RADS.110 Radiographic Procedures 3
RADS.111 Radiographic Procedures Lab 1
RADS.112C Clinical I 2
RADS.120 Radiographic Procedures II 3
RADS.121 Radiographic Procedures II Lab 1
RADS.122C Clinical II 2
RADS.130 Radiographic Procedures III 3
RADS.131 Radiographic Procedures III Lab 1
RADS.132C Clinical III 2
RADS.140 Radiographic Procedures IV 3
RADS.141 Radiographic Procedures IV Lab 1
RADS.162C Clinical IV 3
RADS.201 Radiation Physics I 3
RADS.202 Radiation Physics II 3
RADS.203 Radiographic Pathology 3
RADS.205 Radiation Biology 3
RADS.206 Digital Imaging Critique &Technical Evaluation ... 3
RADS.210 Radiographic Procedures V 3
RADS.211 Radiographic Procedures V Lab 1
RADS.212C Clinical V 3
RADS.220 Registry Review 3
RADS.222C Clinical VI 3

Related Courses: 19 hours

HLTH.141 Medical Terminology in Medical Imaging 3
HLTH.245 Medical Law and Ethics for Radiography..... 4
SCIE.115 Anatomy & Physiology I with Lab 6
SCIE.125 Anatomy &Physiology II with Lab 6

General Education Courses: 14 credit hours

Communications 4
ENGL.100 (4)
Life Skills 2
COLL.104 (1) and COLL.295 (1)
Math 4
MATH.112 (4)
Social Sciences 4
SOCS.200 (4)