

# RADIOGRAPHY, BS

Health care professions separate from nursing, medicine, and pharmacy provide a range of diagnostic, technical, therapeutic and direct patient care and support services that are critical to other health professionals they work with and the patients they serve.

The overall employment outlook for individuals with professional certifications varies, but is projected to be good to excellent by the U.S. Bureau of Labor Statistics. The BS degrees include Diagnostic Medical Sonography, Histotechnology, Medical Technology, Nuclear Medicine Technology, Radiation Therapy Technology, and Radiography. These areas involve completing required course work at Roosevelt University, followed by clinical training at the appropriate affiliate clinical site. A separate application to the clinical training program is required, and acceptance is not guaranteed. Roosevelt University offers five programs with clinical training at Northwestern Memorial Hospital, Chicago (Diagnostic Medical Sonography, Histotechnology, Nuclear Medicine Technology, Radiation Therapy Technology, and Radiography (<https://clinicalschools.nm.org/>)) and one program with clinical training at NorthShore Health Systems, Evanston (Medical Technology (<https://www.northshore.org/academics/academic-programs/other-programs/medical-technology/>)).

## Requirements

Courses taken for the major must be taken on a letter grade basis. A grade of C- is the minimal acceptable grade for a course to be applied to the major, or to be acceptable as a prerequisite for subsequent courses. A minimum cumulative GPA of 2.0 is required for all courses in the major. However, it is important to note that the clinical affiliates have their own GPA requirements and may not accept grades of C- for certain required prerequisite courses.

Each of the areas of study has its own prerequisite courses and requirements. These programs require students to complete all required coursework before applying to the clinical affiliate. Students are not guaranteed admission into the clinical training portion of the degree. Students must make certain they are fully aware of each area's specific acceptance requirements. Students interested in these health care careers should seek early guidance from the health coordinator in the Department of Biological, Physical, and Health Sciences.

## Standards

- AP biology credit with a score of 3.0 or higher may apply toward the major in biology or the general education requirements after consultation with an advisor.
- AP chemistry with a score of 4 or higher satisfies the requirements for CHEM 201 GENERAL CHEMISTRY I with lab.
- AP Physics I (2014 or later) with a score of 3.0 satisfies the requirement for PHYS 201 INTRODUCTION TO NON-CALCULUS BASED PHYSICS I with lab.
- AP Physics II (2014 or later) with a score of 3.0 satisfies the requirement for PHYS 202 INTRO TO NON-CALCULUS PHYSICS II with lab.
- AP Physics C: Mechanics with a score of 3.0 satisfies the requirement for PHYS 201 INTRODUCTION TO NON-CALCULUS BASED PHYSICS I with lab and PHYS 233 CALCULUS-BASED PHYSICS I DISCUSSION.

- AP Physics C: Electricity and Magnetism with a score of 3.0 satisfies the requirement for PHYS 202 INTRO TO NON-CALCULUS PHYSICS II with lab and PHYS 234 CALCULUS-BASED PHYSICS II DISCUSSION.

In addition, students must:

- Take a minimum of their last 30 credit hours at Roosevelt University; off-site clinical courses count toward this requirement.
- Take at least 20 credit hours in acceptable Biology, Chemistry, or Physics courses at Roosevelt University; not more than 15 credit hours of acceptable Biology courses may be transferred to Roosevelt University and applied toward the BS degree.
- Transfer students need to complete a minimum of 1 year of full-time studies at Roosevelt University to be eligible for affiliate benefits.
- Once enrolled in the program, complete all remaining Biology, Chemistry, Physics, and Mathematics course requirements for these BS degrees at Roosevelt University. Under special circumstances, written permission to take required courses elsewhere may be granted by the health coordinator.
- Apply only courses in biology taken within the past eight years toward graduation.
- Limit to 4 credit hours the total of independent study hours (BIOL 395 INDEPENDENT STUDY/BCHM 395 INDEPENDENT STUDY/CHEM 395 INDEPENDENT STUDY) and independent research (BIOL 392 RESEARCH IN BIOLOGY/BCHM 392 RESEARCH IN BIOCHEMISTRY/CHEM 392 RESEARCH IN CHEMISTRY) used to fulfill the requirements of the major.

The Radiography program at Roosevelt University will allow students to obtain a bachelor's degree in Radiography that allows for a variety of exciting career options in the health care field. Radiographers position imaging equipment and adjust controls to produce diagnostic-quality images and assist radiologists in performing specialized imaging procedures. Radiographers work in a variety of settings including hospitals, diagnostic centers, doctor's offices, clinics, and orthopedic practices.

Certified Radiology Technologists may go on to be trained in other advanced imaging techniques, including Computed Axial Tomography (CAT), Magnetic Resonance Imaging (MRI), and Positron Emission Tomography (PET), mammography, and interventional radiography. Advanced career options in education, administration, and research are also possible.

Contact an advisor in the Department of Biological, Chemical, and Physical Sciences for details and advising as soon as possible. This is a **2+2 program**, in which the first two years of course work is completed at Roosevelt University and the final two years at Northwestern Memorial Hospital.

## STANDARDS

A grade of C- is the minimal acceptable grade for a course to be applied to the major, minor, or concentrations. A minimum cumulative GPA of 2.0 is required for all courses in the major. Note that these requirements differ from the clinical partner's requirements.

## CLINICAL ADMISSION

**Admission to clinical training is at the discretion of Northwestern Medicine. Students are not guaranteed admission.** The minimum GPA for application for this clinical program is a 2.5 GPA overall and a C grade in the pre-requisite courses. All applicants whose native language is not English must submit official TOEFL test scores

([https://clinicalschools.nm.org/uploads/1/1/2/0/112045435/nm\\_clinical\\_schools\\_toeffl\\_policy\\_rev\\_9.21.21.pdf](https://clinicalschools.nm.org/uploads/1/1/2/0/112045435/nm_clinical_schools_toeffl_policy_rev_9.21.21.pdf)) by the application deadline to Northwestern Medicine. Clinical course enrollment is subject to the satisfactory completion of pre-clinical course work and admission to the clinical program. Please consult the Northwestern Medicine Clinical Schools website (<https://clinicalschools.nm.org/>) for specific information in regards to application and admission.

Students in the clinical training are registered through Roosevelt University and pay Roosevelt University tuition. There is no additional tuition charge for the clinical portion of the program.

## Requirements

Radiography students complete a minimum of 72 credit hours of academic work, including the College of Science, Health and Pharmacy general education requirements, in addition to the Radiography core courses outlined below. Students must take their final 30 credit hours before clinical training at Roosevelt University. Students complete their last 48 credit hours in a 21-month, full-time, daytime clinical training program at Northwestern Memorial Hospital.

Upon successful completion of the clinical program, students receive a Certificate in Radiography from the hospital and a BS in Radiography from Roosevelt University, and are eligible to sit for the American Society of Radiologic Technologists certification examination.

| Code                                    | Title  | Credit Hours |
|---|--|--------------|
| <b>Core</b>                             |  |              |
| ALH 119                                 | INTRODUCTION TO MEDICAL TERMINOLOGY              | 2            |
| BIOL 123                                | ANATOMY & PHYSIOLOGY I                           | 4            |
| BIOL 124                                | ANATOMY & PHYSIOLOGY II                          | 4            |
| BIOL 202                                | ECOLOGY, EVOLUTION, AND GENETICS                 | 5            |
| BIOL 301                                | CELLULAR & MOLECULAR BIOLOGY                     | 5            |
| CHEM 201                                | GENERAL CHEMISTRY I                              | 5            |
| CHEM 202                                | GENERAL CHEMISTRY II                             | 5            |
| CHEM 210                                | SURVEY OF ORGANIC CHEMISTRY                      | 5            |
| or CHEM 211                             | ORGANIC CHEMISTRY I                              |              |
| MATH 121                                | COLLEGE ALGEBRA                                  | 3            |
| MATH 217                                | ELEMENTARY STATISTICS                            | 3            |
| COMM 101                                | PUBLIC SPEAKING                                  | 3            |
| <b>Clinical Courses for Radiography</b> |  |              |
| ALH 251                                 | INTRODUCTION TO RADIOLOGY & MEDICAL IMAGING      | 3            |
| ALH 252                                 | RADIOLOGICAL PROCEDURES I                        | 3            |
| ALH 253                                 | PATIENT CARE IN MEDICAL IMAGING                  | 3            |
| ALH 254                                 | RADIOGRAPHY CLINICAL I                           | 2            |
| ALH 255                                 | FLUOROSCOPIC PROCEDURES I                        | 1            |
| ALH 261                                 | FLUOROSCOPIC PROCEDURES II                       | 1            |
| ALH 262                                 | MEDICAL LAW & ETHICS                             | 1            |
| ALH 264                                 | IMAGING PRINCIPLES I                             | 2            |
| ALH 266                                 | RADIOGRAPHIC PROCEDURES II                       | 3            |
| ALH 267                                 | RADIOGRAPHIC CLINICAL II                         | 5            |
| ALH 380                                 | RADIATION PHYSICS                                | 3            |
| ALH 381                                 | OPERATIONAL ISSUES IN THE HEALTHCARE ENVIRONMENT | 1            |
| ALH 382                                 | IMAGING PRINCIPLES II                            | 3            |

|   |  |            |
|---|--|------------|
| ALH 383   | RADIOGRAPHIC PROCEDURES III                  | 3          |
| ALH 384   | IMAGING EQUIPMENT & MODALITIES               | 2          |
| ALH 385   | RADIATION BIOLOGY & PROTECTION               | 2          |
| ALH 386   | INTRODUCTION TO CT & CROSS-SECTIONAL ANATOMY | 3          |
| ALH 387   | ARRT REVIEW                                  | 3          |
| ALH 388   | RADIOGRAPHIC CLINICAL III                    | 4          |
| <b>General Education, University Writing Requirement, and Electives</b> |  | <b>28</b>  |
| <b>Core Requirements</b>  |  | <b>44</b>  |
| <b>Clinical Requirements</b>  |  | <b>48</b>  |
| <b>Total Credit Hours to Degree</b>                                     |  | <b>120</b> |

## CORE Requirements (General Education)

| Code   | Title  | Credit Hours |
|--|--|--------------|
| <b>First Year Success Course or Transfer Success Course</b>  |  |              |
| FYS 101  | FIRST YEAR SUCCESS COURSE  | 1            |
| or TRS 101   | TRANSFER SUCCESS 101   |              |
| <b>Communication Requirement</b>   |  |              |
| ENG 101  | COMPOSITION I: CRITICAL READING & WRITING                        | 3            |
| ENG 102  | COMPOSITION II: INTRODUCTION TO ACADEMIC RESEARCH                | 3            |
| COMM 101   | PUBLIC SPEAKING (or program specific CORE communications course) | 3            |
| <b>Ideas of Social Justice</b>   |  |              |
| 3 credits in coursework categorized as Ideas.  |  | 3            |
| <b>Humanities and Fine and Performing Arts</b>   |  |              |
| 9 credits from the following subject areas: African-American Studies, Art History, English (excluding ENG 101 and ENG 102), History, Languages, Music, Philosophy, Theatre, Communication and Women's and Gender Studies |  | 9            |
| <b>Mathematics</b>   |  |              |
| MATH 110   | QUANTITATIVE LITERACY (or above) <sup>1</sup>                    | 3            |
| <b>Science</b>   |  |              |
| One biological science and one physical science required (one must include a one credit lab).  |  | 7-8          |
| <b>Social Sciences</b>   |  |              |
| 9 credits from the following subject areas: African-American Studies, Criminal Justice, Economics, History, Journalism, Philosophy, Political Science, Psychology, Sociology and Women's and Gender Studies              |  | 9            |
| <b>Experiential Learning</b>   |  |              |
| 6 credits from coursework categorized as Experiential Learning.  |  | 6            |
| <b>Total Credit Hours</b>  |  | <b>47-48</b> |

<sup>1</sup>

Higher level of Math may be required by major

These quantitative requirements also apply to degrees.

- Students must earn a minimum of 120 semester hours.
- Students may apply no more than 60 credit hours of 100-level courses toward the degree.

- Students must apply no fewer than 60 credit hours of 200- and 300-level courses toward the degree.
- Students must have at least 18 credit hours (of the 60 credit hours above) at the 300 level.
- Students may transfer in no more than 70 credit hours from community colleges.
- Students earning less than 60 total hours in residence must take their final 30 hours at Roosevelt University. Note that some majors have additional requirements for RU hours.
- Students must have a grade point average of 2.0 or higher to graduate. Note that some majors have additional GPA requirements.
- Students may apply no more than 51 hours in the major (BA) or 57 hours in the major (BS)

Your degree map is a general guide suggesting courses to complete each term on the academic pathway to your degree. It is based on the most current scheduling information from your academic program. Your program's degree map is reviewed annually and updated as schedules change (although you retain the same course requirements as long as you are continuously enrolled in your degree program).

Always work closely with your academic advisor to understand curriculum requirements and scheduling, as each student's academic plan can look slightly different.

#### Year 1

| Fall     | Credit Hours | Spring                    | Credit Hours | Summer          | Credit Hours |
|----------|--------------|---------------------------|--------------|-----------------|--------------|
| FYS 101  |              | 1 ALH 119                 |              | 2 Humanities #1 | 3            |
| ENG 101  |              | 3 ENG 102                 | 3            |                 |              |
| MATH 121 |              | 3 BIOL 124                | 4            |                 |              |
| BIOL 123 |              | 4 CHEM 202                | 5            |                 |              |
| CHEM 201 |              | 5 Ideas of Social Justice | 3            |                 |              |
|          | 16           |                           | 17           |                 | 3            |

#### Year 2

| Fall          | Credit Hours | Spring                                | Credit Hours | Summer              | Credit Hours |
|---------------|--------------|---------------------------------------|--------------|---------------------|--------------|
| BIOL 202      |              | 5 BIOL 301 (Experiential Learning #1) |              | 5 Social Science #3 | 3            |
| CHEM 210      |              | 5 MATH 217                            | 3            |                     |              |
| COMM 101      |              | 3 Social Science #1                   | 3            |                     |              |
| Humanities #2 |              | 3 Social Science #2                   | 3            |                     |              |
|               |              | Humanities #3                         | 3            |                     |              |
|               | 16           |                                       | 17           |                     | 3            |

#### Year 3

| Fall    | Credit Hours | Spring    | Credit Hours |
|---------|--------------|-----------|--------------|
| ALH 251 |              | 3 ALH 255 | 1            |
| ALH 252 |              | 3 ALH 266 | 4            |
| ALH 253 |              | 3 ALH 267 | 4            |

|         |              |  |  |              |
|---------|--------------|--|--|--------------|
| ALH 254 |              | 2 ALH 382                              |  | 3            |
| ALH 264 |              | 2                                      |  |              |
|         |              | 13                                     |  | 12           |
| Year 4  |              |  |  |              |
| Fall    | Credit Hours | Spring                                 |  | Credit Hours |
| ALH 261 |              | 2 ALH 385                              |  | 2            |
| ALH 262 |              | 1 ALH 386                              |  | 3            |
| ALH 380 |              | 3 ALH 387                              |  | 3            |
| ALH 381 |              | 1 ALH 388<br>(Experientia Learning #2) |  | 4            |
| ALH 383 |              | 3                                      |  |              |
| ALH 384 |              | 2                                      |  |              |
|         |              | 12                                     |  | 12           |

Total Credit Hours 121

\*

Clinical applications due March 1st.

\*\*

Must be accepted to clinical school for clinical training courses. Not guaranteed.