School of Medicine

IU School of Medicine Health Professions Programs 2024-2025 Bulletin

The Indiana University School of Medicine Health Professions Programs offer degrees and course work in the following areas:

Cytotechnology, B.S.
Diagnostic Sonography, B.S.
Emergency Medical Services+
Histotechnology, Certificate & A.S.
Medical Imaging Technology, B.S.
Medical Laboratory Science, B.S.
Nuclear Medicine Technology, B.S.
Ophthalmic Technician Training Program, Certificate
Paramedic Science, A.S.
Radiation Therapy, B.S.
Radiography, A.S.
Respiratory Therapy, B.S.

+EMT-Basic Course Open to all IU Indianapolis students

These programs are housed within appropriate clinical departments in the Indiana University School of Medicine but are collectively called the Health Professions Programs (HPP).

The IU School of Medicine Health Professions Programs are committed to the preparation of excellent quality health personnel who have a concern for the well-being of the people they serve. The programs integrate teaching, research, and service through the efforts of their faculty and students. This integration results in high-quality programs that have a significant positive impact on health care.

Health Professions Programs (Certificate, AS and BS Programs)
Van Nuys Medical Science (MS)
635 Barnhill Dr, MS 203
Indianapolis, IN 46202

(317) 278-4752

askhpp@iu.edu
Web: click here

For information regarding other degree programs within the IU School of Medicine:

Medical School Admissions (MD Program)
Van Nuys Medical Science (MS)
635 Barnhill Dr, MS 112
Indianapolis, IN 46202

(317) 274-3772

inmedadm@iupui.edu
Web: click here

IU School of Medicine Graduate Division (MS and PhD Programs) Van Nuys Medical Science
635 Barnhill Drive, MS 207
Indianapolis, IN 46202

(317) 274-3441

biomed@iupui.edu
Web: click here

Updated: March 2024

Accreditation

Accreditation
The Indiana University School of Medicine Health Professions Programs share with the other schools of the University the accreditation accorded Indiana University as a member of the Higher Learning Commission.

In addition, the professional programs are individually accredited by appropriate governing agencies within the discipline.

Cytotechnology, BS The curriculum of the Cytotechnology Program is fully accredited by the Commission on Accreditation of Allied Health Education Programs.

Histotechnology, Certificate and AS The Histotechnology Programs at Indiana University-Indianapolis is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

NAACLS
5600 N. River Rd, Suite 720
Rosemont, IL 60018-5119
Phone (773) 714-8880
Fax (773) 714-8886
E-Mail: info@naacls.org

Medical Laboratory Science, BS The Clinical Laboratory Science Program at Indiana University-Indianapolis is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences:

5600 N. River Rd, Suite 720
Rosemont, IL 60018
Phone (773) 714-8880
Fax (773) 714-8886
E-Mail: info@naacls.org

Nuclear Medicine Technology, BS The bachelor's degree in nuclear medicine technology is fully accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology:

820 W. Danforth Rd, #B1
Edmond, OK 73003
(405) 285-0546

Paramedic Science, AS The Paramedic Science Program at Indiana University/Eskenazi Health is accredited by the Commission on Accreditation of Allied Health Education Programs upon the recommendation of Committee on Accreditation of Emergency Medical Services Programs.

Radiation Therapy, BS
The bachelor degree program is accredited by the Joint Review Committee on Education in Radiologic Technology:

20 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3182

Radiography, AS The associate degree program in radiography is fully accredited by the Joint Review Committee on Education in Radiologic Technology:

20 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3182
(312) 704-5300

Respiratory Therapy, BS The Indiana Respiratory Therapy Education Consortium (program number 200039) is fully accredited by the Commission on Accreditation for Respiratory Care:

264 Precision Blvd
Telford, TN 37690
(817-283-2835)
Accreditation is in effect through March 31, 2027.

Program outcomes can be found at the COARC Website.

Updated: March 2024

Directory

Administrative Office

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Programs

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Ophthalmic Technical Training Program, Certificate

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Paramedic Science (A.S.)

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Radiation Therapy (B.S.)

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Radiography (A.S.)

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Respiratory Therapy (B.S.)

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History of Current Degree Programs

History of Current Degree Programs
All Indiana University School of Medicine Health Professions Programs were formerly part of the IU School of Allied Health Sciences. On July 1, 2002, eight programs were moved back to the IU School of Medicine as part of a restructuring of the new IU School of Health and Human Sciences, which moved toward a graduate school model. One additional undergraduate program moved on January 1, 2004, to complete the restructuring of the undergraduate programs. A new certificate program was added in 2022 and a new bachelor's degree that split off from an existing program was added in 2023.

The former IU School of Allied Health Sciences was first established as a division in 1959 by action of the Trustees of Indiana University. In 1960, the trustees conferred upon the faculty of the IU School of Medicine the responsibility and authority to grant the Bachelor of Science degree to those students successfully completing the prescribed curriculum in four allied health programs that had been offered long before the establishment of the division. Since that time, additional degree programs were approved and initiated. In June 2003, the IU School of Allied Health Sciences was renamed the IU School of Health and Rehabilitation Sciences.

History of the IU School of Medicine The Indiana University School of Medicine (IUSM) was founded in 1903, and its first students were enrolled on the Bloomington campus. It was the fourth medical school in the United States, after Johns Hopkins, Harvard, and Western Reserve, to require two or more years of collegiate work for admission. The school awarded the Doctor of Medicine (M.D.) degree to its first class of 25 in 1907. Following the union in 1908 of all medical schools in the state within Indiana University, the General Assembly of the State of Indiana, mandated, in 1909, that Indiana University assume the responsibility for medical education in the state.

For more about the School of Medicine and its recent history, click here.

Updated: March 2024

Overview

The Indiana University School of Medicine (IUSM) Health Professions Programs offer degrees and course work in cytotechnology, diagnostic sonography, emergency medical services, histotechnology, medical imaging technology, medical laboratory science, nuclear medicine technology, ophthalmic technician, paramedic science, radiation therapy, radiography, and respiratory therapy. These programs are housed within appropriate clinical departments in the IUSM and are collectively called the Health Professions Programs. Other clinical degrees in the health professions are offered on the IU Indianapolis campus through the IU School of Dentistry, IU School of Nursing, and the IU School of Health and Human Sciences.

Updated: March 2024

Purpose & Philosophy

Purpose
The Indiana University School of Medicine (IUSM) Health Professions Programs are charged with providing undergraduate health professions education on the Indiana University campus in Indianapolis (IU Indianapolis). These programs prepare health professionals to provide diagnostic and therapeutic patient care. As part of a major university, the programs accept and fulfill four major responsibilities, by providing (1) opportunities to acquire a sound basic education in the undergraduate health programs offered through the School of Medicine and to foster the development of lifelong habits of scholarship and service; (2) advancement of knowledge through research; (3) continuing education programs aimed at maintaining and improving the competence of those health professionals engaged in patient care or supportive health services; and

(4) multiple services to the people of the state of Indiana in these health professions.

Philosophy
The IUSM Health Professions Programs are committed to the excellent quality preparation of health personnel who have a concern for the well-being of the people they serve. The programs integrate teaching, research, and service through the efforts of their faculty and students. This integration results in high quality programs that have a significant positive impact on health care.

Each program offered provides the health professions student with an opportunity to develop expertise, scientific knowledge, and professional attitudes that will enable the student to contribute to the health of society and obtain career satisfaction. The programs adhere to specific professional guidelines or standards and are designed in collaboration with the appropriate accrediting bodies. All curricula are based upon a foundation in the liberal arts and sciences, which is essential for an informed and productive life.

The faculty believe that the education of health professions personnel follows a coordinated and logical interdisciplinary process based on a core body of knowledge germane to health professions practice. By sharing experiences related to a variety of activities, the student is introduced to others who have both common and unique educational interests. Appreciation of the contribution of each health discipline and interaction with peers and scholars in different health professions encourage the coordination of health planning, health services, disease prevention, and health promotion.

Education is perceived by the faculty as an evolving and continuing process toward an increased ability to think, reason, and judge that leads to a satisfying and self-disciplined life. Effective education allows for individual difference and is provided in a participative atmosphere. The faculty believe that freedom of choice and meaningful assimilation of facts nurture the development of the students, enhance their understanding of patients' problems, and promote a dedication to lifelong self-evaluation and self-education.

Faculty of the IUSM Health Professions Programs are fully qualified in their fields of expertise and hold appropriate degrees and certification or licensure. In implementing the objectives of their academic programs, they strive to keep their professional and teaching competencies current. The faculty are committed to preparing uniquely qualified personnel who must meet the challenges of the complex and ever-changing health care needs of society.

The graduates of IUSM Health Professions Programs should be prepared to apply the knowledge they have attained in their selected discipline. Graduates have a responsibility to maintain competency through formal and informal continuing education and to contribute to new knowledge in their discipline. Graduates have legal, moral, and ethical responsibilities to their employers, patients, and the public and are expected to participate in community and professional activities.

This statement of philosophy forms the core of values from which the IUSM Health Professions Programs vision, mission, objectives, policies, and procedures are derived.

Updated: March 2024

Vision & Mission

Vision The vision of the Indiana University School of Medicine Health Professions Programs is to be a nationally recognized leader in health professions education, research, and service, while preparing an array of high-quality health care professionals in Indiana.

Mission The Indiana University School of Medicine Health Professions Programs have a long tradition of academic excellence. The major purpose of the Health Professions Programs is to provide quality degree programs in the health professions to meet the needs of the people of the state of Indiana. In fulfilling their fundamental purpose, the Health Professions Programs seek to develop and maintain a scholarly and competent faculty capable of achieving the following goals:

- To build upon sound principles of general education by preparing students to communicate effectively, exhibit quantitative skills, think critically, integrate and apply knowledge, exhibit intellectual depth and breadth, be intellectually adaptive, appreciate societal and cultural diversity, and apply ethical standards and values to professional practice.
- To provide undergraduate degree programs that offer education related to the provision and management of health services by the various health professions.
- To contribute to the advancement of knowledge through research.
- To provide continuing education for health professions practitioners wishing to further their career development.
- To foster the development of lifelong habits of scholarship and service among faculty and students.

In addition to the mission of the collective programs, each program has its own mission statement, which can be found on the web site devoted to the program. Please see the appropriate web site or contact individual programs for further information.

Updated: March 2024

Admission Policies

Admission Policies

Social Security Number To gain access to certain hospitals that serve as clinical sites for all Health Professions Programs, all students must have a social security number (SSN) by February 1 in the year of entry.

Prerequisite Course Work Applicants must complete prerequisite courses at a regionally accredited college or university. Individual programs determine the specific courses and the minimum grade that must be achieved in any course; therefore, program-specific requirements may differ. Pass/fail grades are not acceptable in prerequisite courses unless pre-approved by the specific program. Students are eligible to apply for admission to an associate or baccalaureate program when their academic progress shows reasonable probability that entry-level requirements can be completed before the beginning date of the next entering class. Applicants should read the admission policies and program descriptions in the school

and program sections of this bulletin for specific entry-level requirements.

Repeated Courses Applicants whose cumulative grade point average is at least 2.00 on a 4.00 scale and who have repeated courses may petition to have their admission grade point average recalculated. The recalculation will use the most recent grade. This repeat option includes the use of the Indiana University FX option and is applied with the following restrictions: It can be used for a total of no more than 15 credits; the grade will be deleted not more than twice for a given course; each attempt will count toward the 15-credit-hour limit; and a W cannot be used to replace a grade and will not count. If more than 15 credit hours are repeated, the applicant will determine which of the repeated courses are to be deleted. The petition must be attached to the application. The effective date is the beginning of the 1996 fall semester. Any course being used to replace an earlier course grade must be taken in the fall of 1996 or later.

Academic Bankruptcy Applicants whose cumulative grade point average is at least 2.00 on a 4.00 scale may petition the program for up to one consecutive academic year of academic bankruptcy based on compelling nonacademic reasons. The bankrupted terms must be consecutive. Academic bankruptcy is for admission purposes only and in no way affects the university's official grade point average. Course work completed in a semester that has been bankrupted for admission purposes cannot be used for the fulfillment of program prerequisites or counted as credit hours toward the degree. Request for academic bankruptcy must be submitted at time of application.

Fresh Start Applicants whose cumulative grade point average is at least 2.00 on a 4.00 scale may petition the program for Fresh Start (forgiveness) based on compelling nonacademic reasons. This forgiveness will eliminate, for the purpose of calculating program specific admission grade point average(s), all courses and grades earned by the applicant during the requested period. The forgiveness period begins with the applicant's first academic enrollment period (at any college or university) and ends after the academic term designated by the applicant. Course work completed in a semester that has been forgiven for admission purposes cannot be used for the fulfillment of program prerequisites or counted as credit hours toward the degree. The request must be submitted at the time of application and must include the beginning and ending dates of the forgiveness period.

To invoke this policy, the student must meet the following three conditions:

1. *Including* all course work taken during the requested academic forgiveness period, applicants must have at least a 2.00 cumulative grade point average (on a 4.00 scale).
2. *After* the designated forgiveness period, applicants must complete the following minimum number of graded course hours based on the degree level of their program of interest - Bachelor's Degree - 50 credit hours of graded course work or Associate Degree* - 12 credit hours of graded course work.
3. Meet all other program-specific admission requirements.

Applicants may include in-progress course work at the time of the specific program's application deadline toward the minimum number of graded course work required after the designated forgiveness period.

*Applicants to the Radiography Program must complete at least one math/science course as part of the 12 credit hours of graded course work completed after the academic forgiveness period.

NOTE: Fresh Start will not be granted for professional Radiologic Sciences courses for those applying to the Medical Imaging Technology Program.

Transfer Credit Acceptance of credit from a regionally accredited college or university for transfer to Indiana University will be determined by the campus admissions office.

While the grades from course work completed at Indiana University and all other colleges and universities are used to calculate the admission grade point average, only grades of C (2.00) or above will be considered for transfer. The university does not accept the transfer of special credit by examination awarded by another college or university. The transfer of credit earned through a regionally accredited junior college or a community college is normally limited to the equivalent of two years of academic work toward a baccalaureate degree and one year of academic work toward an associate degree. The IUSM retains the right to determine the acceptability of transfer credit to meet degree requirements.

Transfer credit is evaluated by the IU Indianapolis campus in regard to the below IU Indianapolis General Education Core.

IU Indianapolis General Education Core The IU Indianapolis General Education Core serves as the foundation for all degree programs at IU Indianapolis. The GE Core includes 30 credit hours (typically 10 courses) that often are taken in the first and second year of college. Transfer students entering IU Indianapolis from another public university in Indiana who have completed the transferable general education core at their home campus will not need to complete the IU Indianapolis general education core. For more information regarding the Indiana College Core, visit the IU Indianapolis General Education Core website.

Credit by Examination Applicants to any of the Health Professions Programs who have received credit by examination from Indiana University in a course that meets a program prerequisite will be viewed as meeting this specified requirement. Application of this policy for math/science prerequisites will be determined at the program level. Any credit by examination hours received by the student must be transferred onto the student's university transcript before it can be considered as meeting a program's admissions prerequisite.

At IU Indianapolis, credit by examination can be earned from the following sources: Advance Placement (AP), the College Level Examination Program (CLEP), the Defense Activity for Non-Traditional Education Support (DANTES), and Indiana University departmental examinations. See IU Indianapolis Admissions for required documents and procedures on receiving credit. Students at Indiana University whose standardized test scores (ACT or

SAT) are high enough to have course content waived by a particular academic unit may request the specific program's admissions committee to accept this waiver.

Undistributed Credit Upon admission to any of the Indiana University campuses, students with course work completed previously at accredited colleges or universities are awarded the appropriate transfer credit for this prior education. Transfer credits are either matched to the appropriate course equivalent (e.g., ENG-W 131) on that IU campus or transferred as undistributed credit (e.g., ENG-UN 100). Some campuses have policies that limit the number of credits that students may receive for their prior education.

When transfer credits are designated as 'undistributed,' this simply means that the transfer credit analyst for the specific campus did not find an equivalent course at that IU campus. These credits can still be applied for use towards any of the School's degree programs, but cannot be used to meet the IU Indianapolis General Education Core unless they are designated an undistributed general education credit.

When a student has been given 'undistributed' credits, it is the student's responsibility to contact the School's Administrative Office to determine how these credits will be accepted by the admission committee of the student's program of interest. Such a request should be made in writing (preferably via email) to a member of the administrative staff. The request will then be forwarded to the appropriate admissions committee for consideration.

Undistributed credit can be re-evaluated for equivalency to an IU Indianapolis course number. Please contact the IU Indianapolis Office of Admissions for further details on this process.

Preference to In-State Residents Most spots available each academic year are reserved to applicants who complete the majority of applicable course work at a public college or university in Indiana. Each program's admissions committee may set aside up to 20% of the incoming class for out-of-state residents. Some programs have more restrictive policies. Please see each program's admission section for more details.

Equal Opportunity/Affirmative Action Policy Indiana University pledges itself to continue its commitment to the achievement of equal opportunity within the University and throughout American society as a whole. In this regard, Indiana University will recruit, hire, promote, educate, and provide services to persons based upon their individual qualifications. Indiana University prohibits discrimination on the basis of age, color, disability, ethnicity, sex, gender identity, gender expression, genetic information, marital status, national origin, race, religion, sexual orientation, or veteran status.

As required by Title IX of the Education Amendments of 1972, Indiana University does not discriminate on the basis of sex in its educational programs and activities, including employment and admission. Questions specific to Title IX may be referred to the Office for Civil Rights or the University Title IX Coordinator.

Indiana University shall take affirmative action, positive and extraordinary, to overcome the discriminatory effects of traditional policies and procedures with regard to the disabled, minorities, women, and veterans.

Policy Changes When a change to any School or Program criterion is made, it will become effective for applicants who apply for admission during the specific program's application deadline immediately following the announced change.

Any changes in a specific program's requirements will be announced on the School's website and in advising materials made available to students. Changes will also be distributed to university counselors and constituents who work with pre-health professions students state-wide.

Updated: March 2024

Admission Standards and Procedures

Admission StandardsGrade Consideration The applicant's grade point average will be the major consideration (51 percent or greater) for admission.

Grade Requirements Without exception, applicants to a degree program must have a cumulative grade point average of at least 2.00 on a 4.00 scale for all course work completed at Indiana University and/or any other college or university. Some programs have established a minimum grade point average higher than 2.00 on a 4.00 scale. Some programs also use a component of the overall grade point average (e.g., math/science grade point average). Only completed course work and the resultant grade point average are evaluated. Radiography Program applicants may have the high school record evaluated. Grades earned in remedial courses may be used differently by individual programs to calculate the competitive grade point average.

Minimum Grade Standards Students applying for a degree program may not be admitted to, hold a position in, or begin a program if they would be on probation as a student in any of the IUSM Health Professions Programs. Students are placed on probation within the School when the cumulative and/or most recently completed semester grade point average falls below 2.00 on a 4.00 scale.

Testing Applicants may be required to complete testing as designated by the program. Testing results may be used as a component of the admissions decision unless their use would violate state or federal law.

Interview Applicants may be required to complete a personal interview. The interview may be a component of the admission decision. Some programs limit the number of interviews granted based on the number of applications received.

Technical Standards for Admission and Retention Because a degree in a health professions discipline attests to the mastery of knowledge and skills, graduates must possess the essential knowledge and skills to function in a broad variety of clinical situations and render a wide spectrum of patient care in a safe and effective manner.

The School of Medicine Health Professions Programs faculty has therefore specified nonacademic criteria, Technical Standards for Admission and Retention, that all applicants and students are expected to meet in order to

participate in a health professions program. These criteria include the following five categories: (1) observation; (2) communication; (3) motor function; (4) intellectual-conceptual, integrative, and quantitative abilities; and (5) behavioral and social attributes. All accepted students will be required to sign a statement certifying that they can meet the technical standards that apply to the program to which they have been admitted.

A copy of the technical standards will be sent to each applicant with an offer of admission. Additionally, a copy may be obtained from the program of interest or the Health Professions Programs Administrative Office.

Admission Procedures

1. Individuals seeking admission to a professional program must submit a complete IU School of Medicine (IUSM) Health Professions Programs application before the individual program's application deadline. When applying to more than one program, separate applications must be completed. Admission to the professional program is competitive; application for admission to the school does not constitute automatic admission to a program.
2. Applicants who are not Indiana University students must also file an Indiana University application and pay the application fee (if needed) before the program application deadline. Applications for admission to Indiana University Indianapolis can be obtained from the IU Indianapolis Office of Undergraduate Admissions at (317) 274-4591 or apply@iupui.edu. This application process can also be completed online here. Students seeking a second baccalaureate degree from Indiana University must also submit an application. Returning students who have been inactive for more than one year may also be required to contact the IU Indianapolis Office of Undergraduate Admissions to reactivate their university enrollment status. Students applying from other regional IU campuses must complete the inter-campus transfer application.
3. All complete applications are reviewed by the program's admission committee. The selection of a class is based on school and program admission criteria. All applicants receive notification of their admission status.
4. Each program's admissions committee reserves the right to correct any mistake made in the calculation of an applicant's eligibility to be considered for an interview or for admission to the program.
5. Applicants may appeal any admission decision except the minimum GPA required by the specific program's admissions committee. Copies of the policies and procedures governing the appeals process are available on request from the Health Professions Programs Administrative Office.
6. Grades earned in remedial courses may be used differently by individual programs to calculate the competitive grade point average. See the program-specific sections.
7. The Health Professions Programs application is revised each summer. Applicants must obtain an application for the year in which they wish to apply.
8. Applicants should check the current School application for the program specific deadlines.
9. Students who have been convicted of a felony may be unable to obtain appropriate credentials to practice in some disciplines. Contact the program director for further information. Applicants are required to disclose any convictions, charges, and/or probation/diversion at the time of application. The requirement for applicants to disclose continues throughout the application process, matriculation into a Health Professions Programs, and until graduation. In addition, applicants who have been arrested for or convicted of any violation of the law or who have charges pending against them at the time of application must disclose this information to the School at the time of application. If applicable, please see the application instructions for more details.
10. Entering student requirements include the following: technical standards for admission and retention, IU School of Medicine Honor Code, requirement to disclose, background check & drug screen, health screen and immunizations, and proof of health insurance. A Social Security Number is required to finalize an applicant's background check and allows a student access to hospitals that serve as the School's clinical partners. *The requirement to complete a drug screen is not an IUSM policy but meets requirements as outlined in the School's clinical affiliation agreements with our various clinical partners.*
11. A student whose name appears on the Indiana Sex and Violent Offender Registry will not be allowed to pursue admission to any program in the School.

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Admission

AdmissionApplicants seeking admission to any of the IU School of Medicine (IUSM) Health Professions Programs must be enrolled as a degree-seeking student on the IU Indianapolis campus or admitted to the campus for the appropriate term of entry. In addition, applicants must also submit a completed application packet to the specific program's admissions committee by the program's application deadline. Please see program specific requirements in the "Degree Programs" section of this publication. The program specific application can be found in the admissions section of the Health Professions Programs website here.

Preadmission Status Enrollment at Indiana University does not guarantee admission to any of the IUSM Health Professions Programs. To be eligible for admission, students must adhere to the academic regulations of the academic unit in which they are enrolled and meet IUSM Health Professions Programs and individual program preadmission requirements as stipulated in the academic regulations and undergraduate program sections of this bulletin. Admission to many programs is competitive; therefore, completion of the prerequisites does not guarantee admission to the program. In some instances a student may be admitted to the IUSM as a preprofessional student; however, this status is for academic advising purposes only and in no way influences admission into a professional program.

Change of Educational Objective for Preprofessional Students

Changing one's educational objective to a IUSM Health Professions Programs does not guarantee admission to the program. Students considering a change in their educational objective should consult with a counselor on their respective campuses before initiating the change. Pre-health professions students in University College, the IUSM, or other Indiana University schools or divisions must follow that academic unit's procedures for changing the educational objective. All students must meet school and individual program admission requirements in order to be admitted to a professional program. Each Health Professions Program requires students to complete an application for admission to the specific program. Please see program-specific sections for the individual program admission deadlines.

Updated: March 2024

Academic Policies

Students in Good Standing Students must maintain a minimum cumulative grade point average of 2.00 (C) and a minimum grade point average of 2.00 for the most recent academic session and meet additional program, academic, and professional standards in order to be considered in good standing. Students are informed of program, academic, and professional standards during program orientation.

Class Standing Within Indiana University, class standing is based on the total number of credit hours a student has earned. However, within the Health Professions Programs, class standing is assigned according to a student's progress in the professional curriculum.

Semester Load To be considered a full-time student by the university for each session, the student must register for a minimum of 12 credit hours each fall, spring, or combined summer terms. The maximum load is 18 credit hours (9 hours in a summer session). Students who want to carry more than 18 credits must obtain permission of the program director and the dean or the dean's designee. In addition, students should have a cumulative 3.00 (B) average or have earned a 3.00 (B) average in their last full semester.

Probation Upon the recommendation of the faculty in the student's program, a student is placed on probation. Probationary recommendations are made when the student does not meet standards of academic performance or professional behavior. A student will be placed on academic probation for the academic session following the one in which the student fails to attain a minimum 2.00 (C) cumulative or semester grade point average. Individual programs may have additional academic and professional standards. A student who fails to meet these program-specific standards may also be placed on probation. Students are informed of program-specific standards in the program's student handbook provided during the program's orientation session. A student will be removed from probation after satisfactorily completing the program's specified requirements. Students are notified in writing of probationary actions by the School's dean or the dean's designee.

Dismissal Upon the recommendation of the faculty in the student's program, a student may be dismissed from the School. Dismissal is based on the failure to meet academic or professional standards. The student will be informed of the dismissal in writing by the School's dean or the dean's designee. A student who has been dismissed from the School may not apply for readmission to the program in which the student was enrolled at the time of dismissal. Under special circumstances, a waiver may be requested by the program and forwarded to the Health Professions Programs' Executive Committee for action. Students dismissed for personal or academic misconduct are not eligible for admissions to any other Health Professions Program.

Academic Standards A student may be dismissed from the School when, in the judgment of the faculty, the student has ceased to make satisfactory progress toward a degree. When an undergraduate student fails to attain a 2.00 (C) grade point average for two consecutive academic sessions, has a cumulative grade point average below 2.00 (C) for two consecutive semesters, or fails to earn higher than a 1.00 (D) grade point average in any one semester, the student is automatically considered to be making unsatisfactory progress toward a degree and is thereby eligible for dismissal.

In addition, a student who fails to meet program-specific academic requirements is considered to be making unsatisfactory academic progress toward a degree and may be dismissed. At the time of program orientation, each student receives a copy of the program-specific academic requirements.

Professional Standards A student failing to meet the standards of professional and personal conduct may be recommended for dismissal.

Withdrawal and Readmission A student may be readmitted to the School after withdrawal as follows:

Temporary Withdrawal Students in good standing who voluntarily and temporarily withdraw from a program assume temporary inactive status with the School. At the time of departure, it is the student's responsibility to arrange in writing a continuation agreement with the individual program director. The student is allowed to re-enroll as specified in the continuation agreement. The student must meet any specific academic/clinical requirements associated with re-enrollment under the continuation agreement. Students failing to re-enroll as specified in the continuation agreement are subject to dismissal from the School and program.

Other Withdrawal A student who withdraws without arranging in writing for a continuation agreement with the program director, or who fails to enroll in any semester, will not be allowed further enrollments in the School and will be considered as not making satisfactory progress toward a degree. Such students who want to re-enroll must file an application for admission and will be considered new applicants. New prerequisites and standards must be met. These students may be considered for advanced standing in the program provided the completed work meets the current standards of the program.

Updated: March 2024

Credentials/Licensure

Students completing any of the professional programs are qualified to sit for the appropriate licensure and/or

credentialing examinations. See program specific section for further information.

Updated: March 2024

Honors

Degrees Awarded with Distinction (IU Policy) The university recognizes a student's superior performance in course work by awarding the associate or bachelor's degree with one of three levels of distinction: distinction, high distinction, or highest distinction. A student must meet the following criteria to receive a degree awarded with distinction.

1. Baccalaureate and associate degree candidates must rank in the highest 10 percent of their graduating class or cohort. The determination of eligibility for graduation with academic distinction will be made by the School so that candidates will be ranked with classmates who received the same type of degrees (e.g., B.S. in Cytotechnology, B.S. in Nuclear Medicine Technology). Programs with students who enter with a different cohort class or track can award honors to each separate group.
2. If the 10 percent determination of any class results in a fractional value, the number will be rounded up (e.g., a graduating class of 11 would have two individuals eligible for distinction).
3. Calculation of the grade point average for graduation with distinction will be based on the total number of credit hours completed at Indiana University. A candidate for a baccalaureate degree must have completed a minimum of 60 credit hours at Indiana University; associate degree candidates must have completed at least half of the credit hours required for their degree at Indiana University.
4. No more than 10 percent of the Indiana University credit hours may be eliminated from the grade point average determination by utilization of the mechanisms of Pass/Fail or special credit.
5. A minimum cumulative grade point average of 3.50 must have been achieved.
6. Three levels of distinction will be recognized and determined as follows: 3.50 through 3.74-Distinction; 3.75 through 3.89-High Distinction; 3.90 through 4.00-Highest Distinction.
7. The determination of candidates who will wear honor cords at the May graduation ceremonies should include all academic credit earned at Indiana University, including the spring semester before commencement.
8. Unique cases and appeals should be forwarded to the School's dean or the dean's designee for consideration.

Dean's List Each semester, students who excel academically have the privilege of being listed on the IU School of Medicine Health (IUSM) Professions Programs Dean's List. To be eligible, students must carry 9 or more credit hours and must earn a semester grade point average of 3.50. An exception can be granted for students in their final semester if the program’s curriculum is set at less than 9 credit hours.

Program Awards Individual professional programs in the IUSM Health Professions Programs offer awards recognizing academic excellence, leadership, career potential, and service. Students should refer to specific programs for descriptions of these awards.

Updated: March 2024

Academic Regulations

All students admitted to the IU School of Medicine (IUSM) Health Professions Programs are governed by the following academic regulations.

Academic Standing - Probation, Dismissal, Reinstatement Policies related to Academic Standing can be found here.

Dean's List

Grade Replacement

Residency Requirement for Degree
All students completing a degree from the IUSM must complete at least 30 credits hours in residence at the institution. By nature of the professional curriculum for each program, this should automatically occur. By School policy, credits awarded by special credit do not count towards the residency requirement. If a student applies for advanced standing, the School will allow some of the credit hours to have been completed at another Indiana University campus.

Students should check with their individual program regarding requests of an incomplete and requirements for finishing to meet campus guidelines.

All requests for course withdrawals after the automatic W deadline for any term must receive approval from the student’s advisor, instructor, and School’s dean or designated representative.

Grades All students admitted to the IUSM Health Professions Programs are governed by the grade definitions and minimum grade requirements established by their professional program. Instructors are responsible for establishing and publishing the grading scale applicable to their courses.

Pass/Fail IUSM Health Professions Programs students may not use the Pass/Fail option for a stated prerequisite or a professional course. No more than one Pass/Fail course may be taken in any one semester. Students are limited to a maximum of 24 Pass/Fail credit hours for the baccalaureate degree and a maximum of 12 Pass/Fail credit hours for the associate degree.

Special Credit Policy IUSM Health Professions Programs may award special credit to students who are enrolled at Indiana University seeking a degree and who possess, by previous education or experience, a background in a current degree program within the IUSM. The mechanisms by which a student may be awarded credit include credit by credentials, credit by experience, and credit by examination. Certain programs have policies that define how these mechanisms apply to a student seeking credit from that program. Students may obtain a copy of the available program specific *Special Credit Policy and Procedure* by contacting the Health Professions Programs Administrative Office.

Dropped or Added Courses Students who alter their original class schedules, whether by personal incentive or university directive, must do so officially by filing the appropriate forms with the registrar or following the approved electronic process. Students who do not assume this responsibility are jeopardizing their records with the possibility of incurring an F in a course not properly dropped and/or not receiving credit in a course improperly added.

Double Major An undergraduate double major does not exist in the IUSM, and second major options have not been established between the School and any other academic unit. Each health professions degree is a separate academic curriculum, and students may not pursue a double major.

Multiple Degrees Students earning more than one degree at the same level are required to meet the academic requirements for the degree in each school and must be recommended for the degree by the faculty of each school. Students receiving an undergraduate degree from the IUSM are required to complete the professional component in sequence with their class of admission.

Remedial Courses Generally, remedial and refresher courses do not satisfy any course requirement for any IUSM Health Professions Programs degree. Contact the program for further information

IU Indianapolis Policies

- Auditing a Course
- Confidentiality and Access to Student Records
- Dropping/Adding Classes
- E-mail as Official Communication
- Equal Opportunity and Affirmative Action
- Grade Point Average
- Grading System
- Military Withdrawal
- Residency
- Student Responsibilities
- Technology Access, Security, and Use
- Tobacco Free Policy
- Zachary's Law

Campus-Level Policies

- Academic Level
- Academic Probation
- Dismissal
- Full-Time, Half-Time, Part-Time Student Status
- Grade Forgiveness
- Grade Replacement
- Graduation with Academic Distinction
- Readmission
- Transfer

Updated: March 2024

IU Indianapolis Honors College

The IU Indianapolis Honors College provides students with exceptional educational experiences and opportunities designed to supplement and enrich students' regular degree programs.

The IU Indianapolis Honors College experience offers:

- A common honors academic core through honors-designated course work in the arts and humanities as well as the social and physical sciences.
- Uniquely designed educational experiences through independent research, Honors Contracts, and development of an individualized program of study. Students work with both their school advisor and Honors advisor to meet the requirements for their degree and complete an academic plan that leads to graduation with Honors.
- Preparation for post-baccalaureate study as well as professional placement through rigorous coursework, research, and internship possibilities.
- The opportunity to gain a greater understanding of the world at large through service learning course work, civic engagement opportunities, culture studies, and study abroad experiences.

Students admitted to the IU Indianapolis Honors College Fall 2010 and after graduate with Honors by completing at least 24 credit hours of honors work. Students who successfully complete the requirements for Honors will receive a notation signifying that achievement on their IU Indianapolis transcript. Additionally, if the student graduates from Indiana University, the Honors notation will appear on the IU diploma.
For more information, click here.

Updated: March 2024

Student Rights & Responsibilities

Application to and enrollment in the university constitute the student's commitment to honor and abide by the practices and policies stated in the University's official announcements, bulletins, handbooks, and other published materials and to behave in a manner that is mature and compatible with the University's function as an institution of higher learning. Students are expected to read the Indiana University Code of Student Rights, Responsibilities, and Conduct and, by their enrollment, agree to its contents and to the additional IU School of Medicine (IUSM) statements that appear below.

Academic Advising A professional advisor is available to assist students who are working on the prerequisites for a professional program. Once admitted to a professional program, students are advised by faculty within the program. It is the student's responsibility to seek counseling and guidance. The student is responsible for planning a program to meet degree requirements and for filing a completed application by the specific program's application deadline.

Appeals The School abides by the appeals procedures discussed in the Indiana University Code of Student Rights, Responsibilities, and Conduct. Students may obtain a copy of the School's Appeals Policy and Appeals Procedure from the Health Professions Programs Administrative Office.

Attendance Students are responsible for complying with all attendance requirements that may be established by the School's faculty.

Academic Misconduct Faculty and students have rights and responsibilities for learning, teaching, and scholarship within the entire university community. Academic functions

are characterized by reasoned discourse, intellectual honesty, mutual respect, and openness to constructive change. Specific categories of academic misconduct are defined within the Indiana University Code of Student Rights, Responsibilities, and Conduct and include the following areas:

- Cheating
- Fabrication
- Plagiarism
- Interference
- Violation of Course Rules
- Facilitating Academic Dishonesty

Personal Misconduct Students may be responsible for acts of personal misconduct that occur on or off university property as defined by the Indiana University Code of Student Rights, Responsibilities, and Conduct.

Clinical Affiliations Clinical affiliations are required in most programs. The program faculty is responsible for the selection, approval, and assignment of clinical experiences. Although individual student needs and desires will be recognized, the final placement decisions are made by the program faculty. Students are responsible for transportation, fees, and self-support and for following the rules and regulations of the center(s) to which they are assigned. In addition, student conduct must be consistent with the standards of the University and the profession.

Confidentiality of Records Indiana University, in compliance with the General Education Provisions Act, Section 438, titled Family Educational Rights and Privacy Act, provides that all of a student's records are confidential and available only to that student, to his or her parents if the student is under 21, and to the student's dependent as defined by IRS standards. The student may review the record upon request and may ask for deletions or corrections of the record in a hearing process described in detail in the Indiana University Code of Student Rights, Responsibilities, and Conduct. References, recommendations, and other similar documents may carry a voluntary waiver relinquishing the student's right to review this specific material. The student may also release the record to others by signing a written release available in the offices that maintain records. Further details regarding the provisions of the Privacy Act and a list of offices where student records are kept may be found in the Indiana University Code of Student Rights, Responsibilities, and Conduct.

Intent to Graduate Each year, students preparing to graduate during the following calendar year must file an intent-to-graduate form in the office of the program in which they are enrolled. Program faculty then certify the student's satisfactory completion of degree requirements. If there are changes in the anticipated date of degree completion, students must consult their faculty advisor and file an updated intent-to-graduate form.

Financial Aid A student may seek financial assistance through the financial aid office on the campus of interest. In addition, assistance may be available through professional associations and other external groups and agencies.

The use of the School's grade enhancement policies (Repeated Courses, Fresh Start, and Academic Bankruptcy) is for admissions purposes only and does not alter the student's official University record. The IU Indianapolis Office of Student Financial Aid Services will continue to count these credits hours towards the evaluation of a student's progress towards completion of their degree. This process, called Satisfactory Academic Progress (SAP), is a federally mandated evaluation which includes the following three components:

1. Students are required to maintain an appropriate cumulative GPA of 2.0 for undergraduates.
2. Successfully complete at least 67% of their attempted coursework.
3. Students must complete their degree requirements within 150% of the published semester hour length of the academic program.

Costs Students are responsible for the following costs:

- Fees and tuition are established annually by the Trustees of Indiana University.
- Books and supplies are determined by the program.
- During clinical/fieldwork experiences, students must adhere to the dress code requirements of the program and training site. Students are responsible for providing their own uniforms.
- Students are responsible for travel and lodging costs associated with clinical/fieldwork experiences.
- Upon admission, students are made aware or certain entry requirements including, but not limited to a background check, drug screen, health screen, required immunizations, and the need to show proof of health insurance.

While tuition, fees, and other related expenses change each year, the estimated annual cost (resident rate) associated with matriculating in one of the undergraduate programs in the IUSM are available on the school's website. Non-resident students pay a significantly higher rate. This estimate does not include living costs.

Liability Insurance All students participating in required clinical experiences are covered by the University's medical malpractice insurance. When requested, students may be required to purchase and show proof of general liability insurance before being certified to begin the clinical experience.

Health/Immunization Requirements For the protection of students and the patients with whom they will come in contact during training, all entering students must meet established health requirements. IU cannot guarantee placement of students in the clinical setting if the host healthcare system vaccination requirements are not met which may result in delayed graduation or inability to complete the program. Full details for entering students can be found at here. Full details for returning students can be found here.

Health Insurance All students must show proof of health insurance each year they are enrolled in the professional program.

International Students All international students enrolled in the School are subject to the same rights and responsibilities as all other students. International students should consult the IU Indianapolis Office for International

Affairs. A processing fee may be charged to entering students.

Orientation Students are required to attend program-based orientation programs before the beginning of the professional courses. Students are responsible for attending these sessions and for knowing the program-specific policies and standards distributed and discussed at the sessions. Students transferring directly into the professional program from outside the Indiana University system may also opt to attend the campus orientation program; associated campus orientation fees cannot be waived.

Professional Conduct Students are responsible for exhibiting conduct appropriate to their professional training and education. Each program distributes standards and policies of appropriate professional conduct at the time of program orientation.

Registration and Record Changes It is the student's responsibility to enroll in each required academic session and satisfactorily complete all courses required for the degree Faculty are available to provide academic advising.

Students are responsible for communicating any necessary record changes with the Health Professions Programs Administrative Office as soon as possible.

Email Communication The IU School of Medicine reserves the right to send official communications to students by email with the full expectation that students will receive email and read these messages in a timely fashion. Official university, campus and school communications will be sent to your IU email address. Student are responsible for knowing and complying with the content of official communications sent to your official IU email address. You are expected to check your e-mail frequently and consistently to stay current with university-related communications. Students are expected to respond in a timely manner. In addition to monitoring your university email account, you need to check for course and clerkship related email within Canvas.

Social Media The IU School of Medicine ("IUSM") encourages free, open, and robust discussion and dialogue among and between IUSM students, faculty, and staff, and the general public. However, use of social media and other digital platforms to share information presents certain risks, including risks that private information will be publicly disseminated in violation of law and/or IU policy. IUSM students should also be aware that their online activity is subject to the same policies and professionalism expectations as any other conduct or communications.

Use of Social Media and Other Digital Platforms for Personal Purposes

IUSM students should be cognizant of the fact that use of social media to share information or engage with others carries the risk that confidential information may be disseminated in violation of IU policy or legal requirements. Such confidential information includes, but is not limited to, identifiable information about patients deemed confidential pursuant to the Health Insurance Portability and Accountability Act (HIPAA) or applicable IU or hospital policy, identifiable information about students deemed confidential pursuant to the Family Educational Rights and Privacy Act (FERPA), and information protected by state law. Confidential information should never be shared or disseminated online or via social media.

When engaging in online activity or utilizing social media, IUSM students are required to uphold and abide by all IU and IUSM policies, including the IUSM Professional Conduct Policy and the IUSM Honor Code. University policies apply to all communications, including digital, mobile, and social-media related content.

IUSM does not monitor IUSM students' private social media accounts or online activity. However, IUSM may become aware of and review online activity, including social media activity, for violations of law or IU policy, including applicable HIPAA policies, the IUSM Honor Code, the IU Code of Student Rights and Responsibilities, and/or IU's Non-Discrimination policy.

Updated: March 2024

Health Professions Programs

Degree programs and course offerings exist in the following areas. For specific information, select your program of choice from the left-hand menu.

Department of Emergency Medicine Paramedic Science, A.S.
Emergency Medical Technician - Basic

Department of Ophthalmology Ophthalmic Technician Training Program, Certificate

Department of Pathology and Laboratory Medicine Cytotechnology, B.S.
Histotechnology, Certificate and A.S.
Medical Laboratory Science, B.S.

Department of Medicine, Division of Pulmonary and Critical Care Medicine Respiratory Therapy, B.S.

Department of Radiation Oncology Radiation Therapy, B.S.

Department of Radiology & Imaging Sciences
Radiography, A.S.
Diagnostic Sonography, B.S.
Medical Imaging Technology, B.S.
Nuclear Medicine Technology, B.S.

Updated: March 2023

IU Indianapolis General Education Core

IU Indianapolis General Education Core

Beginning in Fall 2013, IU Indianapolis implemented a set of ***General Education Core*** requirements for all Bachelor degrees. These thirty (30) credit hours fall within the following competency areas:

- Core Communication
- Analytical Reasoning
- Cultural Understanding
- Life and Physical Sciences
- Arts/Humanities
- Social Sciences

IU Indianapolis General Education Courses

The IU Indianapolis General Education Core provides a strong foundation for a rich and intellectually challenging undergraduate experience. All eligible courses have been rigorously reviewed and approved to the IU Indianapolis General Education Core by faculty members from all academic units, providing IU Indianapolis students with a diverse array of options for fulfilling their general education requirements. Course work is divided into the broad domains of Foundational Intellectual Skills (Core Communication, Analytical Reasoning, and Cultural Understanding) and course work that promotes Intellectual Breadth and Adaptiveness (Life and Physical Sciences; and Arts, Humanities, and Social Sciences).

Foundational Intellectual Skills

Students must take 15 credit hours related to Foundational Intellectual Skills. This includes 6 credits related to Core Communication skills, 6 credits in Analytical Reasoning, and 3 credits related to Cultural Understanding.

- Core Communication : 6 credits
- Analytical Reasoning: 6 credits
- Cultural Understanding: 3 credits

Intellectual Breadth and Adaptiveness

Courses pertaining to Intellectual Breadth and Adaptiveness help to foster the "ways of knowing" that are characteristic of particular fields ranging from science and the social sciences through humanities and arts. This includes 6 credits in the Life and Physical Sciences, and 9 credits distributed across the Arts/Humanities and the Social Sciences.

- Life and Physical Sciences : 6 credits
- Arts/Humanities and Social Sciences: 9 credits total, with at least 3 credits in each area

In addition to the above General Education Core requirements, students are strongly encouraged to learn to do word processing, use e-mail, and navigate the Internet before the beginning of the professional program. See program-specific sections for program requirements.

Updated: March 2024

General Undergraduate Requirements

General Undergraduate Requirements

Minimum Degree Requirements

- Based upon earned Indiana University credits, a minimum cumulative grade point average or 2.000 (on a 4.000 scale) must be maintained.
- A minimum of thirty (30) credit hours of program or program-related course work must be completed in residence at Indiana University. Special credit awarded by any program's credit for credential or credit by experience cannot be used towards the thirty (30) credit hour minimum.
- Additional general requirements must be completed for the bachelor's degree or associate degree as listed below:

Bachelor's Degree

- Minimum of 120 credit hours.
- IU Indianapolis General Education Core requirements or state-wide equivalent.
- Additional program-specific graduation requirements
- Program's professional curriculum
- Minimum of 30 credit hours in courses at the 300-400 (junior-senior) level.

Associate Degree

- Minimum of 60 credit hours.
- Additional program-specific graduation requirements
- Program's professional curriculum

Students must complete the prescribed course of study, meeting program academic, professional, and technical standards requirements, which may exceed the requirements stated above. Program professional standards consist of ethics and proper health care practices to which students must adhere. Program faculty will distribute these standards when appropriate.

The student is responsible for submitting an intent-to-graduate form.

Work for a degree must be completed within five years from the time the student first enrolls in the professional program. Under unusual circumstances, the program director may recommend granting a waiver of this requirement.

Degrees are granted during the academic year in December, May, June, and August; however, Commencement is only held in May.

Updated: March 2024

Undergraduate Degree Requirements

Degree Requirements

The Indiana University School of Medicine Health Professions Programs faculty will recommend for degrees only those students who have been admitted to Indiana University and are students in good standing in the School and the professional program. Candidates for degrees are eligible for graduation upon completion of all program requirements in effect when the student first enrolls in professional course work, provided requirements are met within five years.

The faculty reserve the right to require students whose program course of study is interrupted for any reason to meet requirements as specified by the director of the program and the School's dean or the dean's designee. Changes in the student's original program may be necessary when, for example, a curriculum has been revised, offerings are no longer available, significant changes in curriculum content have occurred, or repetition of material is deemed essential to assure continuity of clinical competency.

Academic counseling and guidance are available for students. Students are responsible for seeking such counseling and guidance and for planning courses of study to meet degree requirements.

Program Requirements

Each program has additional specific course requirements. Refer to the program of interest in this bulletin for specific information.

Updated: March 2024

Professional Program Requirements

Professional Program Requirements An outline of the professional program is in the program-specific section in this bulletin.

Clinical Rotation Requirements
During an educational program in the Health Professions Programs, students complete clinical rotations in several hospitals or other clinical sites. Clinical affiliation agreements for some locations require students to complete a criminal history background check and drug screen. For that reason, all entering students are required to comply with these requirements prior to entry. In addition, students must also meet stated immunization requirements, complete an annual health screen, and get an annual flu shot. Upon entry, students must also submit proof of health insurance.

Requirement to Disclose The IU School of Medicine Health Professions Programs requires students to meet this requirement by submitting a student disclosure form.

While a criminal history is not an automatic barrier to final consideration for entry into one of the school's degree programs, each applicant's circumstances will be considered on a case by case basis. Applicants are advised that the School relies on third parties, such as hospitals and other health facilities, to provide clinical education and that a criminal history can affect the School's ability to find placement for students; the School has no control over these third parties and the School makes no guarantee that it can place any student, with or without a criminal history. In addition to placement, certain criminal convictions may also have bearing on an individual's ability to obtain or maintain a professional license and/or employment, and applicants are advised to review these standards carefully.

Candor about the applicant's criminal history is highly important: failure to disclose may result in the withdrawal of acceptance or, in the case of an accepted or matriculated student, dismissal from the School. You are required to notify the HPP Administrative Office of any changes in your status.

Full Disclosure Requirement Applicants are required to disclose any convictions, pending criminal charges, probation/diversion, etc., in writing. You must report anything that may come up on a national background check. You must provide all the appropriate information to the best of your ability. If in doubt, disclose the charge. This means that your answers must be truthful, accurate, and complete. If you know of certain information yet are unsure whether to disclose it, you must disclose the information.

I understand that, as part of my conditional admissions status, I must submit to and pay any costs required for criminal background checks. I understand that information obtained from a criminal history check may result in a failure to be approved for required clinical assignments, and as such may result in my inability to progress through my degree program.

I understand that, as part of my conditional admissions status, I must submit to and pay any costs assessed for any drug screen required by a clinical site that mandates such screens for its workforce, including trainees. I understand that information obtained from a drug screen may result in a failure to be approved for required clinical assignments, and as such may result in my inability to progress through my degree program.

I understand the School reserves the authority to determine my eligibility to be admitted to the program and/or progress in the program.

In the circumstance where the education program is unable to place a student in the appropriate clinical setting to meet degree requirements, there is the possibility that a student may be unable to complete the degree program.

Updated: March 2023

Cytotechnology

Cytotechnology The educational program in Cytotechnology through the Indiana University School of Medicine Department of Pathology and Laboratory Medicine is located on the Indiana University– Indianapolis campus at the IU Health Pathology Laboratory Building.

Description of the Profession Cytotechnology is a medical laboratory specialty in which microscopic studies of exfoliated, abraded, and aspirated cells from the human body are performed. The cytotechnologist studies cell samples from various body sites to detect cellular changes indicative of cancer. In providing a means of early detection, cytology makes possible the early diagnosis of cancer, thus increasing the chances of a cure. Cytology also serves as a prognostic tool during the course of cancer treatment programs. In addition, it aids in establishing the diagnosis of benign disease processes, such as endocrine disorders, and in detecting some pathogenic microorganisms.

Graduates of the Program The Cytotechnology Program is designed to provide its graduates with a comprehensive, fundamental knowledge of clinical cytology that will enable them to function as competent Cytotechnologists and will provide a basis for continuing education and professional growth. Graduates will be eligible for the certification examination in Cytology administered by the American Society for Clinical Pathology (ASCP) Board of Certification leading to certification as Cytologist. The program is designed to prepare graduates to realize their position in the total health care structure and understand their legal, ethical, and moral responsibilities to the employers and communities they serve. Graduates should be prepared to participate in laboratory and should seek ways to contribute to the growing body of knowledge in clinical cytology. Cytotechnologists normally practice in hospitals, laboratories, or research laboratories.

Credential Required to Practice B.S.; CT(ASCP), Cytology certification by the Board of Certification: American Society for Clinical Pathology.

Scholarships Students interested in scholarship information for the professional year should contact the program office.

For further information, contact:

Barbara McGahey Frain, M.S., Director, Cytotechnology
Phone: (317) 491-6222
E-mail: bmcgahey@iu.edu

Josh Howell, M.A.O.L, Education Coordinator, Cytotechnology
Phone: (317) 491-6221
E-mail: jmhowell@iu.edu

Mailing Address: Cytotechnology Program
IU Health Pathology Laboratory, Room 6002
350 W 11th Street
Indianapolis, IN 46202-4108

Updated: March 2024

Admission

Admission

General Information
As grade point average is a reflection of self-motivation, self-discipline, and the desire to achieve, favorable consideration is given to applicants with high grade point averages. In addition, applicants must demonstrate proficiency in biological and physical sciences. Candidates for this program should work well with others, have a genuine desire to improve the health of humanity, and be willing to accept the responsibilities of providing health care service. Students accepted into the program must complete the school's and the program's admission requirements listed below before the first day of classes. Admission to the professional program is competitive; therefore, completion of the prerequisites does not guarantee admission to the program.

Criteria Used for Selection of Class Cumulative grade point average, biology grade point average, interview.

Class Size Maximum 10 each fall semester.

Specific Requirements In addition to the Health Professions Programs admission policies and procedures found at the beginning of this section of the bulletin, the following admission policies apply to the Cytotechnology Program:

Application Deadline December 1 of the year before anticipated entry.

Total Number of Prerequisite Credit Hours 83

Distribution of Credits in Specific Areas 25 credit hours in biology/related subjects such as anatomy, physiology

Limitations of Course Work Biology credits earned more than seven years before application must be updated by taking 3 additional credit hours related to cell biology within a period of time not to exceed 12 months before admission. Remedial courses will not fulfill prerequisite hours.

Minimum Cumulative Grade Point Average 2.50 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained.

Minimum Specific Grade Point Average Biology grade point average of 2.50 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.00 on a 4.00 scale).

Interview All qualified applicants must participate in an interview. Interviews are held in November-January.

Indiana Residents Preference Policy See Health Professions Programs policy.

Volunteer Experience While volunteer experience is not required, it may be helpful in making a career choice.

The following will be required upon offer of admission into the program and must be completed by June 1st in the year of entry. Complete details may be found HPP New Student Requirements and will be included in your program information packet.

- Signed Technical Standards form
- Signed Honor Code
- Proof of immunizations
- Proof of TB (skin test)
- Physical Examination
- Flu Shot
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days of offer acceptance

Updated: March 2024

Educational Program

Educational Program

Bachelor of Science in Cytotechnology at IU Indianapolis

- **Medical Director:** Associate Professor H. Cramer
- **Program Director:** Associate Clinical Professor B. McGahey Frain
- **Education Coordinator:** Assistant Clinical Professor J. Howell

Length of the Program Four years, including three years (83 semester hours) of prerequisite course work plus 12 months (37 semester hours) of professional course work.

Structure of the Program The prerequisites may be taken on a part-time basis; the professional program is presented in a full-time, day format only.

Design of the Professional Curriculum An integral relationship between the program and the cytology service laboratory provides students with maximum exposure to a functioning cytology laboratory. The learning process follows a structured, logical sequence for the presentation of essential concepts and skills.

Individual instruction, demonstrations, lectures, and conferences are all used as methods of instruction. Student inquiry and research that will foster greater understanding and possible revision of presented material are encouraged. Opportunity is provided for the student to pursue special interests in the field of cytology.

Location of Clinicals All clinical sites for the program are located within the Indianapolis area.

Additional Cost In addition to regular university fees, the student should expect to pay for program-related expenses. Contact program for current cost sheet.

Opportunity for Students to Work Some students have part-time jobs limited to evening/weekend hours.

Program Facilities The Cytotechnology Program is offered at the campus, which has modern educational and medical facilities. Dedicated program space is located in the IU Health Pathology Laboratory Building. Cytology laboratories located in the IU Health Pathology Laboratory, IU Health University Hospital, Sidney & Lois Ezkenazi Hospital, IU Health Methodist Hospital, and the Roudebush VA Hospital.

Accreditation The curriculum of the Cytotechnology Program is fully accredited by the Commission on Accreditation of Allied Health Education Programs.

Updated: March 2024

Prerequisites

Prerequisites

Before entering the program, students must complete the minimum prerequisites listed below. Students should consult with their academic advisors for appropriate courses and semester sequence in order to complete prerequisites. Prerequisites may be taken at any accredited college or university.

The code “GE” indicates a course that meets the campus’ General Education core.

Approved courses that meet the General Education core can be found at this section of the Division of Undergraduate Education website.

Core Communication, Two Courses: ---English Composition (GE) ---Speech Communication (GE)	6 cr.
Additional Written Communication	3 cr.
Arts/Humanities (GE)	3 cr.
Social Sciences (GE)	3 cr.
Additional Arts/Humanities or Social Sciences (GE)	3 cr.
Cultural Understanding (GE)	3 cr.
College Algebra or Higher (GE)	3 cr.
2^n analytical course (GE) (to meet IU Indianapolis requirements)	3 cr.
Introductory Biology with lab	4-5 cr.
Chemistry I (with lab) (GE) (for science majors)	4-5 cr.
Chemistry II (with lab) (GE) (for science majors beyond above)	4 cr. Minimum; 5-8 cr. Preferred
Human Anatomy and Physiology or Human Biology I & II (labs required for either sequence)	8-10 cr.
Advanced Biological Sciences	3 cr. (courses credit hours to total 25 including Intro bio, Anatomy, Physiology or equivalent)

In addition to introductory biology and human anatomy & physiology, students must also take three (3) upper-level biology courses to bring the total minimum credit hours in biology to 25. ***Recommended Courses:*** microbiology with laboratory, biology of women, developmental anatomy or embryology with laboratory, genetics with laboratory, molecular or cellular biology, histology, and immunology. Questions regarding alternative biology courses should be directed to the Cytotechnology Program faculty.

Limitations of Course Work Biology credits earned more than seven years before application must be updated by taking 3 additional credit hours related to cell biology within a period of time not to exceed 12 months before admission.

Suggested Electives It is recommended that the following courses be taken as electives: microbiology, embryology, genetics, animal cell physiology, and immunology. While not inclusive or mandatory, the following is a list of suggested elective areas: medical microbiology, endocrinology, parasitology, virology, cytogenetics, computer science, management, organic chemistry, biochemistry, physics, advanced mathematics, statistics and art appreciation.

Suggested Plan of Study The following is a suggested three-year plan of the prerequisites. Students can adjust this schedule. Students should check with their advisors to make sure all requirements are met.

Freshman	
Fall	*Credits*
Elementary Composition or Speech Communication	3.0
Arts/Humanities or Social Sciences	3.0
Concepts of Biology I	5.0
Elementary or Principles of Chemistry I w/lab	5.0
Total	**16.0**
Spring	*Credits*
Elementary Composition or Speech Communication	3.0

Principles of Biology II	5.0
Elementary or Principles of Chemistry II w/lab	5.0
Arts/Humanities or Social Sciences	3.0
Total	**16.0**
Sophomore	
Fall	*Credits*
College Algebra or Higher	3.0
Written Communication II	3.0
Human Biology or Human Anatomy	4.0
Upper Level Biology I	3.0
Total	**13.0**
Spring	*Credits*
Analytical Reasoning	3.0
Human Biology II or Human Physiology	4.0
Arts/Humanities or Social Sciences	3.0
Elective	3.0
Total	**13.0**
Junior	
Fall	*Credits*
Cultural Understanding	3.0
Upper-Level Biology Elective II	3.0
Electives	6.0
Total	**12.0**
Spring	*Credits*
Upper-Level Biology Elective III	3.0
Electives	10.0
Total	**13.0**

Updated: March 2024

Professional Program

Professional Program

Courses in the professional program are sequential and must be taken in the order specified by the program faculty.

Senior		
Fall		*Credits*
Gynecologic Cytology, Normal	PATH-A 412	3.0
Gynecologic Cytology, Abnormal)	PATH-A 422	3.0
Pulmonary Cytology	PATH-A 432	3.0
Techniques in Medical Cytology	PATH-A 462	2.0
Certification Internship I	PATH-A 465	3.0
Seminar in Cytology I	PATH-A 470	2.0
Total		**16.0**
Spring		*Credits*
Cytology of Body Fluids	PATH-A 442	2.0
Cytology of the Gastrointestinal Tract	PATH-A 453	2.0
Urinary Tract Cytology	PATH-A 454	2.0
Certification Internship II	PATH-A 465	6.0
Seminar in Cytology II	PATH-A 470	2.0
Total		**14.0**
Summer		*Credits*
Cytology of Fine Needle Aspiration	PATH-A 455	2.0
Certification Internship III	PATH-A 465	3.0
Investigations in Cytopathology	PATH-A 490	2.0
Total		**7.0**

Awards Recommendations for degrees awarded with distinction are based upon superior academic performance. The Cytotechnology Program recognizes superior academic and professional conduct with the Liang-Che Tao Outstanding Student Award, which is awarded to a graduating senior.

Graduation Requirements Satisfactory completion of 120 credit hours, to include 83 credit hours of prerequisite and general-education courses and 37 credit hours of professional courses. All course work must be completed in compliance with the program's and school's academic and professional policies.

Updated: March 2024

Diagnostic Sonography

Diagnostic Sonography The Diagnostic Sonography program is located on the Indiana University Indianapolis campus and housed in the IU School of Medicine Department of Radiology and Imaging Sciences.
The advanced imaging program is open to individuals credentialed in Radiography, Nuclear Medicine, Radiation Therapy, MRI, Sonography, CT, Exercise Physiology, Nursing, Paramedic/EMT, or Respiratory Therapy. Other health care related majors or credentials may be eligible upon review.

Description of the Profession The diagnostic sonographer is a skilled professional qualified to provide patient care service in medical sonography, echocardiography, or vascular technology. Diagnostic sonographers use principles of sound wave interactions with the body and system optimization techniques to produce high quality images adequate for interpretation by a physician. Diagnostic sonographers are also capable of providing basic patient care and education related to diagnostic sonography. The sonographer must function as a collaborative member of the health care team.

Graduates of the Program Graduates receive a Bachelor of Science in Diagnostic Sonography degree and are eligible to take sonography board examinations specific to their area of concentration.

Credentials Required to Practice From the American Registry of Diagnostic Sonography: Abdomen or OB (RDMS), Adult or Pediatric Echocardiography (RDCS), or Vascular Technology (RVT). From the American Registry of Radiologic Technology: Sonography (RT (S)), or Vascular Sonography (RT (VS)). From Cardiovascular Credentialing International: Cardiac Sonography (RCS), or Vascular Specialist (RVS).

Indiana Requirements to Practice Currently, there are no state license requirements to practice diagnostic sonography. However, hiring institutions require an individual to be credentialed in at least one of the concentration areas listed above.

If you hold one of the listed healthcare credentials/ majors, contact Dina Peterson. If you do not hold one of the healthcare credentials listed, contact the Health Professions Programs office at askhpp@iu.edu or (317) 278-4752.

Dina Peterson, MSEd, RT(R), RDMS, RDCS, RVT
Program Director, Diagnostic Sonography Program
1120 W. Michigan St, Room CL137
Phone: (317) 274-5190
Email: dimpete@iu.edu

Updated: March 2024

Admission

General Information Enrollment at Indiana University does not guarantee admission to any of the Health Professions Programs. To be eligible for admission to the Diagnostic Sonography program, students must adhere to the program preadmission requirements. Admission to the professional program is competitive; therefore, completion of the prerequisites does not guarantee admission to the program.

Criteria Used for Selection of Class Previous academic record and availability of positions within the program. Additionally, individuals without a previous medical imaging related credential must show documentation of 1000 hours of direct patient care experience.

Class Size Varies yearly based on the availability of clinical education sites, ultrasound lab equipment and instructors.

Specific Requirements In addition to the Health Professions Programs' admission policies and procedures found at the beginning of this section of the bulletin, the admission policies below apply to the Diagnostic Sonography Program.

Application Deadline Application deadline is November 15th of the year prior to anticipated program start.

Total Number of Prerequisite Credit Hours 74 This includes the student's prior coursework at an accredited college or university, or special credit awarded for healthcare credential/experience.

Minimum Prerequisite Grade Point Average 2.80 on a 4.00 scale at the time of application. Prerequisite courses include: All Gen Ed Core courses, Anatomy, Physiology, Physics (or Radiography Physic), Medical Terminolgy, Communication, RADI-R 105 (previous radiography/ medical imaging students exempt).

Minimum Component Grade Point Average 2.50 on a 4.00 scale for all math/science courses.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.00 on a 4.00 scale).

Interview An interview is not required.

Test of Essential Academic Skills (TEAS) Test- Students who earned a healthcare related degree (AS, BS, or MS) are exempt for completing a TEAS Assessment. Students who do NOT hold a healthcare related degree must complete a TEAS Test with completion scores submitted with program application.

Technical Standards See the Health Professions Programs' policy.

Indiana Residents Preference Policy See the Health Professions Programs' policy.

Experience Students must hold a healthcare related degree and credential (if applicable). Students without a medical imaging credential must provide documentation of at least 1000 hours of direct patient care experience.

The following will be required upon offer of admission into the program and must be completed by assigned deadlines. Complete details may be found at (IU login required) and will be included on the Radiologic and Imaging Sciences Programs Onboarding Canvas site.

- Signed Technical Standards form
- Signed Honor Code
- Proof of immunizations
- Proof of TB (either shot or IGRA)
- Physical Examination
- Flu Shot

- Fit Testing
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days of offer acceptance

Updated: March 2024

Educational Program

Bachelor of Science in Diagnostic Sonography at IU Indianapolis

- Chair Department of Radiology & Imaging Sciences: Dr. Jason Allen
- Medical Advisor: Dr. Jeffrey Dunkle
- Radiologic and Imaging Sciences Director: Assistant Clinical Professor, Kellie Cranfill
- Program Director: Assistant Clinical Professor, Dina Peterson
- Clinical Coordinator: Acting Lecturer, Jamie Miller (Medical Sonography)
- Instructor: Acting Instructor, David Engelhardt (Echocardiography)
- Clinical Coordinator: Associate Faculty, Kellie Durcholz (Echocardiography)

Diagnostic Sonography Program This program is designed to prepare qualified entry-level sonographers. The principle aim of the program is to provide students with didactic, clinical, and lab experiences that will permit them to develop the competencies required to function effectively in the sonography setting.

Length of the Program 18 months. A new cohort begins every Summer Session II semester and continues until the end of the fall semester the next year.

Structure of the Program Students will have didactic, clinical, or lab experiences 8 am to 4 pm, Monday through Friday. Didactic and lab courses are held on campus. Students will rotate through multiple clinical sites located throughout central Indiana.

Opportunity for Students to Work Students may choose to work part-time while in the program. However, it is recommended students not work more than 10-12 hours per week. Working more than this may jeopardize the student's ability to satisfactorily maintain program academic standards. Other employment responsibilities of the working student will not excuse the student from attendance of all academic, lab, and clinical rotation experiences.

Additional Cost In addition to regular university tuition and fees, students should expect to pay for program-related expenses such as books, uniforms, etc. Consult the HPP website advising section for a current cost sheet.

Program Facilities The Diagnostic Sonography Program is offered at Indiana University Indianapolis. The offices, classrooms, and laboratory facilities are located in Gatch Hall (Clinical Building). Clinical education sites are located throughout the Indianapolis metropolitan area. Students are responsible for their transportation to these sites.

Updated: March 2024

Prerequisites

Before entering the program, students must complete the following minimum prerequisites. Students should consult with their academic advisors for appropriate courses and semester sequence to complete prerequisites. Prerequisite courses must be completed by the end of Summer Session I prior to program entry. Equivalent prerequisites may be taken at any accredited college or university.

Approved courses that meet the General Education core can be found at this section of the Division of Undergraduate Education website.

General Education and Prerequisites	Cr Hrs
Core Communication, Two Courses: ---Reading, Writing & Inquiry (GE) ---Fundamentals of Speech Communication (GE)	6 cr.
Cultural Understanding Elective (GE)	3 cr.
Social Sciences Elective (GE)	3 cr.
Arts/Humanities Elective (GE)	3 cr.
2^{n} Arts/Humanities or Social Science Elective (GE) (Must have two courses from one of the above areas)	3 cr.
Analytical Reasoning, Two Courses: ---College Algebra & Trig 1 (GE) ---College Algebra & Trig 2 (GE) NOTE: Algebra is required.	6 cr.
General Physics NOTE: Students with Radiography Credential exempt from this requirement	4 cr.
Life and Physical Sciences, Two Courses: ---Human Anatomy (GE) ---Human Physiology (GE)	10 cr.
Introduction and History of Medical Imaging Sciences NOTE: Students with Medical Imaging, Nuclear Medicine, or Radiation Therapy credential exempt	3 cr.
Medical Terminology	1-3 cr.

Healthcare Credential/Major Credit- Credits form either the student's prior coursework at an accredited college or university or special credit may be awarded for healthcare

credentials/experience to meet the minimum 74 credit hour pre-program requirements.

Updated: March 2024

Professional Program

Courses in the professional program are sequential and therefore must be taken in the order specified by the program faculty.

Professional Courses for the Medical Sonography Track

Junior Summer II		
Description	**Course**	**Credits**
Sonography Orientation	RADI-S 410	2
Medical Sonography Lab Fundamentals	RADI-S 430	3
Medical Sonography Clinical Practicum Introduction	RADI-S 450	1
Total Credits		**6**
Junior Fall		
Medical Sonography Procedures I	RADI-S 420	4
Medical Sonography Lab I	RADI-S 431	3
Sonographic Physical Principles I	RADI-S 440	3
Medical Sonography Clinical Practicum I	RADI-S 451	3
Total Credits		**13**
Junior Spring		
Medical Sonography Procedures II	RADI-S 421	4
Medical Sonography Lab II	RADI-S 432	3
Sonographic Physical Principles II	RADI-S 441	3
Medical Sonography Clinical Practicum II	RADI-S 452	3
Total Credits		**13**
Senior Summer		
Medical Sonography Clinical Practicum III	RADI-S 453	6
Total Credits		**6**
Senior Fall		
Medical Sonography Lab III	RADI-S 433	1
Medical Sonography Professional Life	RADI-S 460	3
Medical Sonography Clinical Practicum IV	RADI-S 454	4
Total Credits		**8**

Professional Courses for the Echocardiography Track

Junior Summer II		
Description	**Course**	**Credits**
Sonography Orientation	RADI-S 410	2
Echocardiography Lab Fundamentals	RADI-E 430	3
Echocardiography Clinical Practicum Introduction	RADI-E 450	1
Total Credits		**6**
Junior Fall		
Echocardiography Procedures I	RADI-E 420	4
Echocardiography Lab I	RADI-E 431	2
Sonographic Physical Principles I	RADI-S 440	3
Echocardiography Clinical Practicum I	RADI-E 451	4
Total Credits		**13**
Junior Spring		
Echocardiography Procedures II	RADI-E 421	4
Echocardiography Lab II	RADI-E 432	2
Sonographic Physical Principles II	RADI-S 441	3
Echocardiography Clinical Practicum II	RADI-E 452	4
Total Credits		**13**
Senior Summer		
Echocardiography Clinical Practicum III	RADI-E 453	6
Total Credits		**6**
Senior Fall		
Echocardiography Lab III	RADI-E 433	1
Echocardiography Professional Life	RADI-E 460	3

Echocardiography Clinical Practicum IV	RADI-E 454	4
Total Credits		**8**

Awards The program faculty recommend to the university graduating students with superior academic performance for degrees awarded with distinction. Students must have 60 IU credits to be eligible for graduating with distinction, high distinction or highest distinction. Special credit does not count towards the 60 IU credits.

Graduation Requirements Satisfactory completion of a minimum of 120 credit hours. All professional program course work must be completed in compliance with the program's and school's academic and professional policies.

Updated: March 2024

Medical Laboratory Science

Medical Laboratory Science
The educational program in Medical Laboratory Science through the IU School of Medicine Department of Pathology and Laboratory Medicine is located on the IU Indianapolis campus at the IU Health Pathology Laboratory Building and on the IU School of Medicine's campus in Evansville at the Stone Family Center for Health Sciences. The cohorts in Indianapolis and Evansville constitute one class under a single curriculum and leadership structure.

Mission Statement The mission of the Medical Laboratory Science Program at Indiana University Indianapolis is to provide a high quality education in the knowledge, skills, and professional attitudes in medical laboratory science in order to prepare graduates who have entry-level competency to practice in the medical laboratory.

Goal Statements The goals of the Medical Laboratory Science Program are to prepare graduates who:

1. Have the knowledge and skills needed to provide health care professionals with accurate and timely diagnostic and therapeutic laboratory data and participate as effective members of the health care team.
2. Demonstrate professionalism through honesty and integrity in reporting results, respect for patient confidentiality, and a desire for life-long learning through continuing education, scholarship, service, and participation in professional organizations.
3. Successfully complete the national certification examination.

To accomplish these goals, the program faculty foster the development of critical thinking and lifelong learning skills and evaluate overall program effectiveness through ongoing outcomes assessment.

Description of the Profession Medical laboratory science is a diverse, science-based profession aimed at accurate performance of medical laboratory procedures on biologic samples from patients. Physicians use the results from these procedures in diagnosing, monitoring, and treating diseases. Some of the tasks that medical laboratory scientists perform are listed below:

- Analysis of simple/complex chemical components of body fluids
- Evaluation of cellular components of blood
- Identification of microorganisms and their antibiotic susceptibility patterns
- Preparation of blood components for patient therapy
- Molecular detection and characterization of diseases
- Evaluation of new techniques, procedures, and instruments

Medical laboratory scientists continually evaluate the quality of the results from procedures and instruments and solve any problems that relate to inconsistencies. Excellent communication skills are required to interact with other members of the health care team, to teach, and to manage individuals under their supervision.

Medical laboratory scientists typically work in laboratories located in hospitals, clinics, physician group practices, blood centers, medical research facilities, or medically oriented industries.

Graduates of the Program Students who successfully complete the senior/professional year of the medical laboratory science program and have a baccalaureate degree are eligible to take national certification examinations. Nationally recognized certification is a requirement for employment in most settings.

Credentials Required to Practice MLS(ASCP)^{c}, Medical Laboratory Scientist

Licensure Requirements to Practice There is no state licensure in Indiana; however, some states require licensure in addition to or instead of national certification.

Scholarships A limited number of scholarships is available for accepted students. Contact the program staff when notified of admission.

For further information, contact: Nicholas Brehl, M.Ed., Director clsinfo@iu.edu

Mailing Address:
Indiana University Medical Laboratory Science Program
IU Health Pathology Laboratory, Room 6002F
350 W 11th Street
Indianapolis, IN 46202-4108

317-491-6969

Updated: March 2024

Admission

Admissions

Students accepted into the program must complete the Health Professions Programs (HPP) and the program admission requirements before the first day of classes. Admission to the professional program is competitive; completion of the prerequisites does not guarantee admission to the program. Click here for more details.

In addition to the Health Professions Programs' admission policies and procedures found at the beginning of this section of the bulletin, the following

admission policies apply to the Medical Laboratory Science Program at IU Indianapolis.

Application Deadline December 1 of the year before desired entry into the senior/professional year.

Interview Applicants must complete the interview process. Interviews are scheduled from October to December.

Minimum Number of Prerequisite Credit Hours 84 to be completed by July 1 prior to entry.

Minimum Cumulative Grade Point Average 2.70 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained. Grades from remedial courses are not used in this calculation.

Minimum Specific Grade Point Average 2.70 on a 4.00 scale in science and mathematics courses. This requirement is applied at the time of program application and must be maintained. Grades from remedial courses are not used in this calculation.
NOTE: Applicants whose Cumulative and/or Specific GPAs are at or only slightly above 2.70 (on a 4.00 scale) are unlikely to be competitive for admission.

Minimum Grade in a Stated Prerequisite Course C (2.00 on a 4.00 scale) in all required courses.

Class Size Program is accredited for 36 students. The cohort based in Indianapolis at the IU Health Pathology Laboratory can accommodate 12 students. The cohort based in Evansville at the Stone Family Center for Health Sciences can accommodate 24 students.

Program Length 11 months (early August to early July)

Indiana Residents Preference Policy Refer to Health Professions Programs policy.

Additional Program Considerations Class selection will be based on cumulative and science/math grade point average, essay, interview, and other academic and professional factors. Applicants must complete at least 16-18 credit hours in the biological sciences and 16-18 credit hours in chemistry. See prerequisite list. At least one course in chemistry (upper level), microbiology, and immunology must have been completed within the previous six years.

The following will be required upon offer of admission into the program and must be completed by June 1st in the year of entry. Complete details may be found at HPP New Student Requirements and will be included in your program information packet.

- Signed Technical Standards form
- Signed Honor Code
- Proof of immunizations
- Proof of TB Test
- Physical Examination
- Flu Shot
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days of offer acceptance

Updated: March 2024

Educational Program

Educational Program

Bachelor of Science in Medical Laboratory Science at IU Indianapolis with cohorts in Indianapolis and Evansville.

- **Medical Director:** Professor M. Feldman
- **Program Director:** Clinical Assistant Professor N. Brehl
- **Clinical Assistant Professor:** C. Kaufman & R. Hursh

Length of Program Medical laboratory science is a 4-year full-time baccalaureate degree program. The program is structured in a 3 + 1 arrangement, in which 3 years are spent in regular college courses in order to complete prerequisite courses and the 4th year is the senior/professional year. The professional year includes both didactic and supervised clinical education experiences. Applicants with bachelor's degrees who have completed all of their prerequisites may also apply to this program. Upon completion of the professional year, the student will earn a second bachelor's degree.

Additional Cost In addition to regular undergraduate university tuition and fees, the student should expect to pay for program-related expenses. Contact program administrators for current cost estimate sheet.

Description of Program Facilities The Medical Laboratory Science Program has program offices, a classroom, and a student laboratory located in Indianapolis and the Stone Family Center for Health Sciences in Evansville.

Location of Clinical Education Sites Facilities utilized for clinical experiences include Indiana University Health, Eskenazi Health, Richard Roudebush Veterans Administration Medical Center, Hendricks Regional Health, Riverview Health, Deaconess Health, and others.

Opportunity for Students to Work Students who work should limit employment hours to 8–10 hours a week, if possible.

The time that Medical Laboratory Science students are assigned for clinical laboratory rotations is for instructional purposes only, with student learning activities assigned and supervised by certified laboratory professionals. Students are never allowed to work as substitutes for paid staff during assigned clinical rotation time.

Accreditation The Indiana University School of Medicine's Medical Laboratory Science Program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences, 5600 N. River Rd, Suite 720, Rosemont, IL 60018.

Phone: (773)714-8880
Email: info@naacls.org Web: click here

Updated: March 2024

Prerequisites

Prerequisites Before entering the program, students must complete the minimum prerequisites listed below. Students should consult with their academic advisors for appropriate courses and semester sequence in order to complete prerequisites. **Prerequisites may be taken at any regionally accredited college or university**

and be completed by July 1 prior to entry. The code "GE" indicates a course that meets the campus' General Education core.

Approved courses that meet the General Education core can be found at this section of the Division of Undergraduate Education website.

Core Communication: ---English Composition (GE) ---Speech Communication (GE)	2 courses
Additional Written Communication	1 course
Arts/Humanities (GE)	1 course
Social Sciences (GE)	1 course
Additional Arts/Humanities or Social Sciences (GE) (Must have a 2^n course from one of these areas)	1 course
Cultural Understanding (GE)	1 course

Biological Sciences Applicant must complete at least 16-18 credit hours or the equivalent of biology to include the following courses:

Introductory Human Biology	1 course
Microbiology (must include wet lab)	1 course
Human Genetics	1 course
Human Physiology	1 course
Immunology	1 course

Chemistry Applicant must complete at least 16-18 credit hours or the equivalent of chemistry to include the following courses:

Introductory Chemistry (with labs) (GE) (Course must be appropriate for science majors)	2 courses (w/labs)
Organic I (with lab)	1 course (w/lab)
Advanced Chemistry Elective	1 course*

****Suggested Advanced Chemistry Electives: biochemistry, organic II, analytical chemistry, or other upper-level chemistry course as approved by the program's admissions committee.***

Analytic Reasoning Applicant must complete the following courses:

College Algebra and Trigonometry or higher content (GE)#	1-2 courses
Statistics (GE)	1 course

#Two semesters are required for Algebra/Trigonometry sequence. One semester is required for Trigonometry level (or higher) courses.

Suggested General Electives While not inclusive or mandatory, the following is a list of suggested elective areas: human anatomy, molecular biology, medical terminology, and medical microbiology.

Sample Plan of Study

Freshman	
Fall	*Credits*
Elementary Composition or Speech Communication	3.0
Arts/Humanities or Social Science Elective	3.0
Concepts of Biology I	5.0
Principles of Chemistry I w/ lab	5.0
Total	**16.0**
Spring	*Credits*
Elementary Composition or Speech Communication	3.0
Concepts of Biology II	5.0
Principles of Chemistry II w/ lab	5.0
Arts/Humanities or Social Science Elective	3.0
Total	**16.0**
Sophomore	
Fall	*Credits*
Organic Chemistry I	3.0
Organic Chemistry I Lab	2.0
Anatomy/Physiology I (*as elective*)	4.0
Algebra/Trigonometry I	3.0
Written Communication (2^n Course)	3.0
Total	**15.0**
Spring	*Credits*
Upper-Level Chemistry Elective	3.0
Algebra/Trigonometry II	3.0

Anatomy/Physiology II	4.0
Arts/Humanities or Social Science Elective (must have at least two courses from one of these two content areas)	3.0
Total	**13.0**
Junior	
Fall	*Credits*
Statistics	3.0
Microbiology (w/wet lab)	3.0
Cultural Understanding	3.0
Electives	3.0
Total	12.0
Spring	*Credits*
Genetics	3.0
Immunology	3.0
Elective	6.0
Total	**12.0**

Updated: March 2024

Professional Program

Professional Program
Courses in the professional program are sequential and must be taken in the order specified by the program faculty. Transfer credits, course substitutions, "testing out," advanced placement and credits for experiential learning are not permitted for any professional year course.
No part-time or on-line options are available. Students based in Indianapolis and Evansville register for separate sections of the same course. All students are enrolled through IU Indianapolis.

Senior		
Fall		*Credits*
Hematology	PATH-C 407	3.0
Principles of Immunohematology	PATH-C 408	1.0
Serology	PATH-C 409	1.0
Diagnostic Medical Microbiology	PATH-C 411	4.0
Diagnostic Microbiology Laboratory	PATH-C 421	2.0
Hematologic Techniques and Procedures	PATH-C 427	3.0
Techniques in Immunohematology	PATH-C 428	1.0
Serology Laboratory	PATH-C 429	1.0
Total		**16.0**
Spring		*Credits*
Hemostasis	PATH-C 404	1.0
Clinical Chemistry	PATH-C 406	4.0
Urine Analysis	PATH-C 410	2.0
Mycology/ Parasitology	PATH-C 420	2.0
Clinical Chemistry Instrumentation and Methodologies	PATH-C 426	1.0
General Externship I	PATH-C 401	2.0
General Externship II	PATH-C 402	2.0
Total		**14.0**
Summer		*Credits*
General Externship III	PATH-C 403	2.0
General Externship IV	PATH-C 405	2.0
Topics in Clinical Laboratory Science	PATH-C 412	2.0
Total		**6.0**

Awards Based on their academic performance, students will be recommended by the program faculty for degrees with distinction in accordance with the School's honors criteria.

Graduation Requirements Satisfactory completion of at least 120 credit hours, to include at least 84 credit hours of prerequisite and general-education courses and 36 credits of professional courses. All course work must be completed in compliance with the Program's and School's academic and professional policies.

Updated: March 2024

Emergency Medical Services

Emergency Medical Services An educational program in Emergency Medical Technician—Basic and Paramedic Science is located on the Indiana University—Purdue

University Indianapolis campus and is offered through the IU School of Medicine Department of Emergency Medicine in conjunction with Indianapolis Emergency Medical Services.

Scholarships Scholarship opportunities may be available through the IU Indianapolis Office of Scholarships and Financial Aid.

For further information, contact: Leon Bell, M.S.
Director
Indianapolis Emergency Medical Services
3930 Georgetown Rd.
Indianapolis, IN 46254

Phone: (317) 630-7614
E-mail: lbell1@iupui.edu

Updated: April 2023

Associate of Science

Associate of Science in Paramedic Science at IU Indianapolis

- **Department Chair:** Professor P. Pang
- **Medical Director:** P. Ostahowski
- **Program Director:** Assistant Clinical Professor L. Bell
- **Adjunct Faculty:** Lecturers A. Warren, R. Carey, S. Hall

Completion of the Course Work/ Graduates of the Program The associate degree in paramedic science is open to students of the university who have completed the prerequisites for admission. A student completing the course work is prepared to work as an EMT-Paramedic to deliver emergency patient care in the out-of-hospital setting. The paramedic must be a confident leader who can accept the challenge and high degree of responsibility entailed in the position. The paramedic provides the most extensive pre-hospital care and may work for fire departments, private ambulance services, police departments or hospitals.

Credential Required to Practice EMT-Paramedic (Emergency Medical Technician- Paramedic)

Licensure Required to Practice Graduates of the paramedic program must pass a state-administered certification examination before credentialing. The certification examination in Indiana is the National Advanced Level Certification Examination for EMT-Paramedics and is administered by the National Registry of EMTs on behalf of the Indiana EMS Commission. The EMS Commission is the regulating body that certifies paramedics in Indiana.

EDUCATIONAL PROGRAM

Description of the Profession Paramedics have fulfilled prescribed requirements by a credentialing agency to practice the art and science of out-of-hospital medicine in conjunction with medical direction. Through performing of assessments and providing medical care, their goal is to prevent and reduce mortality and morbidity due to illness and injury. Paramedics primarily provide care to emergency patients in an out-of-hospital setting.

Paramedics possess the knowledge, skills, and attitudes consistent with the expectations of the public and the profession. Paramedics recognize that they are an essential component of the continuum of care and serve as linkages among health resources.

Paramedics strive to maintain high-quality, reasonably priced health care by delivering patients directly to appropriate facilities. As an advocate for patients, paramedics seek to be proactive in affecting long-term health care by working in conjunction with other provider agencies, networks and organizations. The emerging roles and responsibilities of the paramedic include public education, health promotion and participation in injury and illness-prevention programs. As the scope of service continues to expand, the paramedic will function as a facilitator of access to care, as well as an initial treatment provider.

Paramedics are responsible and accountable to medical direction, the public and their peers. Paramedics recognize the importance of research and actively participate in the design, development, evaluation and publication of research. Paramedics seek to take part in lifelong professional development and peer evaluation and assume an active role in professional and community organizations.

Program Goals

The Associate of Science in Paramedic Science Program intends to prepare Paramedics who are competent in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains to enter the profession by:

- Enabling the student to perform as a paramedic.
- Providing didactic instruction in the body of paramedic knowledge that will lead a student to hold competencies that will guide the student in lifelong learning as a health care professional.
- Providing clinical instruction that will provide the student with mastery of clinical competencies necessary to perform as a paramedic and will guide the student in lifelong learning as a healthcare professional.
- Providing a field internship that will develop a student's ability to apply mastered competencies, guided by mentors in real-time situations.
- Developing values that will prepare the student to be sensitive to the cultural needs of all patients.
- Developing knowledge, competency, and awareness of one's abilities and limitations; the ability to relate to people; and a capacity for calm and reasoned judgment while under stress.
- Developing values that will prepare the student to independently process information to make critical decisions.

Program Objectives

- The paramedic student will be able to establish and/ or maintain a patent airway and oxygenate and ventilate patients.
- The paramedic student will be able to take a proper history and perform a comprehensive physical exam on any patient and communicate the findings to others.
- The paramedic student will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and

implement the treatment plan for trauma and medical patients, including neonatal, pediatric, and geriatric patients; patients of diverse backgrounds; chronically ill patients; and patients with common complaints.
- The paramedic student will be able to safely manage the scene of an emergency.

At the completion of the general course of study the student must demonstrate the ability

- to safely administer medications.
- to safely perform endotracheal intubation.
- to safely gain venous access in patients of all age groups.
- to effectively ventilate un-intubated patients of all age groups.
- to perform a comprehensive assessment on pediatric, adult, geriatric, obstetric, trauma, and psychiatric patients.
- to perform a comprehensive assessment and formulate and implement a treatment plan for patients with chest pain.
- to perform a comprehensive assessment and formulate and implement a treatment plan for patients with dyspnea/respiratory distress.
- to perform a comprehensive assessment and formulate and implement a treatment plan for patients with syncope.
- to perform a comprehensive assessment and formulate and implement a treatment plan for patients with abdominal complaints.
- to perform a comprehensive assessment and formulate and implement a treatment plan for patients with altered mental status.

Length of the Program Two years; one year (21 credit hours) of prerequisite work plus 12 months of professional course work (41 credit hours).

Structure of the Professional Program The prerequisites may be taken on a part-time basis. The professional program is a full-time program conducted primarily during the day. Students can enter in either the spring or fall semester. Clinical activities occur during the evening or on weekends.

Design of the Professional Curriculum The curriculum is a competency-based education program of clinical, didactic, and practical instruction integrated with a field internship in advanced emergency care and services. This program will serve students seeking careers in emergency medical services.

It will serve students entering the program immediately after high school as well as nontraditional students. The majority of students are non-traditional in that they have begun to pursue a career in the emergency medical services field on a part-time, full-time, or volunteer basis before deciding on a full-time role in emergency medicine as an EMT-P.

The program follows guidelines established by the Indiana Emergency Medical Services Commission, integrating general-education course work and paramedic science course work leading to an associate of science degree. The degree program will build on resources established in the largest and most comprehensive EMT-Paramedic Program in Indiana, the program at Eskenazi Hospital.

In addition to classroom and laboratory facilities located at Indianapolis EMS Georgetown Road facility, area healthcare facilities provide clinical and field educational opportunities throughout central Indiana provide clinical and field.

Location of Clinicals The primary locations of the clinical rotations are in Indianapolis at Eskenazi Hospital, IUH Methodist Hospital, and Riley Hospital. Field clinicals are done throughout central Indiana and include Indianapolis EMS, Anderson Fire Department, Putnam County EMS, IUH Bloomington Hospital EMS, and Crawfordsville Fire Department.

Additional Costs In addition to regular university fees, students will need to purchase a personal stethoscope, EKG caliper and uniform for the clinical rotation. Contact the program for a current cost sheet.

Opportunity for Students to Work Some students have part-time jobs while completing the professional course work.

Description of Facilities The program offices are located at 3930 Georgetown Road (northwest Indianapolis) through Indianapolis EMS. The primary clinical site is at Ezkenazi Hospital. The primary field site is the Indianapolis EMS. Other clinical and field sites are available in central Indiana.

Accreditation The Paramedic Science Program at Indiana University/Eskenazi Health program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP).

Commission on Accreditation of Allied Health Education Programs 727-210-2350

To contact CoAEMSP: 214-703-8445

Updated: March 2024

Admission

General Information Students accepted into the program must complete the school's and the program's admission requirements before the first day of classes. Admission to the professional program is competitive; therefore, completion of the prerequisites does not guarantee admission to the program.

Criteria Used for Selection of Class Grade point average, personal interview, and EMT experience.

Proposed Class Size Ten each cohort entering either spring or fall semester.

Specific Requirements In addition to the IU School of Medicine Health Professions Programs admission policies and procedures found at the beginning of this section of the bulletin, the following requirements apply to the paramedic science degree program.

Application Deadline October 1 of the year before anticipated entry for spring semester or February 1 of the year before anticipated entry for fall semester.

Total Number of Prerequisite Credit Hours 21.

Distribution of Credit Hours in Specific Areas See prerequisites.

Limitations of Course Work Remedial courses will not fulfill prerequisites or count as credit hours toward the degree.

Minimum Cumulative Grade Point Average 2.30 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.00 on a 4.00 scale).

Interview All qualified applicants must participate in an interview. Interviews are generally conducted in December for the spring cohort and March for the fall cohort.

Indiana Residents Preference Policy See School of Medicine Health Professions Programs policy.

Volunteer Experience While volunteer experience is not required, it is helpful in making a career choice.

The following will be required upon offer of admission into the program and must be completed by June 1st in the year of entry. Complete details may be found HPP New Student Requirements and will be included in your program information packet.

- Signed Technical Standards form
- Signed Honor Code
- Proof of immunizations
- Proof of TB (either shot or IGRA)
- Physical Examination
- Flu Shot
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days of offer acceptance

Updated: March 2024

Advanced Standing

Advanced Standing

Below are the steps that a student must meet to be considered for admission to the advanced standing option:

Special Credit Credit by credential and experience can be awarded for holders of the EMT-Paramedic credential.

EMER-E 297 – EMT P National Registry (26.0 credit hours)
EMER-E 298 – Paramedic Certificate Clinical Experience (15.0 credit hours)

NOTE: There is a small per credit hour fee assessed when the program awards the special credit for the senior-level clinic courses. The current rate is $20 per hour up to a maximum of $100 per course. Special credit cannot be awarded unless a student is currently enrolled. The program has an independent study option (EMER-E 299) that may be considered to meet this requirement.

Program Requirements The Paramedic Science Program has 21.0 credit hours of coursework that needs completed to be eligible for the associate degree.

Residency at Indiana University In order to receive the associate degree students must complete 30 undergraduate credit hours of program or program-related course work in residence at an Indiana University campus. This may require students to take additional courses beyond the program requirements at an Indiana University campus. Special credit awarded by any program's credit for credential or credit by experience cannot be used towards the thirty (30) credit hour minimum.

Program Admission Students considering this advanced standing option must also complete the IU School of Medicine Health Professions Programs application process.

For details on special credit, program requirements and program admission please call (317) 278-4752 or email askhpp@iu.edu.

Updated: March 2024

Prerequisites

Prerequisites

Students should consult with their academic advisors for appropriate courses and semester sequence in order to complete prerequisites. Prerequisites may be taken at any accredited college or university. Correspondence courses will not be accepted for any of the prerequisite course work.

Written Communication, One Course: ---English Composition	3 cr.
Verbal Communication, One Course: ---Speech Communication	3 cr.
College Mathematics	3 cr.
Psychology	3 cr.
Social Problems	3 cr.
Human Biology I/II or Human Anatomy*	6 cr.

*Entering students are strongly recommended to complete the Human Biology I/II labs, but those are not required. The program suggests that students seeking admission to post-baccalaureate professional degrees within the health programs strongly consider taking the full human anatomy and human physiology sequence.

EMT-Basic Requirement/Patient Care Activity In addition to the above prerequisites, each applicant must currently be certified in Indiana as an EMT and have a minimum of 20 hours of patient care activity as an EMT in the patient care area of an ambulance.

The above credential can be achieved by enrolling in EMER-E 201 (6 cr.). Students needing to take this course to get the proper credential should work with their academic advisor on an adjusted suggested plan of study.

*Suggested Plan of Study (*EMT–Basic Certification Complete)

Freshman	
Fall	*Credits*
Human Biology I or Human Anatomy	3.0
Elementary Composition or Speech Communication	3.0

College Mathematics (Course from Approved List)	3.0
Introduction to Psychology	3.0
Total	12.0
Spring	*Credits*
Human Biology II or Human Physiology	3.0
Speech Communication or Elementary Composition	3.0
Social Problems	3.0
Total	9.0**

**Students are encouraged to complete additional General Education Core requirements that will help them towards completion of a baccalaureate degree.

Updated: March 2024

Professional Program

Professional Program

Students are admitted into a fall or spring cohort. Courses in the professional program are sequential and must be taken in the order specified by the program faculty. Both cohorts are shown below.

Sophomore		
Entering in Fall		*Credits*
The Paramedic and Pulmonology	EMER-E 210	3.0
Paramedic as Team Member	EMER-E 213	4.0
Introduction to Paramedic Practice	EMER-E 214	3.0
Pharmacology for the Paramedic	EMER-E 215	6.0
Total		16.0
Spring		*Credits*
The Paramedic and Medical Matters	EMER-E 220	5.0
The Paramedic and Trauma	EMER-E 221	3.0
Paramedic as Team Player	EMER-E 223	5.0
The Paramedic and Cardiology	EMER-E 226	3.0
Total		16.0
Summer		*Credits*
Paramedic as Team Leader	EMER-E 233	2.0
Paramedic Professional Progress	EMER-E 243	4.0
Contemporary EMS Issues	EMER-E 246	3.0
Total		9.0

Sophomore		
Entering in Spring		*Credits*
The Paramedic and Pulmonology	EMER-E 210	3.0
Paramedic as Team Member	EMER-E 213	4.0
Introduction to Paramedic Practice	EMER-E 214	3.0
Pharmacology for the Paramedic	EMER-E 215	6.0
Total		16.0
Summer		*Credits*
The Paramedic and Medical Matters	EMER-E 220	5.0
Paramedic as Team Player	EMER-E 223	5.0
The Paramedic and Cardiology	EMER-E 226	3.0
Total		13.0
Fall		*Credits*
The Paramedic and Trauma	EMER-E 221	3.0
Paramedic as Team Leader	EMER-E 233	2.0
Paramedic Professional Progress	EMER-E 243	4.0
Contemporary EMS Issues	EMER-E 246	3.0
Total		12.0

Awards Based on academic performance or clinical performance and excellence, the program faculty will recommend students for degrees awarded with distinction in accordance with the school's honors criteria.

Graduation Requirements Satisfactory completion of all prerequisites (21 credit hours) and 41 credit hours of professional course work. All course work must be completed in compliance with the program's and school's academic and professional policies. All professional courses (EMER-E courses) must be completed within 24 months after beginning the professional program.

Updated: March 2024

Emergency Medical Technician-Basic (EMT-B)

EMT-Basic

Emergency Medical Technician-Basic

- **Department Chair:** Professor P. Pang
- **Medical Director:** P. Ostahowski
- **Program Director**: Assistant Clinical Professor L. Bell
- **Adjunct Faculty:** Lecturers B. Geer, D, Scales, R Garvey

Completion of the Course Work/Graduates of the Program The EMT-Basic Program is a regular university course of study open to all students. A student completing the course work is prepared to work as an EMT to deliver

emergency patient care in the pre-hospital setting. Graduates of both the EMT-Basic and the Paramedic Science Program primarily provide emergency care in ambulance, fire services, or athletic training venues at their level of training. Nontraditional areas of employment are available in hospitals and industry.

Credential Required to Practice EMT-B, (Emergency Medical Technician-Basic)

Licensure Required to Practice Graduates of either the EMT-Basic or the Paramedic Science Program must pass a state-administered certification examination before credentialing. The certification examination may vary from state to state. The EMT-basic exam in Indiana is the written and skill exam from the Indiana Department of Homeland Security.

EDUCATIONAL PROGRAM

Description of the Profession and Career Requirements Emergency medical technicians respond to emergency calls to provide efficient and immediate care to the critically ill and injured, and they transport patients to medical facilities. After receiving the call from the dispatcher, the EMT-basic drives the ambulance to the address or location given, using the most expeditious route, depending on traffic and weather conditions. The EMT-basic observes traffic ordinances and regulations concerning emergency vehicle operation, and upon arrival at the scene of crash or illness, parks the ambulance in a safe location to avoid additional injury. Before initiating patient care, the EMT-basic also sizes up the scene to determine that the scene is safe, to identify the mechanism of injury or nature of illness and total number of patients, and to request additional help if necessary. In the absence of law enforcement, the EMT-basic creates a safe traffic environment, through such means as the placement of road flares, removal of debris, and redirection of traffic for the protection of the injured and those assisting in emergency care. The EMT-basic determines the nature and extent of illness or injury and establishes priority for required emergency care. Based on assessment findings, the EMT-basic renders emergency medical care to medical and trauma patients. Duties include, but are not limited to, opening and maintaining an airway; ventilating patients; cardiopulmonary resuscitation, including use of automated external defibrillators and providing pre-hospital emergency medical care of simple and multiple system trauma, such as controlling hemorrhage, treating shock (hypo-perfusion), bandaging wounds, and immobilizing of painful, swollen, or deformed extremities. Other duties include assisting in childbirth management of respiratory, cardiac, diabetic, allergic, behavioral, and environmental emergencies and dealing with suspected poisonings. The EMT-basic searches for medical identification emblems as clues in providing emergency care. Additional care, including administering medications, is provided based upon assessing patients and obtaining historical information.

When a patient must be extricated from entrapment, the EMT-basic assesses the extent of injury and gives all possible emergency care and protection to the entrapped patient and uses the prescribed techniques and appliances for safe removal, including contact dispatchers for additional help or special rescue and/or utility services. The EMT-basic provides simple rescue service if an ambulance has not been accompanied by a specialized unit. The EMT-basic complies with regulations on handling victims of fatalities. Other duties include lifting, securing, and removing stretchers. From the knowledge of the condition of patients, the extent of injuries, and the relative locations and staffing of emergency hospital facilities, the EMT-basic determines the most appropriate facility to which a patient will be transported and communicates effectively with emergency departments and communications centers. The EMT-basic also identifies assessment findings that may require communication with medical personnel.

The EMT-basic provides assistance to receiving facility staff upon request and ensures that ambulances are kept in optimal condition. Members of the profession must maintain familiarity with specialized equipment and attend continuing education and refresher training programs as required by employers, medical direction, and licensing or certifying agencies. They must also meet qualifications within the functional job analysis.

Length of Program One semester; a new course begins each fall and spring semester.

Additional Costs Students are encouraged to purchase their own stethoscopes.

ADMISSIONS

General Information No application is required. Students from the university at large are eligible to attend. Students must complete program prerequisites before the first day of classes.

Prerequisite None

Approximate Class Size 30 each semester.

Technical Standards See School of Medicine Health Profession Programs technical standards.

CURRICULUM

Prerequisite Students must hold current credential in Health Care Provider-level CPR.

Required Course

Fall and/or Spring	Credits
Emergency Medical Technician - Basic (EMER-E 201)	6.0 cr

Updated: March 2024

Associate of Science

Associate of Science in Histotechnology

- **Program Director:** Clinical Assistant Professor D. Wood M.S.Ed, HT(ASCP)

EDUCATIONAL PROGRAM

To meet the health care needs in both urban and rural settings nationwide, the program functions as a cooperative effort between IUSM and qualifying histology laboratories around the United States. Laboratory training sites are located nationwide, and change based on the student and/or laboratory need. Courses are taught

via distance education to employed and non-employed students.

Length of Program The Associate of Science in Histotechnology has a flexible completion timeline. Students complete the 30 credit hours of prerequisite coursework on their schedule but should aim to have courses completed in approximately 1-2 years. Completion of the 12-month professional program coursework must be completed full-time (See Feasibility of Work for Students section).

Alternately, prior HT certification by the Board of Certification of the American Society for Clinical Pathology is accepted in lieu of the certification program.

Structure of the Program Required program prerequisite courses may be transferred from any regionally accredited college or university or completed through any I.U. campus or I.U. Online in accordance with university and school policy. The professional program coursework (24 credit hours) and the histotechnology capstone course (6 credit hours) are completed as the final courses of the degree. All coursework, whether lecture or lab, are completed at the student's location giving them the benefit of training in the environment they are/or will be working in. Assignments are submitted to the program for evaluation.

Alternately, the previously certified HT(ASCP) may apply for special credit in lieu of completion of the certificate course work. The histotechnology capstone course, offered by distance education, will be taken as the last course for degree completion. A minimum 30 credit hours must be completed at Indiana University.

Design of Professional Curriculum Students who are employed/non-employed at the laboratory that qualifies as a clinical affiliate site are accepted into the Histotechnology Program to begin the course of study in the fall semester. The curriculum consists of a balance of didactic and practicum courses delivered by distance learning to students at their location. The program curriculum is delivered in a highly structured, sequential format that utilizes multiple methods of instruction to meet different learning styles.

Weekly lectures are recorded and are accompanied by related assignments that require approximately 3.5 hours per week for completion. The live 60-minute interactive video-conference review sessions are held bi-weekly using Zoom. The practicum course modules are designed to be accomplished in approximately 10 hours per week for the employed student; however, as part of on-the-job training, it is assumed that students in the program receive full-time technical training at their place of employment. The non-employed students should expect to spend additional hours to gain the technical skills required. All coursework, whether lecture or lab, is completed at the student's location giving them the benefit of training in the environment they are/or will be working in. Assignments are submitted to the program for evaluation.

The Histotechnology Program is designed to

- Provide educational and clinical experiences in all areas of histologic technology to prepare students for beginning a career as a histologic technician.
- Provide medical communities nationwide with individuals qualified to effectively carry out the functions of the histotechnology discipline.
- Assist affiliate sites' histology trainers in meeting the student's needs in accomplishing the course work.
- Assist students in reaching their goals by providing academic, occupational, and personal guidance.

Program Facilities The Histotechnology Program facilities is located at 351 W 10^{t} Street, Suite 110 Indianapolis IN 46202.

Opportunity to Work The program is designed with the employed student in a histology lab in mind; full- or part-time employment is preferred.

Feasibility of Work for Students In addition to the didactic courses, students should plan on completing the minimum practicum hours: employed student- 10 hours/ week minimum, non-employed student: should expect to spend additional hours to gain the technical skill required. The program is designed for students employed full-time in a histology laboratory.

Additional Costs of the Program In addition to tuition and course fees, students are required to purchase a textbook. If the facility does not stock the required reagent, the program will supply the major reagent(s) for special stains completed during the second semester. The program will supply the major reagents for special stains completed during the second semester. Clinical training laboratories may cover some expenses for laboratory supplies and mailing costs for submission of assignments to the program office. Additional training costs to student and/or laboratory are estimated at $250.00 per year.

Accreditation The Histotechnology Program at Indiana University- Indianapolis is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

NAACLS
5600 N. River Rd, Suite 720
Rosemont, IL 60018-5119
Phone (773) 714-8880
Fax (773) 714-8886
E-Mail: info@naacls.org
www.naacls.org

Updated: March 2024

Admission

Associate of Science in Histotechnology

Admission

General Information: Students are encouraged to contact the program directly, at any time, and work with the program advisor toward completion of the core curriculum. The 30 core curriculum credits must be completed at a regionally accredited college or university. This can be in the students' home state, IU campus or through IU Online. The core curriculum courses must be taken at a regionally accredited college or university. Students must meet admission requirements for the campus they complete the core curriculum courses. Only courses with an earned

grade of 2.0 on a 4.0 (C) will transfer to I.U. An overall minimum GPA of 2.3 (C+) based on a 4.0 scale.

Students must meet the professional program admission requirements to complete the degree. In addition to the core curriculum prerequisites students must have access to a qualified training laboratory, a certified HT (ASCP) or HTL (ASCP) to serve as their Clinical Liaison and completion of all application requirements.

Criteria Used for Selection of Class The Histotechnology Program is designed to reach students in all parts of the nation. Admissions for the professional program courses is based on laboratory, mentor, employment facility status and prerequisite completion.

Class Size Histotechnology professional program courses class size is limited to 50. In the event, however, that enrollment exceeds program resources, applicants who are residents of Indiana are given preference for admission before out-of-state applicants, followed by GPA ranking. If class size does not reach 50, GPA's as low as 2.0 will be considered until class is full.

Specific Requirements In addition to the Health Professions Programs admission policies and procedures found at the beginning of this bulletin, the admission policies below apply to the Associate of Science in Histotechnology degree.

Application Deadline Program applications are accepted year-round to allow students access to a program advisor for completion of the 30 credit hours of core curriculum (See admissions above). Applications for the histotechnology program's 30 hours of professional course work are accepted before April 30th for classes starting in the fall term.

Minimum Academic Requirements High school diploma or equivalent. Students must meet the university admissions guidelines.

Minimum Cumulative Grade Point Average 2.30 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.00 on a 4.00 scale).

Technical Standards See Health Professions Programs policy.

Students starting the professional program courses who are not employed at a qualifying lab must also meet the following entry requirements:

Medical Requirements Students are required to demonstrate proof of immunization for tetanus, diphtheria and pertussis, rubella (German measles), rubeola (measles), mumps, varicella (chicken pox), and hepatitis B, have a PPD tuberculin skin test within the last three months prior to the professional program courses beginning in the Fall term. In some instances, proof of titer can be substituted. Students may be required to complete a physical examination (see program specific requirements). Full details for entering students can be found at HPP New Student Requirements. Additional immunizations may be required at certain clinical sites.

Student Health Insurance Students are required to show proof of coverage under a health insurance plan. This is consistent with requirements for other health science students on the IU Indianapolis campus.

Background Check and Drug Screen Students are required to submit to a comprehensive background check and drug screen upon notification of admission. A Social Security number is required to finalize an applicant's background check and allows a student access to hospitals that serve as the School's clinical partners. Further information about the requirement and cost is included in the letter of admission.

NOTE: Medical requirements (immunizations/health screen), student health insurance, background check and drug screen must all be completed by August 1^{S} in the year of entry.

Volunteer Experience Although volunteer experience is not required of applicants, it is highly recommended that students with no histology laboratory experience spend time in a histology laboratory to assure serious interest before proceeding with application to the program.

Updated: April 2023

Curriculum

Associate of Science in Histotechnology

Curriculum

IMPORTANT: Associate Degree programs are exempt from the IU Indianapolis General Education Core.

Prerequisites Students should consult with the program director for appropriate courses to meet the degree requirements. Alternately, prior certification by the American Society for Clinical Pathology as a histotechnician (HT) is accepted.

Indiana University offers online courses through various campuses, please contact the Histotechnology Program Director for available options. Courses may be completed at any regionally accredited college or university and transferred to IU Indianapolis. Please see below the minimum number of hours that must be completed within the IU system to meet graduation requirements. Degree completion courses may be completed, for the most part, in any sequence. The Histotechnology Program capstone course is designed to be taken at the completion of the associate degree.

Degree Completion Courses

30 undergraduate courses and 30 professional program courses for a total of 60 credits.

The following courses must be satisfactorily completed for the associate degree.

Please contact the Program Director for assistance for course equivalents at other colleges or universities.

Program Requirements/ Prerequisites	Credits
Written Communication, One Course: ---Reading, Writing & Inquiry	3.0
Verbal Communication, One Course:	3.0

---Speech Communication	
College Mathematics (College Algebra or Higher)	3.0
Arts/Humanities & Social Sciences (two courses)	6.0
Cultural Understanding, One Course:	3.0
Life Sciences: 12 credits total must have a minimum of 3 credits in each biology & chemistry.	12.0
PREREQUISITE TOTAL	**30.0**

Professional Program

Fall	**Course**	**Credits**
Histotechnology I	PATH-H211	3.0
Histotechnology Practicum I	PATH-H281	3.0
Histotechnology II	PATH-H212	3.0
Histotechnology Practicum II	PATH-H282	3.0
FALL TOTAL		**12.0**
Spring	**Course**	**Credits**
Histotechnology III	PATH-H213	3.0
Histotechnology Practicum III	PATH-H283	3.0
Histotechnology IV	PATH-H214	3.0
Histotechnology Practicum IV	PATH-H284	3.0
SPRING TOTAL		**12.0**
Summer or Fall	**Course**	**Credits**
Histotechnology Capstone	PATH-H299	6.0
PROGRAM TOTAL		**30.0**

Special Credit Policy Practicing histotechnicians certified by ASCP (HT) may apply for special credit courses PATH-H 215 (*Histotechnology Credential Theory*) and PATH-H 285 (*Histotechnology Credential*), in lieu of taking the program's PATH-H211/H281, PATH-H 212/H282, PATH-H 213/H28 and PATH-H 214/H284, when working toward the associate degree at IU Indianapolis. Special credit courses PATH-H 215 and PATH-H 285 are normally not transferable to other colleges or universities.

Graduation Requirements Satisfactory completion of 60 credit hours, to include 30 credit hours of degree-completion courses and 30 credit hours of professional courses (including capstone). If needed, elective hours can be used to bring the student's degree completion courses to 30 credit hours if all content areas have been completed. All coursework must be completed in compliance with the Program's and school's academic and professional policies. A minimum of 30 credit hours must be completed at Indiana University; special credit (PATH-H 215 and 285) courses do not qualify.

Updated: March 2024

Certificate

Certificate

Certificate in Histotechnology

- **Program Director:** Clinical Assistant Professor D. Wood M.S.ED, HT(ASCP)

EDUCATIONAL PROGRAM
To meet the health care needs in both urban and rural settings nationwide, the program functions as a cooperative effort between IUSM and qualifying histology laboratories around the United States. Laboratory training sites are located nationwide, and change based on the student and/or laboratory's need. Courses are taught via distance education to employed and non-employed students. A limited number of clinical sites for the program are located within the Indianapolis area for local non-employed students.

Length of the Program Nine months of professional coursework beginning in the fall semester. The course of study consists of eight courses (24 credit hours), including four didactic courses and four practicum courses.

Structure of the Program Students complete 12 credit hours in the fall and 12 credit hours in the spring terms. Lectures and related course material are presented utilizing distance education. Practicum coursework is performed in the student's laboratory which has been identified as an affiliate site. All coursework, whether lecture or lab, is completed at the student's location, giving them the benefit of training in the environment they are/or will be working in.

Design of Professional Curriculum Students who are employed/non-employed at the laboratory that qualifies as a clinical affiliate site are accepted into the Histotechnology Program to begin the course of study in the fall semester. The curriculum consists of a balance of didactic and practicum courses delivered by distance learning to students. The program curriculum is delivered in a highly structured, sequential format that utilizes multiple methods of instruction to meet different learning styles.

Weekly lectures are recorded and are accompanied by related assignments that require approximately 3.5 hours per week for completion. The live 60-minute interactive video-conference review sessions are held bi-weekly using Zoom. The practicum course modules are designed to be accomplished in approximately 10 hours per week for the employed student, however, as part of on-the-job training, it is expected that students in the program receive full-time technical training at their place of employment. The non-employed students should expect to spend additional hours to gain the technical skills required. All

coursework, whether lecture or lab, is completed at the student's location giving them the benefit of training in the environment they are/or will be working in. Assignments are submitted to the program for evaluation.

The Histotechnology Program is designed to

- Provide educational and clinical experiences in all areas of histologic technology to prepare students for beginning a career as a histologic technician.
- Provide medical communities nationwide with individuals qualified to effectively carry out the functions of the histotechnology discipline.
- Assist affiliate sites' histology trainers in meeting the student's needs in accomplishing the course work.
- Assist students in reaching their goals by providing academic, occupational, and personal guidance.

Program Facilities The Histotechnology Program office is locatedat 351 W 10^{t} Street, Suite 110 Indianapolis IN 46202. "Classrooms" for delivery of video conferences, as well as practical training sites, are in histology laboratories throughout the United States that qualify as clinical affiliates where students are located.

Location of Clinicals Laboratory training sites are located nationwide and change based on the student and/or laboratories need for quality trained histotechnicians or histotechnologists.

Opportunity to Work The program is designed with the employed student in a histology lab in mind; full- or part-time employment is assumed.

Additional Costs of the Program In addition to tuition and course fees, students are required to purchase a textbook and student membership to the National Society. The program will supply the major reagents for special stains completed during the second semester. Clinical training laboratories may cover some expenses for laboratory supplies and mailing costs for submission of assignments to the program office. Additional training costs to student and/or laboratory are estimated at $250.00 per year.

Feasibility of Work for Students In addition to the didactic courses, students should plan on completing the minimum practicum hours: employed student non-employed student should expect to spend additional hours to gain the technical skills required. This could be up to a total of 10 hours a week. The program is designed for students employed full-time in a histology laboratory.

Accreditation The Histotechnology Program at Indiana University-Indianapolis is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), Rosemont, Illinois; (312) 714-8880.

Updated: March 2024

Admission

Certificate

Admission For admission, students must hold a minimum of an associate degree from a regionally accredited college/university and have completed a combination of 12 semester hours (18 quarter hours) of biology and chemistry (must include credit hours in both), have access to a qualified training laboratory, and completion of all application requirements. Laboratory training sites are located nationwide and change based on the student and/or laboratories' need. Students typically are employed at the training site: however, the training site may take non-employed students.

Criteria Used for Selection of Class The Histotechnology Program is designed to reach students in all parts of the nation. However, preference for admissions is ranked as follows: (1) students in laboratories with multiple noncertified students; (2) students in laboratories with one noncertified student. Other applicants will be admitted as class capacity allows.

Class Size The Histotechnology professional program courses' class size is limited to 50. In the event, however, that enrollment exceeds program resources, applicants who are residents of Indiana are given preference for admission before out-of-state applicants, followed by GPA ranking. If the class size does not reach 50, GPAs as low as 2.0 will be considered until the class is full.

Specific Requirements In addition to the Health Professions Programs admission policies and procedures found at the beginning of this section of the bulletin, the admission policies below apply to the Histotechnology Program.

Application Deadline Applications for the certificate program's 24 hours of professional course work are accepted before April 30th for classes starting in the fall term.

Minimum Academic Requirements Applicants must hold an associate or higher degree from a regionally accredited college or university. The degree must include a minimum of 12 credit hours of chemistry and biology (combined). If these courses are not included within the degree, they must be taken in addition to the degree.

Minimum Cumulative Grade Point Average 2.30 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.00 on a 4.00 scale).

Technical Standards See Health Professions Programs technical standards.

Students who are not employed at a qualifying lab must also meet the following entry requirements:

Medical Requirements All entering students must meet established health requirements. Before beginning the professional program, students are required to demonstrate proof of immunization for tetanus, diphtheria and pertussis, rubella (German measles), rubeola (measles), mumps, varicella (chicken pox), and hepatitis B. All students must have a PPD tuberculin skin test within the last three months. In some instances, proof of titer can be substituted. Students may be required to complete a physical examination (see program specific requirements). Full details for entering students can be found at HPP New Student Requirements. Additional immunizations may be required at certain clinical sites.

Student Health Insurance All students are required to show proof of coverage under a health insurance plan. This is consistent with requirements for other health science students on the IU Indianapolis campus.

Background Check and Drug Screen All students are required to submit to a comprehensive background check and drug screen upon notification of admission.

A Social Security number is required to finalize an applicant's background check and allows a student access to hospitals that serve as the School's clinical partners.

Further information about the requirement and cost is included in the letter of admission.

NOTE: Medical requirements (immunizations/health screen), student health insurance, background check, and drug screen must all be completed by August 1S in the year of entry.

Volunteer Experience Although volunteer experience is not required of applicants, it is highly recommended that students with no histology laboratory experience spend time in a histology laboratory to ensure serious interest before proceeding with application to the program.

Updated: March 2024

Curriculum

Certificate

Curriculum

Prerequisites Associate degree from a regionally accredited college/university. Students must have completed a combination of 12 semester hours (18 quarter hours) of biology and chemistry (must include credit hours in both) or in addition to the degree.

Students not holding the degree must graduate with the Associate of Science in Histotechnology degree offered by the IU Histotechnology Program. See Associate degree in the bulletin.

Professional Program Paired didactic and practicum courses must be taken concurrently. Courses are offered and must be completed in sequence. Students are registered for classes in each term as follows:

Fall		**Credits**
Histotechnology I	PATH-H 211	3.0
Histotechnology Practicum I	PATH-H 281	3.0
Histotechnology II	PATH-H 212	3.0
Histotechnology Practicum II	PATH-H 282	3.0
Fall Total		**12.0**
Spring		Credits
Histotechnology III	PATH-H 213	3.0
Histotechnology Practicum III	PATH-H 283	3.0
Histotechnology IV	PATH-H 214	3.0
Histotechnology Practicum IV	PATH-H 284	3.0
Spring Total		**12.0**
Program Total		24.0

Program Completion Requirements Satisfactory completion of 24 credit hours of professional courses. All course work must be completed in compliance with the program's and school's academic and professional policies.

Updated: March 2024

Histotechnology

Histotechnology

The educational program in histotechnology through the IU School of Medicine Department of Pathology and Laboratory Medicine is located on the Indiana University Indianapolis campus. The program functions as a cooperative effort between IUSM and qualifying histology laboratories around the United States. Courses are taught via distance education to employed and non-employed students.

Mission

To provide quality education using distance learning technology in preparing individuals for certification in Histotechnology. To meet the healthcare manpower needs in both urban and rural settings nationwide.

Program Goals

The program's goals have been developed within the mission of the Health Professions Programs in the School of Medicine. In an effort to provide theoretical background and the development of a high degree of occupational competence, the program has established the following goals:

- To provide students with the educational experiences necessary to enter a career as a histologic technician, to include entry-level competence and eligibility for the ASCP Board of Certification Histotechnician or Histotechnologist examination.
- To provide the nationwide healthcare community with individuals competent to conduct high-quality histologic procedures.
- To provide a curriculum containing a balance between technical knowledge and clinical competence gained in the histology laboratory setting.
- To assist students in reaching their goals by providing academic and occupational advising.
- To instill in students a lifelong desire to achieve professional and academic excellence.

Description of Histotechnology Profession

Histotechnology is a science-based profession aimed to assist the pathologist with the diagnoses of disease on biologic samples from patients. This technology integrates biology, chemistry, histochemistry, immunology, and molecular biology to identify cell and tissue types as well as microorganisms, pigments, minerals, and antigens. Histotechnologists perform testing procedures that may include tissue/dye reaction, enzyme histochemistry, immunohistochemistry, in situ hybridization, and electron microscopy. Immunological and molecular (DNA) techniques are frequently utilized to provide accurate

tumor identification which will aid the clinician in selecting a mode of therapy that offers the greatest probability of cure.

Histotechnologists must be experts in the handling and preparation of tissues, as many of the samples they work with cannot be replaced. Therefore, histotechnologists must be extremely meticulous and accurate in their work and may choose to become highly specialized. Employment opportunities are numerous and may be found in medical, research, pharmaceutical, industrial, veterinary, and forensic laboratories where their efforts contribute to the diagnosis of disease and the development of new drugs and treatment strategies.

Histotechnology professionals are qualified by their academic and applied science education to provide service and research in histotechnology and related areas in rapidly changing and dynamic healthcare delivery systems. They have diverse and multi#level capabilities in the areas of analysis and clinical decision# making, information management, regulatory compliance, education, and quality assurance/performance improvement wherever anatomic pathology testing is researched, marketed, developed, or performed.

Histotechnology professionals perform, develop, evaluate, correlate, and assure the accuracy and validity of laboratory testing and procedures; direct and supervise anatomic pathology laboratory resources and operations; and collaborate in the diagnosis and treatment of patients. They possess skills in financial, operations, marketing, and human resource management of the histopathology laboratory.

Histotechnology professionals practice independently and collaboratively, being responsible for their actions, as defined by the profession. They have the requisite knowledge and skills to educate laboratory professionals, health care professionals, and others in laboratory practice, as well as the public.

The ability to relate to people, a capacity for calm and reasoned judgment, and a demonstration of commitment to the patient are essential qualities. Communication skills extend to consultative interactions with members of the healthcare team, external relations, customer service and patient education. Histotechnology professionals demonstrate ethical and moral attitudes and principles that are necessary for gaining and maintaining the confidence of patients, professional associates, and the community.

Job opportunities

Today, there are more jobs for histotechnicians than certified personnel to fill those jobs. The future of long-term employment looks bright. The need is great everywhere throughout the country.

Histotechnicians have an unlimited choice of practice settings. Job openings for qualified histotechnicians can be found in:

- hospitals
- clinics
- dermatopathology labs
- public health facilities
- industrial research
- veterinary pathology
- marine biology
- forensic pathology

Program Objectives
Upon successful completion of all standard academic requirements established for this program, the graduate is entitled to receive a Certificate in Histotechnology or an Associate of Science in Histotechnology degree from Indiana University. By virtue of the standards required by this program, the graduate is eligible to take the Histotechnician or Histotechnologist Certification Examination administered by the American Society for Clinical Pathology's Board of Certification. The didactic and practical experience provided by the course of instruction should enable the graduate to accomplish the following objectives:

1. Receiving and accessioning tissue specimens;
2. Preparing tissue specimens for microscopic examinations, including all routine procedures;
3. Assisting with gross examination and frozen section procedures in histopathology;
4. Identifying tissue structures and their staining characteristics;
5. Performing preventive and corrective maintenance of equipment and instruments or referring to appropriate sources for repairs;
6. Recognizing factors that affect procedures and results, and taking appropriate action within predetermined limits when corrections are indicated;
7. Performing and monitoring quality control within predetermined limits;
8. Applying principles of safety;
9. Demonstrating professional conduct and interpersonal communication skills with patients, laboratory personnel, other health care professionals, and with the public;
10. Recognizing the responsibilities of other laboratory and healthcare professionals and interacting with them with respect for their jobs and patient care;
11. Recognizing and acting upon individual needs for continuing education as a function of growth and maintenance of professional competence;
12. Exercising principles of management, safety, and supervision, as the primary analyst making specimen-oriented decisions on predetermined criteria, including a working knowledge of criteria values. Communication skills will extend to frequent interactions with members of the healthcare team, external relations, customer service, and patient education. The levels of analysis range from routine tissue processing to complex histopathology laboratory procedures in the various major areas of anatomic pathology. The histotechnician will have diverse functions in areas of pre#analytic, analytic, and post#analytic processes. The histotechnician will have responsibilities for information processing, training, and quality control monitoring wherever histologic procedures are performed.

*From "NAACLS Standards for Accredited and Approved Programs", National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

Graduates of the Program Students who successfully complete the histotechnology program are eligible to take the national certification examination. Nationally

recognized certification is a requirement for employment in many settings.

Credentials Required to Practice HT(ASCP), Histotechnician, or HTL(ASCP), Histotechnologist

Licensure Requirements to Practice There is no state licensure in Indiana; however, some states require licensure in addition to national certification. The IU certificate program is an approved training program by the Florida Board of Health and meets the requirements for state licensure in the state of Florida. Students completing the IU Associate of Science in Histotechnology meet the requirements for the State of New York and may apply for state licensure in NY.

Scholarships The American Society for Clinical Pathology, the National Society for Histotechnology, the Indiana Society for Histotechnology, and several states' histology professional organizations sponsor scholarships for students in histotechnology. Other scholarship and financial aid opportunities may be available through the IU Indianapolis Office of Scholarships and Financial Aid.

- Indiana University is sharing this information about the Certificate Program in compliance with Federal Regulations required by the US Department of Education. Note: all students pay a flat rate equivalent to in-state tuition regardless of residency for the 24-credit hour certificate program and 30-credit hour associate degree program.

For further information, contact:

Histotechnology Program Office
Phone: 317-274-1686
E-mail: IUHTinfo@iu.edu

or

Debra Wood, M.S.Ed., Director
Phone: (317) 274-1684
E-mail: demwood@iu.edu

Mailing Address:

Indiana University Histotechnology Program

351 W 10^{t} Street, Suite 110
Indianapolis IN 46202

Program Office Phone: (317) 274-1686

Updated: March 2024

Medical Imaging Technology

Medical Imaging Technology (clinical and non-clinical tracks)

The Medical Imaging Technology (MIT) program is located on the Indiana University-Indianapolis campus and housed in the IU School of Medicine Department of Radiology and Imaging Sciences. **This advanced imaging program is only open to registered radiographers, sonographers, nuclear medicine, or radiation therapy technologists (RT(R) or RT(T) or RT(N) or RDMS or NMTCB).**

Description of the Profession The medical imaging technologist is a skilled imaging professional qualified to provide patient service in cardiac interventional (CI), vascular interventional (VI), computed tomography (CT), mammography (M) and magnetic resonance imaging (MRI). Medical imaging technologists use principles of radio-waves and radiation as they determine imaging parameters and position patients for a variety of examinations. Many of the patient examinations are highly specific, using computers or computerized equipment. Medical imaging technologists are also capable of assessing the technical quality of the image and providing basic patient care. The technologist must function as a member of the health care team.

Graduates of the Program Graduates receive a Bachelor of Science degree and are eligible to take specialty examinations depending on their major area of concentration.

Credentials Required to Practice From the American Registry of Radiologic Technologists (ARRT): graduates must have been previously credentialed in RT(R), RT(S), RT(VS), RT(T) or RT(N). From the American Registry of Diagnostic Sonography (ARDS): graduates must be credentialed in RDMS, RDCS, or RVT. From the Nuclear Medicine Technology Certification Board (NMTCB): graduates must be credentialed in CNMT.

The MIT Clinical Track prepares graduates for advanced credentials in CI, CT, M, MRI, and VI; employers may require an advance credential.

Indiana Requirements to Practice A state license is required to operate radiation producing devices. The state of Indiana accepts ARRT and NMTCB credentials to satisfy educational requirements.

If you hold one of the abovementioned credentials, contact Debra Patterson. If you do not hold one of these credentials, contact the Health Professions Programs office at askhpp@iu.edu or (317) 278-4752.

Debra Patterson, M.S., RT(R)(MR)(CT)

Medical Imaging Technology Program Director
IU Radiologic and Imaging Sciences
1120 W. Michigan Street | CL122
Indianapolis, IN 46202-5111

Phone: (317) 274-5255
E-mail: patte120@iu.edu

Updated: March 2024

Admission

General Information Enrollment at Indiana University does not guarantee admission to any of the Health Professions Programs. To be eligible for admission to the Medical Imaging Technology program, students must adhere to the program preadmission requirements. Admission to the professional program is competitive; therefore, completion of the prerequisites does not guarantee admission to the program.

Criteria Used for Selection of Class Previous academic record, evidence of registration in RT(R) or RT(T) or RT(N) or RDMS or NMTCB, and availability of major clinical concentrations (clinical tracks only).

Class Size Varies yearly based on the availability of clinical education sites for each major area and number of students in the non-clinical track.

Specific Requirements In addition to the Health Professions Programs' admission policies and procedures found at the beginning of this section of the bulletin, the admission policies below apply to the Medical Imaging Technology Program.

Application Deadline Admission for clinical track is November 15 of the year before anticipated entry. Admission for non-clinical is rolling admission. However, all documents to obtain admission to IU Indianapolis and the program must be in place one month before the start of any semester.

Total Number of Prerequisite Credit Hours 90 (including radiography credits/credential)

Minimum Cumulative Grade Point Average 2.80 on a 4.00 scale at the time of application for clinical track. 2.50 on a 4.0 scale at the time of application for non-clinical track. All Gen Ed Core courses, Anatomy, Physiology, Medical Terminology, Communication.

Minimum Specific Grade Point Average* Cumulative 2.50 on a 4.00 scale for all radiological science and math/science courses for clinical track. Cumulative 2.00 on a 4.00 scale for all radiological science math/science courses for non-clinical track.

*Achievement of minimum grade point averages is a condition of application eligibility only and does not guarantee acceptance into the MIT program.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.00 on a 4.00 scale).

Interview An interview is not required.

Test of Essential Academic Skills (TEAS) Test Students who earned a healthcare related degree (AS, BS, or MS) are exempt for completing a TEAS Assessment. Students who do NOT hold a healthcare related degree must complete a TEAS Test with completion scores submitted with program application.

Technical Standards See the Health Professions Programs' policy.

Indiana Residents Preference Policy See the Health Professions Programs' policy.

Experience While work experience beyond the initial degree is not required, it is helpful.

The following applies for all students except those on the non-clinical track.

The following will be required upon offer of admission into the program and must be completed by assigned deadlines. Complete details may be found at HPP New Student Requirements and will be included on the Radiologic and Imaging Sciences Programs Onboarding Canvas site.

- Signed Technical Standards form
- Signed Honor Code
- Proof of immunizations
- Proof of TB (either shot or IGRA)
- Physical Examination
- Flu Shot
- Fit Testing
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days of offer acceptance

Updated: March 2024

Educational Program

Bachelor of Science in Medical Imaging Technology at IU Indianapolis

- Chair Department of Radiology & Imaging Sciences: Dr. Jason Allen
- Medical Advisor: Dr. Jeffrey Dunkle
- Radiologic and Imaging Sciences Director: Assistant Clinical Professor, Kellie Cranfill
- MIT Program Director: Assistant Clinical Professor, Debra Patterson
- Clinical Coordinator: Assistant Clinical Professor, Amanda Cole
- Adjunct Faculty: Katie Guntle and Chris Patterson

Clinical Concentrations for Cardiac Interventional (CI), Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Mammography (M), or Vascular Interventional (VI). This program is designed to prepare qualified medical imaging technologists. The principal aim of the major is to provide students with educational experiences that will permit them to develop the competencies required to function effectively as advanced imaging technologists. Theory and clinical experiences are provided in cardiac and vascular interventional procedures, computed tomography, magnetic resonance imaging, and mammography. Students select one concentration for clinical experiences and didactic instruction.

Non-Clinical Track Students may also select a non-clinical curriculum receiving theory in all areas of Medical Imaging. (Students would not be eligible to sit for advanced certification examinations.) Students who seek this track may be interested in a BS degree for personal fulfillment, initial employment (such as medical sales), job advancement (such as a management or education position) or pursuit of a graduate degree.

Non-Clinical Track Requirements The non-clinical track in Medical Imaging Technology (MIT) is directed toward professionals in the field of Medical Imaging who are seeking a bachelor's degree in their field, but do not require or desire clinical experience in one of the modality tracks offered (CT/CI/MRI/Mammo/VI) in MIT.

- Non-clinical track professional curriculum is 30 credit hours.
- Minimum of 30 credit hours in residence at Indiana University.
- Minimum of 120 credit hours total must be done to receive a Bachelor's degree in Medical Imaging Technology.
- In special circumstances, 12 credit hours of the non-clinical track professional curriculum may be taken outside of the Radiologic and Imaging Sciences Programs, but the credit hours must be relevant (must meet with MIT Director for approval of outside credit hours) to the field of Medical Imaging. All credit hours within the non-clinical track professional curriculum must be 300 or 400 level courses.

- The non-clinical track can be done part-time or full-time.

Special Credit for Post-Primary Certification for those seeking the Non-Clinical track

- Students may apply for special credit (12 credit hours) for holding a **post-primary** certification related to Medical Imaging (ARDMS, CT, MRI, Mammography, Nuclear Medicine, etc.). Special credit can only be granted if the student completes 30 hours of Indiana University credit.
- If special credit is awarded, all remaining courses must be taken within the non-clinical track professional curriculum in the Medical Imaging Technology Program.
- Special credit hours do not apply toward the minimum of 30 credit hours in residence at Indiana University.

Length of the ProgramClinical/Intern CI, CT, MRI, Mammography, and VI (2 semesters) A new class begins with Fall semester each year and continues through the end of the spring semester the next year.

Non-clinical track (2-6 semesters) The Non-clinical track can be started any semester. However, students may choose to go part-time in this track, which would lengthen the program of study.

Structure of the Program Clinical track students have labs or clinical experiences from 8 a.m. to 4 p.m., Monday through Thursday. For clinical and non-clinical tracks, classes are on-line with some live discussions. All on-line discussions are recorded so that students may work within a time frame that is best for them. Deadlines are given throughout the program to help students stay on track.

Opportunity for Students to Work Employment as a part-time radiographer may be available at one of the area hospitals. In addition, students may have the opportunity to have paid internships during the program. Internships must be in an advanced modality (CI, CT, MRI, Mammo, or VI) and must be agreed upon a minimum of 2 weeks before the start of the semester. These internships are at the discretion of the MIT Program Director and the internship site. When an internship is established, the program, the internship site and the student sign an agreement that allows the students to be paid while gaining college credit. Students arrange their own internships and request to have them applied toward degree requirements. RISP is not responsible for finding internships for students.

Additional Cost In addition to regular university tuition and fees, students should expect to pay for program-related expenses such as books, uniforms, etc. Consult the HPP website advising section for a current cost sheet.

Program Facilities The Medical Imaging Technology Program is offered in Indianapolis at the Indiana University Medical Center. The offices, classrooms, and laboratory facilities are located on the first floor of Gatch Hall (Clinical Building). Clinical education sites are in the Indianapolis metropolitan area and surrounding cities. Students are responsible for their transportation to these sites (Non-clinical students will never be required to come to campus).

Updated: March 2024

Prerequisites

Before entering the program, students must complete the following minimum prerequisites. Students should consult with their academic advisors for appropriate courses and semester sequence in order to complete prerequisites. Prerequisite courses must be completed by the end of Summer Session II prior to entry for clinical track students. Equivalent prerequisites may be taken at any accredited college or university. The code “GE” indicates a course that meets the campus’ General Education core.

Approved courses that meet the General Education core can be found at this section of the Division of Undergraduate Education website.

General Education Areas	
Core Communication, Two Courses: ---English Composition (GE) ---Speech Communication (GE)	6 cr.
Cultural Understanding Elective (GE)	3 cr.
Social Sciences - Introductory Psychology (GE)	3 cr.
Arts/Humanities Elective (GE)	3 cr.
2^{n} Arts/Humanities or Social Science Elective (GE) (Must have two courses from one of the above areas)	3 cr.
Analytical Reasoning, Two Courses: ---College Algebra & Trig 1 (GE) ---College Algebra & Trig 2 (GE) NOTE: Above courses are required	6 cr.
Life and Physical Sciences: ---Human Anatomy (GE) ---Human Physiology (GE)	6-10 cr.
Medical Terminology	1-3 cr.

RadiographyThis area is complete for applicants who have earned 60 college credit hours in radiography

Students who received their radiography education without transferable university credit and who have full credentials in radiography (ARRT) will be awarded 40 credits for their credential. A copy of the Special Credit Policy is available upon request. Each applicant will be evaluated individually.

Students must select additional courses in radiography or in areas that support, complement, or extend their radiography background if the semester hours don't meet the 90 credit hour admission criteria.

Updated: March 2024

Professional Program

Some of the courses in the professional program are sequential and therefore must be taken in the order specified by the program faculty. Once admitted to the MIT Program, the MIT Program Director will work with each student to determine their precise curricular map.

Students are admitted into varying tracks: CI/VI, CT, MRI, Mammography, or Non-Clinical; please note the curricular differences. Clinical students can qualify for an internship in an advanced modality if specific program requirements are met. Please contact the MIT Program Director at patte120@iu.edu for more information.

Senior (CI/VI)

Fall		*Credits*
Multiplanar Anatomy and Pathology I	RADI-R472	3.0
Medical Imaging Technology Project I	RADI-R456	3.0
Cardiac-Interventional/ Vascular-Interventional Principles & Procedures I	RADI-I464	3.0
Clinical Practicum: CI/VI	RADI-I483	6.0
Total		15.0
Spring		*Credits*
Multiplanar Anatomy and Pathology II	RADI-R473	3.0
Medical Imaging Technology Project II	RADI-R457	3.0
Cardiac-Interventional/ Vascular-Interventional Principles & Procedures II	RADI-I465	3.0
Clinical Practicum II VI/CI	RADI-I484	6.0
Total		15.0
CI/VI Program Total		**30.0**

Senior (CT)

Fall		*Credits*
Multiplanar Anatomy and Pathology I	RADI-R472	3.0
Medical Imaging Technology Project I	RADI-R456	3.0
CT Principles and Procedures I	RADI-C464	3.0
Clinical Practicum: CT	RADI-C483	6.0
Total		15.0
Spring		*Credits*
Multiplanar Anatomy and Pathology II	RADI-R473	3.0
Medical Imaging Technology Project II	RADI-R457	3.0
CT Principles and Procedures II	RADI-C465	3.0
Clinical Practicum: CT	RADI-C484	6.0
Total		15.0
CT Program Total		**30.0**

Senior (MRI)

Fall		*Credits*
Multiplanar Anatomy and Pathology I	RADI-R472	3.0
Medical Imaging Technology Project I	RADI-R456	3.0
MRI Principles and Procedures I	RADI-M464	3.0
Clinical Practicum I: MRI	RADI-M483	6.0
Total		15.0
Spring		*Credits*
Multiplanar Anatomy and Pathology II	RADI-R473	3.0
Medical Imaging Technology Project II	RADI-R457	3.0
MRI Principles and Procedures II	RADI-M465	3.0
Clinical Practicum II: MRI	RADI-M484	6.0
Total		15.0
MRI Program Total		**30.0**

Senior (Mammography)

Fall		*Credits*
Multiplanar Anatomy and Pathology I	RADI-R472	3.0
Medical Imaging Technology Project I	RADI-R456	3.0
Mammography Principles & Procedures I	RADI-B464	3.0

Clinical Practicum I: Mammography	RADI-B483	6.0
Total		15.0
Spring		*Credits*
Multiplanar Anatomy and Pathology II	RADI-R473	3.0
Medical Imaging Technology Project II	RADI-R457	3.0
Clinical Practicum II: Mammography	RADI-B484	6.0
MQSA initial Mammo Training (Special Credit)		3.0
Total		15.0
Mammography Program Total		**30.0**

Senior (Non-Clinical)*

Fall		*Credits*
Multiplanar Anatomy and Pathology I	RADI-R 472	3.0 cr
Medical Imaging Theory I	RADI-R 451	3.0 cr
Medical Imaging Technology Project I	RADI-R 456	3.0 cr
Medical Imaging Informatics	RADI-R 402	3.0 cr
The Teaching Technologist	RADI-R 418	3.0 cr
Total		15.0 cr
Spring		*Credits*
Multiplanar Anatomy and Pathology II	RADI-R 473	3.0 cr
Medical Imaging Theory II	RADI-R 453	3.0 cr
Medical Imaging Technology Project II	RADI-R 457	3.0 cr
Intro to MIT Leadership	AHLT-R413	3.0 cr
Trends and Issues in MIT	AHLT-R416	3.0 cr
Total		15.0 cr
Non-Clinical Program Total*		**30.0 cr**

*A part-time schedule for the non-clinical track is also available, please contact MIT director.

Awards The program faculty recommend to the university graduating students with superior academic performance for degrees awarded with distinction. Students must have 60 IU credits to be eligible for graduating with distinction, high distinction or highest distinction. Special credit does not count towards the 60 IU credits.

Graduation Requirements Satisfactory completion of 120 credit hours. All course work must be completed in compliance with the program's and school's academic and professional policies. To graduate with a BS from IU, students must have taken and passed (with a C or above) a minimum of 30 credits in residence at an IU campus (***Special Credit*** count toward these 30 credits).

Updated: March 2024

Nuclear Medicine Technology

Nuclear Medicine Technology

An educational program in nuclear medicine technology is located on the IU Indianapolis campus and housed in the IU School of Medicine Department of Radiology and Imaging Sciences, section on nuclear medicine.

Description of the Profession The graduate nuclear medicine technologist is qualified to provide patient diagnostic and therapeutic services using ionizing radiation in the form of gamma rays, X rays, beta particles and alpha particles. These radiations emanate from radioactive materials. Nuclear medicine technologists perform patient organ imaging and counting procedures, and therapeutic applications of radioactive materials. Effective nuclear medicine technologists use principles of radiation protection as they prepare and administer radioactive materials for a variety of examinations. They perform quality control procedures on the instrumentation and radioactive materials. Nuclear medicine technologists also assist physicians in clinical procedures, give intravenous injections, draw blood, assess the technical quality of the studies, and provide basic patient care. The nuclear medicine technologist must function as a member of the health care team.

Graduates of the Program Graduates of this JRCNMT accredited program challenge the NMTCB and/or the ARRT credentialing examinations immediately after completing their degree requirements. After gaining certification in the primary discipline of nuclear medicine, radiography, or radiation therapy, graduates are also eligible to take the certification examination in computed tomography by the NMTCB or the ARRT.

Credentials Required to Practice R.T.(N) (ARRT), Registered Nuclear Medicine Technologist, or C.N.M.T. (NMTCB), Certified Nuclear Medicine Technologist.

Program Outcomes

- Five Year Board Pass Rate: 91.4%
- Five Year Employment Rate: 97.2%

For further information, contact: Jamie Gladson, Program Director, Nuclear Medicine Technology Program
IU Radiologic and Imaging Sciences Programs
1120 W. Michigan, CL 120
Indianapolis, IN 46202

E-mail: jlgladso@iu.edu

Updated: July 2024

Admission

General Information Students accepted into the program must complete the Health Professions Programs (HPP) and the program admission requirements before the first day of classes.

Class Size Eight to ten students are admitted and begin the program in summer session II (late June) each year.

Specific Requirements In addition to the School of Medicine Health Professions Programs' admission policies and procedures found at the beginning of this section of the bulletin, the policies below apply to the Nuclear Medicine Technology Program.

Application Deadline January 1 of the year before anticipated entry.

Total Number of Prerequisite Credit Hours 55

Minimum Prerequisite Grade Point Average 2.80 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained. Prerequisite courses include: All General Education core courses (see NMT Checklists; also listed below). Courses included are Anatomy, Physiology, Physics, Chemistry, Medical Terminology, Written and Oral Communication.

Minimum Math and Science Grade Point Average 2.50 on a 4.00 scale for all life and physical science course work. This requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.00 on a 4.00 scale).
Due to the competitive nature of the program, higher GPAs for entry are typically required. Meeting minimum GPAs does not guarantee admission to the program.

Students must complete the **Test of Essential Academic Skills (TEAS)** assessment test with completion scores submitted with the program application.

Technical Standards See Health Professions Programs policy.

Indiana Residents Preference Policy See School of Medicine Health Professions Programs policy.

The following will be required upon offer of admission into the program and must be completed by June 1st in the year of entry. Complete details may be found at HPP New Student Requirements and will be included in your E-Onboarding process.

- Signed Technical Standards form
- Signed Honor Code
- Proof of immunizations
- Proof of TB (either shot or IGRA)
- Physical Examination
- Flu Shot
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days of offer acceptance

Updated: March 2024

Educational Program

Educational Program

Bachelor of Science in Nuclear Medicine Technology

- **Program Director:** Assistant Professor Gladson
- **Lecturers:** Byrne, DeMark, LeMay, Lomax, Longshore, Wachallo, Weatherman

Length of the Program A new class begins summer session II each year and continues for 22 months, including all summer sessions.

Structure of the Professional Program The curriculum is designed for persons with no previous experience in nuclear medicine, although experienced technologists may apply for admission. During the junior year, students have classes on Tuesday and Wednesday plus up to eight hours of clinical practicum on each Thursday and Friday. Senior students have up to eight hours of clinical practicum on each Monday, Tuesday, and Wednesday plus classes on Thursday.

Design of the Professional Curriculum This degree is designed to prepare qualified nuclear medicine technologists. The principal aim of the degree is to provide students with educational experiences that will permit them to develop the competencies required to function effectively as nuclear medicine technologists. The curriculum integrates theory and clinical experience.

Opportunity for Students to Work There are no restrictions on the number of hours a student may work during the program, as long as work does not interfere with program requirements. The student must, however, recognize that the professional curriculum requires approximately 25 to 35 hours per week of on-campus participation in classroom, laboratory, and clinical course work. Study time and completion of general education courses must also be considered. While most of the professional course activities are scheduled during daytime hours Monday through Friday, there are some didactic or clinical experiences that may require student participation during evenings or other off hours. Please contact the program for more information.

Additional Cost In addition to regular university tuition and fees, students should expect to pay program-related expenses such as books, uniforms, and supplies. Additional cost sheet is available upon request.

Program Facilities The nuclear medicine technology program is offered in Indianapolis at the Indiana University Medical Center. The offices, classrooms, and library are located on the first floor of the Gatch Hall (Clinical Building). Students obtain clinical experience in the nuclear medicine areas of radiology departments located in IU Health (University, Arnett, Riley, and Methodist hospitals), Eskenazi Hospital, Veterans Administration Hospital, Franciscan Health Indianapolis and Lafayette, Community Howard, North, and South, St. Vincent Carmel, Hancock Regional, Columbus Regional and Radiopharmacy of Indianapolis.

Accreditation The bachelor's degree in nuclear medicine technology is fully accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, 820 W. Danforth Rd, #B1, Edmond, OK 73003. (405) 285-0546. www.jrcnmt.org.

Updated: March 2024

Prerequisites

Before entering the program, students must complete the minimum prerequisites listed below. Students should consult with their academic advisors for appropriate courses and semester sequence to complete prerequisites. Prerequisite courses must be completed by the end of the spring semester or end of first summer session prior to entry. Prerequisites may be taken at any accredited college or university. The code “GE” indicates a course that meets the campus’ General Education core.

Approved courses that meet the General Education core can be found at this section of the Division of Undergraduate Education website.

General Education	
Core Communications, Two Courses: ---English Composition (GE) ---Speech Communication (GE)	6 cr.
Additional Written Communications (Second writing course should focus on writing a research paper)	3 cr.
Cultural Understanding Elective (GE)	3 cr.
Social Sciences - Psychology (GE)	3 cr.
Arts/Humanities Elective (GE)	3 cr.
2^{n} Arts/Humanities or Social Science Elective (GE) (Must have two courses from one of the above areas)	3 cr.
Life and Physical Sciences	17 cr.
The following courses must be included: -Elementary Chemistry I (with lab) -General Physics -Human Anatomy (GE) -Human Physiology (GE)	
College Algebra and Trigonometry I and II (GE)	6 cr.
Precalculus if not taking College Algebra and Trigonometry I and II above	5 cr.
Statistics (GE)	3 cr.
Medical Terminology	1 cr.

A Suggested Plan of Study

Freshman	
Fall	*Credits*
Elementary Composition I	3.0
Introduction to Psychology	3.0
College Algebra and Trig I	3.0
Human Anatomy	4.0
Total	13.0
Spring	*Credits*
Speech Communication	3.0
Cultural Understanding	3.0
College Trigonometry II or Precalculus	3.0-5.0
Human Physiology	4.0
Total	13.0
Sophomore	
Fall	*Credits*
Principles of Chemistry w/ lab	5.0
Second Written Communication	3.0
Arts/Humanities Elective+	3.0
Medical Terminology	1.0
General Electives (As Needed)	3.0
Total	15.0
Spring	*Credits*
General Physics w/lab	4.0
Statistics	3.0
2^{n} Arts/Humanities or Social Science Elective (Must have at two courses from one of the above areas)	3.0
General Electives	4.0
Total	14.0

Updated: March 2024

Professional Program

Courses in the professional program are sequential and therefore must be taken in the order specified by the program faculty.

The 65 professional credits listed below are obtained within a 22-month period and fulfill eligibility requirements

for the registry examination in nuclear medicine technology.

Junior		
Summer Session II		*Credits*
Introduction to Radiography	RADI-R 110	3.0
Patient Care I	RADI-R 112	3.0
Total		6.0
Fall Semester		*Credits*
Projects in Nuclear Medicine Technology I	RADI-R 410	2.0
Physics and Instrumentation of Nuc Med I with Lab	RADI-R 412	3.0
Applications of Radionuclides I	RADI-R 432	3.0
Radiation Protection in Nuclear Medicine	RADI-R 437	1.0
Clinical Nuclear Medicine I	RADI-R 443	3.0
Total		12.0
Spring Semester		*Credits*
Projects in Nuclear Medicine Technology II	RADI-R 411	2.0
Physics and Instrumentation of Nuc Med II with Lab	RADI-R 417	3.0
Applications of Radionuclides II	RADI-R 433	3.0
Emerging Technologies	RADI-R 438	1.0
Clinical Nuclear Medicine II	RADI-R 444	4.0
Total		13.0
Senior		
Summer Session I & II		*Credits*
Radiopharmaceuticals 12 wks SS I & II	RADI-R 427	2.0
Patient Care II 12 wks/SS I & II	RADI-R 212	1.0
Projects in Nuclear Medicine Technology III 12 wks SS I & II	RADI-R 413	2.0
Clinical Nuclear Medicine III 12 wks SS I & II	RADI-R 445	4.0
Total		9.0
Fall Semester		*Credits*
Multi-planar Anatomy	RADI-R 472	3.0
Projects in Nuclear Medicine Technology IV	RADI-R 420	1.0
Clinical Nuclear Medicine IV	RADI-R 446	4.0
CT Principles and Procedures I	RADI-R 466	3.0
Nuclear Medicine In-Service I	RADI-R423	1.0
Total		12.0
Spring Semester		*Credits*
Projects in Nuclear Medicine Technology V	RADI-R 421	2.0
Nuclear Medicine In-Service II	RADI-R 424	2.0
Nuclear Medicine Management	RADI-R 441	2.0
Clinical Nuclear Medicine V	RADI-R 447	4.0
CT Principles and Procedures II	RADI-R 467	3.0
Total		13.0

Study Abroad Elective In the spring semester, all NMT students will be eligible to apply to take the study abroad elective--RADI-R 277/499 Global Experiences in Nuclear Medicine. In this one credit hour course, students will journey to an international location to explore the ways in which nuclear medicine and molecular imaging are performed. Radiopharmaceuticals, procedures and technology not used or performed in the United States will be the focus of this course. Students will have the opportunity to visit hospitals and clinics in other countries and both experience how nuclear medicine is performed, as well as gain an understanding on how health care in the host country works compared to the United States. Guest lecturers from the visited country will present on various topics, including nuclear medicine procedures, patient care and healthcare policies. Each spring a different location will be chosen for a unique experience.

This course is eligible for repeat credit so students may take this course their junior and senior years.

Awards The faculty will recommend to the university, graduating students with superior academic performance for degrees awarded with distinction according to the university's policy. Also, students with outstanding academic and clinical achievement during their professional program may be recognized by the program at the time of graduation.

Graduation Requirements Satisfactory completion of a minimum of 120 credit hours; 55 general education/ program requirements and 65 professional. All course work must be completed in compliance with the program's and school's academic and professional policies.

Updated: March 2024

Ophthalmic Technician Training Program

The educational program in ophthalmic technician training is located on the IU Indianapolis campus and housed in the IU School of Medicine Department of Ophthalmology.

Description of the Profession An ophthalmic technician assists the ophthalmologist in caring for patients. This can occur in various ways, including direct patient care in a clinical setting, in the operating room, through research and clinical administration and management. General duties of an ophthalmic technician include:

- Vision screening
- Eye drop administration
- History and Physical
- Ocular and visual testing (fundus photography, OCT, Visual Fields)
- Appointment and treatment counseling
- Scribing
- Assisting with in office procedures

There are a variety of career trajectories that can occur from education and experience as an ophthalmic technician.

Graduates of the Program Graduates will receive a certificate from the IU School of Medicine and will be eligible to sit for the Certified Ophthalmic Assistant exam.

Credentials Required to Practice None

For further information, contact: Veronica Admire, COA
Phone: (317) 278-5002
E-mail: vadmire@iu.edu

Updated: March 2024

Admission

General Information Students accepted into the program must complete the Health Professions Programs (HPP) and the program admission requirements before the first day of classes.

Class Size up to eight students are admitted to begin the program in fall semester each year.

Specific Requirements In addition to the School of Medicine Health Professions Programs' admission policies and procedures found at the beginning of this section of the bulletin, the policies below apply to the Ophthalmic Technician Training Program.

Application Priority Date May 1 of the year before anticipated entry.

Total Number of Prerequisite Credit Hours None

Minimum Cumulative Grade Point Average 2.00 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained.

Interview No formal interview is required, students submit a questionnaire with their HPP application.

Technical Standards See Health Professions Programs policy.

Indiana Residents Preference Policy See School of Medicine Health Professions Programs policy.

The following will be required upon offer of admission into the program and must be completed by June 1st in the year of entry. Complete details may be found at HPP New Student Requirements.

- Signed Technical Standards form
- Signed Honor Code
- Proof of immunizations
- Proof of TB (either shot or IGRA)
- Physical Examination
- Flu Shot
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days of offer acceptance

Updated: March 2024

Educational Program

Certificate in Ophthalmic Technician Training Program

Length of the Program A new class begins in the fall semester each year and continues for 10 months, including one summer session.

Structure of the Professional Program The curriculum is designed for persons with no previous experience as an ophthalmic technician. During the program, students should expect to participate in lectures (didactic) or clinical experiences Monday through Friday during daytime hours. On occasion a student may participate in optional lectures or clinical opportunities during evenings and weekends.

Design of the Professional Curriculum This certificate is designed to prepare entry-level ophthalmic technicians. The principal aim of the certificate is to provide students with educational experiences that will permit them to develop the competencies required to function effectively as ophthalmic technicians.

Opportunity for Students to Work There are no restrictions on the number of hours a student may work during the program, as long as work does not interfere with program requirements.

Additional Cost In addition to regular university tuition and fees, students should expect to pay program-related expenses such as books, uniforms, and supplies. An additional cost sheet is available upon request.

Program Facilities The Ophthalmic Technician Training Program has lecture and conference rooms located in The Eugene and Marilyn Glick Eye Institute.

Updated: March 2024

Prerequisites

There are no required course prerequisite for entry into the Certificate in Ophthalmic Technician Training Program

Updated: March 2024

Professional Program

Courses in the professional program are sequential and therefore must be taken in the order specified by the program faculty.

The 30 professional credits listed below are obtained within a 10-month period and are required for the certificate.

Freshman		
Fall Semester		*Credits*
Intro to Ophthalmic Technician Training	OPHT-T 101	3.0
Basic Ophthalmic Technician Training	OPHT-T 102	3.0
Basic Ophthalmic Technician Skills Training	OPHT-T 103	3.0
Subspecialty Ophthalmic Skills Training	OPHT-T 104	3.0
Total		12.0
Spring Semester		*Credits*
Advanced Ophthalmic Technician Training	OPHT-T 201	3.0
Advanced Ophthalmic Technician Skills – Photography	OPHT-T 202	3.0
Ophthalmic Pharmacology	OPHT-T 203	3.0
Advanced Ophthalmic Technician Skills – Testing	OPHT-T 204	3.0
Total		12.0
Summer Session		*Credits*
Ophthalmic Technician Clinicals 1	OPHT-T 211	2.0
Ophthalmic Technician Scribe Skills Training 1	OPHT-T 212	1.0
Ophthalmic Technician Clinicals 2	OPHT-T 213	2.0
Ophthalmic Technician Scribe Skills Training 2	OPHT-T 214	1.0
Total		6.0
Program Total		30.0

Graduation Requirements Satisfactory completion of a minimum of 30 professional credit hours. All course work must be completed in compliance with the program's and school's academic and professional policies.

Updated: March 2024

Radiation Therapy

The Indiana University School of Medicine Radiation Therapy Program is a Health Professions Program located at the Indiana University Medical Center, on the Indiana University Indianapolis campus. The program is accredited by the:
Joint Review Committee on Education in Radiologic Technology (JRCERT)
20 North Wacker Drive, Suite 2850

Chicago, Illinois,
60606-3182
Phone: (312) 704-5300

Mission Statement

The Radiation Therapy Program at Indiana University School of Medicine offers an unparalleled educational experience for aspiring radiation therapists hailing from varied backgrounds. Our program prioritizes the comprehensive development of each student, empowering them with the essential skills to thrive professionally and personally.

The program champions diversity, equity, and inclusion, actively advocating for underrepresented populations, including first generation students. By fostering an environment of acceptance and support, we aim to ensure that all students have the opportunity to succeed and contribute to our collective learning community.

Our overarching objective is to cultivate leaders in the field of radiation therapy who are dedicated to advancing the well-being of patients. Through a focus on excellence in treatment methodologies, we prepare graduates to redefine standards of care and make a lasting impact on the health outcomes of those they serve.

Program Goals

1. Students will be clinically competent radiation therapists.
2. Students will communicate effectively.
3. Students will think critically and apply problem-solving skills in the healthcare environment.
4. Students/Graduates will have knowledge of the value of professional development and growth.
5. Graduates will be successful at performing tasks/ duties as entry-level Radiation Therapists.

Program Outcomes

At appropriate points during the radiation therapy program, the student will be able to:

1. demonstrate knowledge of radiation therapy procedures. [Goal 1]
2. apply principles of radiation protection for patient, self, and others. [Goal 1]
3. perform radiation therapy simulation procedures. [Goal 1]
4. deliver radiation therapy treatments as prescribed by a radiation oncologist. [Goal 1]
5. perform basic radiation therapy dose calculations & access treatment plans. [Goal 1]
6. demonstrate effective communication skills. [Goal 2]
7. evaluate patients for effects, reactions, and therapeutic responses. [Goal 3]
8. apply basic research methods. [Goal 3]
9. participate in professional development and service-learning activities [Goal 4]
10. formulate methods for the pursuit of lifelong learning. [Goal 4]
11. will become member of a professional organization [Goal 4]

At the completion of the radiation therapy program, the graduate will:

1. pass the ARRT national certification exam on the first attempt. [Goal 5]
2. be employed within twelve months post-graduation, if pursuing employment. [Goal 5]
3. complete the professional program within 20 months for radiographers and within 22 months for non-radiographers. [Goal 5]
4. be satisfied with their education. [Goal 5]
5. Employers will be satisfied with the graduate's performance [Goal 5]

Description of the Profession

Radiation Therapy is a highly specialized and intricate medical treatment that utilizes various forms of radiation to target and destroy cancer cells. This treatment is delivered with highly sophisticated and cutting-edge technology driven equipment called linear accelerators, operated by radiation therapists. The main goal of radiation therapy is to stop the growth of cancer cells, shrink tumors, and alleviate symptoms. It can be used to treat non-cancerous conditions such as keloids and blood disorders as well.

Radiation Therapists are indispensable members of the healthcare team within the field of Radiation Oncology. They hold a pivotal role in administering precise and safe radiation treatments to patients, as prescribed by a Radiation Oncologist. Beyond their expertise of operating technologically advanced equipment, radiation therapists actively monitor patients' progress and well-being during treatment, offer comprehensive patient education, make necessary adjustments to treatment parameters, conduct venipuncture at select sites, oversee quality assurance measures, and undertake department-specific responsibilities. Their multifaceted contributions are essential to the seamless and effective execution of radiation therapy in the healthcare settings.

Graduates of the Program

The Radiation Therapy Program is meticulously crafted to equip graduates with the skills necessary to adhere to the scope of practice standards in the field of Radiation Therapy. Upon successfully completing the program and fulfilling the general eligibility criteria established by the American Registry of Radiologic Technologists (ARRT), graduates become eligible to participate in the radiation therapy examination administered by the ARRT. Successfully passing the examination confers upon individuals the designation of registered radiation therapists, denoted as R.T.(T)(ARRT).

Licensure Required to Practice

Radiation Therapists must obtain licensure in Indiana, as well as in several other states, while certain states require solely American Registry of Radiologic Technologists (ARRT) certification and registration. All graduates of the Indiana University School of Medicine Program are eligible to apply for ARRT certification and registration.

Scholarships

The American Society of Radiologic Technologists (ASRT) offers various scholarships for students in Radiation Therapy programs.

For university based scholarships, please refer to IU Indianapolis Office of Scholarship and Financial Aid here.

For further information, contact:

Maria C. Walker, MA, RT(R)(T), Director
Radiation Therapy Program
Indiana Cancer Pavilion
535 Barnhill Drive, RT 107A
Indianapolis, IN
46202-5289
Phone: (317) 944-1343
E-mail: macwalke@iu.edu

Megan R. Knight, MA, RT(T), Clinical Coordinator
Radiation Therapy Program
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535 Barnhill Drive, RT 107B
Indianapolis, IN
46202-5289
Phone: (317) 948-7945
E-mail: mknight3@iu.edu

Morgan Rowe, Program Coordinator
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Indiana Cancer Pavilion
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Indianapolis, IN
46202-5289
Phone: (317) 948-9348
E-mail: morgrowe@iu.edu

Updated: March 2024

Admission

General Information
Admission into the School of Medicine Health Professions Programs Radiation Therapy Program is based on an admission index that is composed of a cumulative grade point average, the mathematics and science grade point average, prerequisite courses grade point average, and an interview. Besides the previously mentioned specific grade point averages and interview with essay, the admission index for the radiographer will also include a radiography program grade point average.

NONRADIOGRAPHER

Specific Requirements
In addition to the School of Medicine Health Professions Programs admission policies and procedures found at the beginning of this bulletin, the following admission policies apply to the radiation therapy program.

Application Deadline January 15th of the year before desired entry into the program.

Minimum Number of Prerequisite Credit Hours 48.

Minimum Cumulative Grade Point Average 2.50 on a 4.00 scale. This requirement is applied at the time of program application. Grades from remedial courses are not calculated in the grade point average of the prerequisite courses to determine the admission index.

Minimum Specific Grade Point Average Math and Science grade point average of 2.50 in stated prerequisite courses (on a 4.00 scale). This requirement is applied at the time of program application and must be maintained. Grades from remedial courses are not calculated in the mathematics and science grade point average to determine the admission index.

Minimum Grade Requirement in a Prerequisite Course C (2.00 on a 4.00 scale).

Interview A personal interview and written essay are required. If, however, the number of applications to the program far exceeds the number of positions available, the program's admissions committee reserves the right to limit the number of applicants to be interviewed to twice the number of positions available in the class. Interviews are conducted in February.

Technical Standards See School of Medicine Health Professions Programs Policy here.

Medical Requirements All entering students must meet established health requirements. Before beginning the professional program, students are required to demonstrate proof of immunization for tetanus, diphtheria and pertussis, rubella (German measles), rubeola (measles), mumps, varicella (chicken pox), and hepatitis B. All students must have a PPD tuberculin skin test within the last three months. In some instances, proof of positive titer can be substituted. Students may be required to complete a physical examination (see program specific requirements). Additional immunizations may be required at certain clinical sites. Students assigned to those sites must complete additional requirements prior to starting that clinical rotation.

Student Health Insurance All students are required to show proof of coverage under a health insurance plan. This is consistent with requirements for other health science students on the IU Indianapolis campus.

Background Check and Drug Screen All students are required to submit to a comprehensive background check and drug screen upon notification of admission. Further information about the requirement and cost is included in the letter of admission.

NOTE: Medical requirements (immunizations/health screen), student health insurance, background check and drug screen must all be completed by June 1^{S} in the year of entry.

Indiana Residents Preference Policy See School of Medicine Health Professions Programs policy.

Student Observations/Volunteer Experience The student must observe a minimum of eight hours in two or more radiation oncology facilities before applying to the program. Observation hour forms should be submitted with the application.

RADIOGRAPHER

Specific Requirements
In addition to the School of Medicine Health Professions Programs Admission Policies and Procedures found at the beginning of this section of the bulletin, the following admission Policies apply to the Radiation Therapy Program.

Application Deadline January 15th of the year before desired entry into the program.

Minimum Number of Prerequisite Credit Hours Satisfactory completion of general-education and technical-specialty requirements.

Minimum Cumulative Grade Point Average 2.50 on a 4.00 scale; this requirement is applied at the time of program application. Grades from remedial courses are not calculated into the grade point average of the prerequisite courses to determine the admission index.

Minimum Specific Grade Point Average Math and Science grade point average of 2.50, in addition to a 2.50 grade point average in stated prerequisite courses (on a 4.00 scale); this requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.00 on a 4.00 scale).

Interview A personal interview is required. However, if the number of applications to the program far exceeds the number of positions available, the program's admissions committee reserves the right to limit the number of applicants to be interviewed to two times the number of positions available in the class. Interviews are conducted in February.

Technical Standards See Health Professions Programs Policy on HPP website here.

Student Observation/Volunteer Experience The student must observe a minimum of eight hours in two or more radiation oncology facilities before applying to the

program. Observation hour forms should be submitted with the application.

The following will be required upon offer of admission into the program and must be completed by June 1st in the year of entry. Complete details may be found in the Radiation Therapy Program's Onboarding Course via invitation.

- Signed Technical Standards Form
- Signed Honor Code
- Proof of immunizations
- Proof of TB (either shot or IGRA)
- Physical Examination
- Flu Shot
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days of offer acceptance

Updated: March 2024

Educational Program

Bachelor of Science in Radiation Therapy

- **Program Director:** Maria C. Walker M.A., R.T.(R)(T)
- **Clinical Coordinator:** Megan R. Knight B.S., R.T.(T)

Length of the Program The radiation therapy program is a four-year baccalaureate degree program and has two tracks: one for the non-radiographer and one for the radiographer. For the non-radiographer, the program is composed of 48 credit hours of prerequisites and general-education requirements and a 22-month professional core in the junior and senior years. For the radiographer, the program includes general-education requirements and a 20-month professional core. The radiographer will begin the program in the fall semester.

Structure of the Program The classroom and clinical experiences are Monday through Friday from 8:00 a.m. to 4:30 p.m., with continuous enrollment during the professional core.

Opportunity for Students to Work Students often seek employment in part-time positions outside the program, which must be balanced with evening study.

Additional Cost In addition to regular university tuition and fees, students should expect to pay program-related expenses. Contact the program for a current cost sheet.

Program Facilities The Radiation Therapy Program offices are located on the IU Medical Center campus. Classrooms and laboratories are in radiation oncology departments of area hospitals and in other buildings on the Indiana University Indianapolis campus.

Location of Clinicals The clinical practicums are provided at a variety of clinical sites located within a 75-mile radius of Indianapolis.

Accreditation The program is accredited by the Joint Review Committee on Education in Radiologic Technology, 20 N. Wacker Drive, Suite 2850, Chicago, IL 60606-3182

Updated: March 2024

Prerequisites

NON-RADIOGRAPHER

Prerequisites
The following prerequisite course of study must be completed to be eligible for admission into the professional program. Students should consult with their academic advisors for appropriate courses and semester sequence.
Prerequisites may be taken at any accredited college or university. The code “GE” indicates a course that meets the campus’ General Education core.

Approved courses that meet the General Education core can be found at this section of the Division of Undergraduate Education website.

General Education	Credits
Core Communication, Two Courses: ---English composition (GE) ---Speech communication (GE)	6.0
Additional Written Communication (*Second writing course must focus on research and professional writing skills*)	3.0
Cultural Understanding (GE)	3.0
Arts/Humanities Elective (GE)	3.0
Social Sciences - Introductory Psychology (GE)	3.0
College Algebra and Trigonometry (GE)	3.0
Additional College Algebra and Trigonometry or Approved College Math Course	3.0
Statistics (GE)	3.0
General Physics (with lab)	4.0
Human Biology I or Human Anatomy (with lab) (GE)	4.0
Human Biology II or Human Physiology (GE)	4.0
Medical Terminology	1.0
Introduction to Computers	3.0
Business Elective (GE) (From Approved GE: Social Science Course List)	3.0
Additional Elective (From Approved GE: Social Science Course List)	2.0

Suggested Electives The number of elective courses differs among students but must bring the student's total prerequisite course work to at least 48 credit hours. Additional electives may be required, before or during the professional program, to complete a minimum of 120 credit hours of academic course work for graduation.

Suggested Plan of Study - Based on IU Indianapolis Course Offerings

Freshman	
Fall	*Credits*
Elementary Composition	3.0
Introduction to Psychology	3.0
Algebra and Trigonometry I	3.0
Human Biology I (w /lab) or Human Anatomy	4.0
Total	13.0
Spring	*Credits*
Speech Communications	3.0
Algebra and Trigonometry II	3.0
Arts/Humanities Elective	3.0
Human Biology II (w/ lab) or Human Physiology	4.0
Total	13.0
Sophomore	
Fall	*Credits*
Elementary Composition II or Professional Writing Skills	3.0
Business Course (From approved GE: Social Science course list)	3.0
Medical Terminology	1.0
Statistics	3.0
Total	10.0
Spring	*Credits*
Introduction to Computers	3.0
Additional Elective	2.0
Cultural Understanding	3.0
Physics w/lab	4.0
Total	12.0

RADIOGRAPHER

Prerequisites
The entry requirements are the same as listed above for the non-radiography track (see above list). One business elective can be completed during the first term of entry into the professional program if necessary. Students should consult with their academic advisors for appropriate courses and semester sequence in order to complete prerequisites. Prerequisites may be taken at any accredited college or university.

Technology Specialty Applicants must supply evidence of registration in radiography by the ARRT or completion of a radiography program accredited by the Joint Review Committee on Education in Radiologic Technology.

The technical-specialty area is complete for applicants who have completed an associate or baccalaureate bachelor's degree in radiography.

Students who received their technical training in non-credit-awarding programs and who have full credentials in radiography (ARRT) may be awarded credit for their credentials and experiences and/or petition to test out of technical-specialty courses.

Updated: March 2024

Professional Program

Professional Program-Please refer to the appropriate track below.

NON-RADIOGRAPHER

Courses in the professional program are sequential and must be taken in the order specified by the program faculty.

Junior		
Summer Session II		*Credits*
Introduction to Radiography	RADI-R 110	3.0
Patient Care I	RADI-R 112	3.0
Total		6.0
Fall		*Credits*
Principles of Radiography I	RADI-R 118	4.0
Simulation/ Treatment Procedures	RAON-J 300	6.0
Clinical Dosimetry I	RAON-J 305	2.0
Medical Imaging and Processing in Radiation Oncology	RAON-J 307	2.0
Clinical Experience: Basic	RAON-J 350	3.0
Total		17.0
Spring		*Credits*

Radiation Oncology Techniques I	RAON-J 302	3.0
Radiation Oncology Patient Care	RAON-J 304	2.0
Clinical Dosimetry II	RAON-J 306	2.0
Clinical Practicum I	RAON-J 351	3.0
Quality Management in Radiation Oncology	RAON-J 404	3.0
Total		13.0
Summer Session I		*Credits*
Clinical Practicum II	RAON-J 450	3.0
Total		3.0

Senior

Summer Session II		*Credits*
Sectional Imaging Anatomy	RAON-J 410	3.0
Radiation Oncology Techniques II	RAON-J 402	3.0
Clinical Practicum III	RAON-J 451	2.0
Total		8.0
Fall		*Credits*
Clinical Oncology I	RAON-J 303	3.0
Physics of Radiation Oncology I	RAON-J 400	2.0
Senior Project in Radiation Oncology	RAON-J 409	3.0
Clinical Practicum IV	RAON-J 452	5.0
Total		13.0
Spring		*Credits*
Physics of Radiation Oncology II	RAON-J 401	2.0
Clinical Oncology II	RAON-J 403	3.0
Radiation and Cancer Biology	RAON-J 406	2.0
Clinical Practicum V	RAON-J 453	5.0
Total		12.0

Graduation Requirements for Baccalaureate Degree Satisfactory completion of a minimum of 120 credit hours. To be eligible for graduation with a baccalaureate degree, students must successfully complete the general-education requirements (48 credit hours minimum) and professional core in radiation therapy (72 credit hours minimum). They must also achieve clinical competency in each area identified in the clinical manual requirements.

RADIOGRAPHER

Courses in the professional program are sequential and must be taken in the order specified by the program faculty.

Junior

Fall		*Credits*
Orientation to Radiation Oncology (RAON-J 301)	RAON-J 301	4.0
Clinical Dosimetry I (RAON-J 305)	RAON-J 305	2.0
Clinical Experience: Basic (RAON-J 350)	RAON-J 350	3.0
Business elective (*If Necessary*)		3.0
Total		9.0-12.0
Spring		*Credits*
Radiation Oncology Techniques I	RAON-J 302	3.0
Radiation Oncology Patient Care	RAON-J 304	2.0
Clinical Dosimetry II	RAON-J 306	2.0
Clinical Practicum I	RAON-J 351	3.0
Quality Management in Radiation Oncology	RAON-J 404	3.0
Total		13.0
Summer Session I		*Credits*

Clinical Practicum II	RAON-J 450	3.0
Total		3.0
Senior		
Summer Session II		*Credits*
Sectional Imaging Anatomy	RAON-J 410	3.0
Radiation Oncology Techniques II	RAON-J 402	3.0
Clinical Practicum III	RAON-J 451	2.0
Total		8.0
Fall		*Credits*
Clinical Oncology I	RAON-J 303	3.0
Physics of Radiation Oncology I	RAON-J 400	2.0
Senior Project in Radiation Oncology	RAON-J 409	3.0
Clinical Practicum IV	RAON-J 452	5.0
Total		13.0
Spring		*Credits*
Physics of Radiation Oncology II	RAON-J 401	2.0
Clinical Oncology II	RAON-J 403	3.0
Radiation and Cancer Biology	RAON- J 406	2.0
Clinical Practicum V	RAON-J 453	5.0
Total		12.0

Graduation Requirements for Baccalaureate Degree Satisfactory completion of a minimum of 120 credit hours to be eligible for graduation with a baccalaureate degree, students must successfully complete the general-education requirements (48 credit hours minimum), technical specialty (radiography credits or credit by credential vary by student), and professional core in radiation therapy (59 credit hours minimum). They must also achieve clinical competency in each area identified in the clinical manual requirements.

Updated: March 2024

Radiography

An educational program in radiography is located on the Indiana University-Indianapolis campus and housed in the IU School of Medicine Department of Radiology and Imaging Sciences.

Description of the Profession Radiology is a science involving the medical use of x-rays in the diagnosis of disease, fractured bones, detect injury or infection, and/or to locate foreign objects in soft tissue. A radiologist is a physician specializing in this science and a radiographer (or radiologic technologist) produces radiographic images under the direction of the radiologist. Radiographers make up the largest group of imaging professionals. Their principal duties consist of performing diagnostic x-ray procedures of patients, with the lowest amount of radiation exposure possible. They also assist in fluoroscopic examinations and in special radiographic procedures. Other tasks performed by radiographers vary. Radiographers must be able to handle seriously ill and injured patients to obtain the maximum amount of information without injury to the patient and with the least amount of pain and discomfort from the examination. They may assist the radiologist in some complex procedures, often involving the injection of opaque media through needles or catheters. Radiographers must be well educated and experienced in aseptic techniques, requiring skills comparable to those of nurses in some specialties. Most technologists are employed in hospitals, clinics, and physicians' offices.

Graduates of the Program Graduates receive an associate of science degree from Indiana University and are eligible to take the certification examination of the American Registry of Radiologic Technologists (ARRT) to become certified as a registered technologist (radiography), R.T.(R).

Credential Required to Practice R.T.(R) Registered Technologist (Radiography).

Indiana Requirements to Practice A State license is required to operate an X-ray machine. The state accepts the ARRT registry credential to satisfy educational requirements for licensure.

For further information, contact:IU Radiologic and Imaging Sciences Programs
1120 W Michigan St, Gatch Hall, Rm CL120
Indianapolis, IN 46202

Phone: (317) 274-3801
Fax: (317) 274-4074
E-mail: radsci@iu.edu

Updated: March 2024

Admission

General Information Students accepted into the program must complete the Health Professions Programs (HPP) and the program admission requirements before the first day of classes. Admission to the professional program is competitive; therefore, completion of the prerequisites does not guarantee admission to the program.

Criteria Used for Selection of Class For the selection of applicants for admission, the Radiologic Sciences Admission Committee considers academic background, including total and science/mathematics GPA, paid work

experience in a direct patient care area of healthcare, and the results of a **Test of Essential Academic Skills (TEAS)** assessment taken within the last 12 months.

Class Size Each year, forty(40) new students are admitted to start the professional program the last Monday in June.

Specific Requirements In addition to the HPP admission policies and procedures found at the beginning of this section of the bulletin, the following apply to the Radiography Program.

Application Deadline January 1 of the year anticipated entry in the program.

Minimum Number of Prerequisite Credit Hours 15 Requirements **must be completed** by end of spring term in year of entry with a grade of C or better.

Minimum Qualifications Meeting minimum criteria listed below will qualify applicants for continuation of the admission process. It does not guarantee admission to the program. Applicants for admission to the Associate of Science in Radiography degree may qualify for admission consideration in one of two ways:

A. Completion of less than 12 credit hours of college-level GPA-earning courses.

Qualifying Criteria:

1. High school cumulative academic GPA of at least 3.00 on a 4.00 scale. The high school GPA is calculated using college preparatory academic courses only. Other courses, such as band, chorus, physical education, etc., are removed from the GPA when it is calculated.
2. High school mathematics/science GPA of at least 3.00 on a 4.00 scale.
3. Qualifications for regular admission to IU Indianapolis if not already admitted.
4. College GPA of at least 2.80 on a 4.00 scale.
5. No less than a C in any of the prerequisite courses.

B. Completion of 12 or more credit hours of college-level GPA-earning courses including the prerequisite courses.

Qualifying Criteria:

1. College GPA of at least 2.80 on a 4.00 scale for all college work completed. (Course grades from all institutions attended will be used.)
2. No less than a C in any of the prerequisite courses.
3. College mathematics/science GPA of at least 2.50 on a 4.00 scale.
4. All college courses taken, including remedial courses, are considered when calculating the minimum total GPA and mathematics/science GPA.

The criteria listed above represent the **minimum criteria**. The required grade point averages will be applied after the fall semester of the year prior to application and must be maintained at the completion of each enrollment period.

High School Applicants Check with your school to see if you can earn college credit while in high school to complete the prerequisite courses.

GED Applicants Those who have completed the GED certificate must qualify under section B above.

College Applicants All applicants with more than 12 credit hours of GPA-earning courses must qualify under Section B regardless of high school background.

Interview Interviews are not required.

Technical Requirements See the Health Professions Programs' policy.

Indiana Residents Preference Policy See the Health Professions Programs' policy.

Healthcare Work Experience is ***OPTIONAL*** - Students providing validation of 100+ hours of direct patient care experience (examples CNA, LPN, RN, patient care tech) and a current Basic Life Support (BLS) CPR certificate/ card will add an "experience point" to their admission score. Students will provide employment details on the Radiography admission application.

Shadow/Observation Experience is *OPTIONAL* – Shadowing is not required but is *highly* recommended for students with no healthcare background. Taking part in the observations will add an "experience point" to the student's admission score. Two (2) four-hour observations will be done at a hospital. Students must complete a special *Radiography Clinical Observation* form and submit it with the program application. Forms can be found on the program's website. The imaging sciences office can provide a list of facilities that offer shadowing experiences or students may seek out facilities on their own. Shadowing must be current (within the last 12 months) and all criteria on the form must be met to be considered at the time of application.

The following will be required upon offer of admission into the program and must be completed by June 1st in the year of entry. Complete details may be found at HPP New Student Requirements and will be included in the E-Onboarding process.

- Signed Technical Standards form
- Signed Honor Code
- Proof of immunizations (including COVID immunization)
- Proof of TB (either shot or IGRA)
- Physical Examination
- Flu Shot
- Fit Testing
- Proof of Health Insurance
- Background Check and Drug Screen-to be completed within 10 days after attending an admitted student information session.

Updated: March 2024

Curriculum

IMPORTANT: This program has been exempted from the IU Indianapolis General Education Core; site updated to reflect that change.

Before entering the program, students must complete the minimum program requirements listed below. Students should consult with their academic advisors for appropriate courses and semester sequence to complete prerequisites. Prerequisite courses must be completed by

the end of the spring to the year of entry. Prerequisites may be taken at any accredited college or university. If courses are taken at a different college, it is the student's responsibility to request an "official transcript" from the college(s) and have them sent to the IU Admission's Office for consideration to transfer. A student application is considered "complete" when all college transcripts have been reviewed by the admissions office. Courses that transfer will be noted on the students IU transcript.

Program Requirements/ Prerequisites	**Credits**
Written Communication, One Course: ---English Composition (Eng-W131 or equivalent)	3 cr.
Verbal Communication, One Course: ---Fundamentals of Speech Communication (Comm-R110 or equivalent)	3 cr.
College Mathematics, One Course: ---College Algebra (Math 153 or equivalent)	3 cr.
Medical Terminology (RADI-R 108 or equivalent)	1 cr.
Human Anatomy (BIOL-N261 or equivalent)	5 cr.

Profession Program

First Year:		
Summer Session II		*Credits*
Introduction to Radiography	RADI-R 110	3.0
Patient Care I	RADI-R 112	3.0
Total		**6.0**
Fall		*Credits*
Radiographic Procedures I	RADI-R 114	3.0
Radiographic Procedures I lab	RADI-R 115	1.0
Principles of Radiography I	RADI-R 118	4.0
Radiography Principles Lab I	RADI-R 119	1.0
Basic Clinical Experience	RADI-R 151	3.0
Total		**12.0**
Spring		*Credits*
Radiographic Procedures II	RADI-R 124	3.0
Radiographic Procedures Lab II	RADI-R 125	1.0
Principles of Radiography II	RADI-R 128	4.0
Radiography Principles Lab II	RADI-R 129	1.0
Basic Clinical Experience II	RADI-R 171	3.0
Total		**12.0**
Second Year:		
Summer		*Credits*
Patient Care II	RADI-R 212	1.0
Medical Ethics and Law for Imaging Professionals	RADI-R 225	1.0
Clinical Competency Experience I	RADI-R 270	4.0
Total		**6.0**
Fall		*Credits*
Radiographic Pathology	RADI-R 210	2.0
Radiographic Procedures III	RADI-R 214	3.0
Principles of Radiography III	RADI-R 228	4.0
Clinical Competency Experience II	RADI-R 271	4.0
Total		**13.0**
Spring		*Credits*
Image Evaluation	RADI-R 216	3.0
Radiation Biology & Protection in Diagnostic Radiology	RADI-R 262	1.0
Clinical Competency Experience III	RADI-R 272	4.0
Intro to Professional Life in Imaging Sciences	RADI-R 276	4.0

Total	**12.0**

Student Abroad (RADI-R 277) This elective course provides opportunities for imaging science students to compare and contrast health care systems in other countries. Participants will spend time visiting health care facilities, universities, and historical sites. Students will have opportunities for multiple collaborations and professional development opportunities with international counterparts.

Awards The faculty will recommend to the university graduating students with superior academic performance for degrees awarded with distinction according to the Indiana University policy. Students with outstanding academic and clinical achievement during the professional program may be recognized by the program at the time of graduation.

Graduation Requirements Satisfactory completion of 76 credit hours to include 15 credit hours of prerequisites and 61 credit hours of professional courses. All course work must be completed in compliance with the programs' and Health Professions Programs' academic and professional policies.

Updated: March 2024

Educational Program

Associate of Science in Radiography at IU Indianapolis

- **Program Director:** Assistant Professor Cranfill
- **School of Medicine Radiology Chair:** Dr. Jason Allen
- **Assistant Professors (Clinical):** Bills, Bybee, Scaggs, Stout

Length of the Program A new class begins the last Monday in June each year and continues for 22 months, including all summer sessions.

Structure of the Program The 22-month curriculum for radiography is based on a combination of professional courses, general-education courses, and clinical experience. Professional classes and clinical experience are scheduled from 8 a.m. to 4 p.m., Monday through Friday. While in the program, students are also required to participate in clinical experience on two Saturdays and several weeks of evening rotations. Indiana University holidays are observed. The schedule of classes and clinical experiences closely follows the IU Indianapolis academic calendar. Vacations do not constitute excused absences and, if taken, must occur during the breaks between academic sessions of the university.

Design of the Professional Curriculum The general-education courses, professional lecture/laboratory course material, and clinical experiences are integrated throughout the program.

Additional Cost In addition to regular university tuition and fees, students should expect to pay for program-related expenses such as books, uniforms, and other supplies.

Opportunity for Students to Work there are no restrictions on the number of hours a student may work during the program. The radiology departments of many hospitals have part-time evening and weekend positions that are suitable for radiography students. The student must recognize, however, that the professional curriculum requires approximately 25–32 hours per week of on-campus participation in classroom, laboratory, and clinical course work. Study time and completion of general education courses must also be considered. While most of the professional course activities are scheduled during daytime hours on Monday through Friday, there are several clinical experiences that require student participation on weekends and evenings.

Program Facilities The Radiography Program is offered in Indianapolis at the Indiana University Medical Center. The program offices, classrooms, and laboratory facilities are located on the first floor of Gatch Hall (a.k.a. Clinical Building). Students obtain clinical experience in the radiology departments located in IU Health (University, Riley, IU-West, IU-North, IU-Saxony hospitals), Eskenazi Health, the Veterans Administration Hospital, Franciscan Alliance Health (Indianapolis and Mooresville), Riverview Hospital, Community North, South, and East Hospitals, four Community Imaging centers and multiple OrthoIndy sites. Students should expect to rotate to at least four clinical sites during the program.

Accreditation The associate degree program in radiography is fully accredited by the Joint Review Committee on Education in Radiologic Technology, 20 N. Wacker Drive, Suite 2850, Chicago, IL 60606-3182, (312) 704-5300

Updated: March 2024

Respiratory Therapy

The educational program in Respiratory Therapy is part of a consortium that also includes Indiana University, Ball State University, the University of Indianapolis, and IU Health. Classroom and laboratory courses are held at Methodist Hospital (Indianapolis). Students remain enrolled at IU Indianapolis for all of their Respiratory Therapy courses and receive their degree from the IU School of Medicine.

Description of the Profession

Respiratory therapists evaluate, treat, rehabilitate and educate patients to prevent and manage cardiopulmonary diseases. Procedures performed by therapists include: aerosolized medication therapy, bronchopulmonary clearance techniques, and administration of medical gases.

Respiratory therapists also provide ventilator support, pulmonary rehabilitation and advanced life support. They are skilled in airway maintenance, procurement and analysis of arterial blood gas samples and in the performance of pulmonary function tests and sleep diagnostic studies.

Respiratory therapists work primarily in hospitals caring for patients in nurseries, medical and surgical units, adult and pediatric intensive care units, and emergency rooms. As a valued member of the multi-disciplinary medical team, they work directly with physicians, nurses, and other medical professionals to provide care to patients.

Critical thinking and problem solving skills are essential for respiratory therapists.

Additional employment opportunities are available in nursing homes and rehabilitation hospitals, in organizations providing home care, physicians' offices and clinics, pulmonary function laboratories, sleep clinics, and in commercial organizations that manufacture and distribute medical supplies.

Graduates of the Program

Graduates receive a Bachelor of Science degree in Respiratory Therapy from Indiana University School of Medicine. Graduates meet the requirements to take examinations offered by the National Board for Respiratory Care (NBRC). These examinations are used to obtain a license to practice as a Respiratory Therapist in the 49 states that require licensing. Completion of the examinations will allow the therapist to use the CRT (Certified Respiratory Therapist) and RRT (Registered Respiratory Therapist) credentials. Additionally, there are several specialty examinations the RRT may take to advance professional opportunities.

Licensure Requirements to Practice

Licensing is required in most states to work as a respiratory therapist. Many states, including Indiana, use the Certified Respiratory Therapist (CRT) credential offered by the NBRC as part of the licensing process, however some now require the Registered Respiratory Therapist (RRT) credential.

The program prepares its graduates to meet the requirements for licensure in Indiana. The university and program have not determined if graduates will need to meet additional requirements for licensure in other states.

For further information contact: Christopher Porter, MPH, RRT-NPS
Respiratory Therapy Program
Wile Hall 645
1701 N. Senate Boulevard
Indianapolis, IN 46202

Phone: (317) 962-8475
E-mail: IRTEC@iuhealth.org

Updated: March 2024

Academic Requirements

Students must comply with the academic regulations and policies of Indiana University and the School of Medicine Health Professions Programs. Additionally, the following regulations and policies govern the professional portion of the Respiratory Therapy Program.

General Policies and Regulations

1. Students are required to obtain a grade of C or higher in all professional course work.
2. Students who receive a grade of C- or lower in a professional course may be dismissed from the program. Students who are dismissed may reapply for admission the following year with approval of the program faculty and the HPP Advisory Committee.
3. Students must maintain American Heart Association Healthcare Provider Basic Life Support (BLS) status throughout their term in the Respiratory Therapy Program.

Probation

1. A student will be placed on probation if the semester and/or cumulative GPA falls below 2.30.
2. A student will be placed on probation if there is a failure to progress either academically or professionally. ***Probation resulting from a failure to progress is not limited to these examples:***
   - failure to maintain BLS status;
   - poor attendance in classroom, clinical, or laboratory classes resulting in poor academic progress and performance;
   - failure to meet academic standards as set forth in the course syllabus, such as failure to turn in papers and assignments, resulting in poor academic progress and performance;
   - failure to conform to the American Association for Respiratory Care Code of Ethics and/or clinical performance characteristics as set forth in the Program Handbook and Clinical Syllabus;
   - lack of clinical progress, failure to demonstrate clinical patient safety, or failure to advance through the clinical skills progression; or
   - any critical incidence documentation for unsafe or poor clinical performance.
3. As a condition of probation, the student will be notified of conditions and requirements necessary for remediation for continuation in the program. When the student satisfactorily completes all program requirements, as well as those stipulated by the school and university, and when the reason for the administrative action has been corrected or the deficiency remediated, the student will be returned to good standing. All probationary actions are reviewed at the end of each semester.

Dismissal

Upon the recommendation of the faculty in the student's program, a student may be dismissed from the school. Dismissal is based on the failure to meet academic or professional standards. The student will be informed of the dismissal in writing by the dean.

1. A student may be dismissed from the program if a grade of C- or lower is recorded for any professional course.
2. A student will be dismissed from the program if probationary status is continued for two consecutive semesters. In addition, once placed on probation, a student will be dismissed from the program if continued poor academic performance, unsafe or poor clinical performance, or unprofessional behavior is documented.
3. A student will be dismissed from the program if there is failure to complete the bachelor's degree within three years of the initial admission to the professional program.
4. A student may be dismissed for conduct that endangers patients or others.

Appeals Procedure

On occasion, students and faculty will have differing perceptions or accounts of situations or events. It is important for the parties directly involved to discuss their differences honestly in order to reach a solution. However, if no mutually satisfactory resolution can be reached in these discussions, the matter may be appealed in accordance with the school's appeals policy.

Updated: March 2024

Admission

General Information Students accepted into the program must complete the school's and the program's admission requirements by August 15 of the admission year. Admission to the professional program is competitive; therefore, completion of the prerequisites does not guarantee admission to the program. At the time of application, students may request any of the following options: repeated courses, academic bankruptcy, or fresh start. For more information about these options, please see an advisor.

Criteria Used for Selection of Class Overall grade point average and interview.

Class Size Approximately 30 students.

Specific Requirements In addition to School of Medicine Health Professions Programs admission policies and procedures found at the beginning of this section of the bulletin, the admission policies below apply to the respiratory therapy baccalaureate degree program.

Application Deadline First business day of February. Late applications will be considered on a space-available basis.

Total Number of Prerequisite Hours 50. The program accepts course transfers for prerequisites based on admission office policies. We regret that transferred professional courses are not accepted due to variation in the course curriculum of respiratory therapy programs.

Minimum Cumulative Grade Point Average 2.50 on a 4.00 scale. This requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Math or Sciences Prerequisite Course C (2.00 on a 4.00 scale).

Interview Qualified applicants will be contacted to schedule a required interview with program faculty. The ability to communicate with patients in a clinical setting in English will be assessed during the interview.

Technical Standards All accepted students will be required to sign a statement certifying that they can meet the program's technical standards. Reasonable accommodations will be made for those who require assistance.

Clinical Requirements All students are required to document a complete vaccination program once accepted into the Respiratory Therapy Program. A Social Security number is required to finalize an applicant's background check and allows a student access to hospitals that serve as the School's clinical partners. Drug screening is also required.

Indiana Resident Preference Policy Preference in admission will be given to applicants who are residents of the State of Indiana. The number of non-resident applicants accepted into the program will be limited to a maximum of 10% of each class.

Updated: March 2024

Advanced Standing

Graduates of CoARC accredited associate degree programs in respiratory therapy at a regionally accredited college or university are eligible to apply for advanced standing in the respiratory therapy baccalaureate degree program. Advanced standing students must also document a minimum of one year work experience, a GPA of 3.0, an RRT credential, and a state license for respiratory therapy. These applicants must meet all program admissions requirements and standards and must comply with university policies regarding transfer credit. If admitted, they would be enrolled in the fourth year of the program's professional curriculum. Students who wish to apply for advanced standing must contact the program director for available options.

Updated: March 2024

Educational Program

Bachelor of Science in Respiratory Therapy at IU Indianapolis

- **Program Director:** Adjunct Clinical Assistant Professor Porter
- **Medical Director:** Assistant Professor Naum
- **Associate Medical Director:** Associate Professor of Clinical Medicine Ober
- **Clinical Director:** Adjunct Lecturer Hunt-Dimirsky
- **Instructor:** Adjunct Lecturer Bischoff, Adjunct Lecturer Newby, Adjunct Lecturer Sears

Description of the Profession Respiratory Therapists evaluate and treat patients with cardiopulmonary disorders, and are actively involved in health promotion and disease prevention. They care for all sorts of patients, from the premature infant to the extremely old, and practice in a variety of settings, ranging from patients' homes to the highest level of critical care units.

Respiratory therapists perform simple, hands-on diagnostic procedures and use highly sophisticated computerized equipment when evaluating patients. Patient treatment skills include everything from the administration of medical gases and inhaled medications to maintaining critically ill patients on ventilators. Successful Respiratory Therapists use problem solving skills that enable them to be effective in the education and rehabilitation of their patients.

Structure of the Program Once admitted to the program, students attend classes and laboratory courses at IU Health Methodist Hospital. Clinical courses are located at medical facilities throughout central Indiana with IU Health being a primary clinical affiliate.

Location of Clinical Sites Clinical education experiences occur in a variety of settings, including hospitals, rehabilitation centers, nursing homes, physician offices, and other health care facilities in Indiana. Most of the clinical sites are located within a 60-minute drive from downtown Indianapolis, and many are in Indianapolis.

Students are expected to provide their own transportation to all clinical sites.

Length of the Program Four years; two years of prerequisite course work (50 credits) and two years of professional course work (70 credits).

Additional Cost In addition to standard university fees, students are responsible for travel to clinics, laboratory fees, clinical fees, uniforms, vaccination costs, and BLS course. Students may be required to attend professional meetings or seminars, and fees for attending these events may be necessary. Membership in the professional organization is required.

Opportunity for Students to Work Many students work part time while completing the program. Students may be eligible to apply for a limited student permit as a respiratory care practitioner following successful completion of the first year of the professional course work.

Accreditation The Indiana Respiratory Therapy Education Consortium (program number 200039) is fully accredited by the Commission on Accreditation for Respiratory Care, 264 Precision Blvd, Telford, TN 37690, (817-283-2835)

Accreditation is in effect through March 31, 2027. Program outcomes can be found here.

Updated: March 2024

Prerequisites

Before entering the program, the student must complete the following minimum prerequisites. Students should consult with their academic advisors for appropriate courses and semester sequence in order to complete prerequisites. Prerequisites must be taken at an accredited college or university. The code "GE" indicates a course that meets the campus' General Education core. All prerequisite courses must be completed by August 1.

Approved courses that meet the General Education core can be found at this section of the Division of Undergraduate Education website.

General Education	*Credits*
Core Communication, Two Courses: ---English Composition (GE) ---Speech Communication (GE)	6.0
2n Written Communication (Course should focus on professional and technical writing)	3.0
College Algebra or Higher (GE)	3.0
Additional College Algebra and Trigonometry or approved College Math Course	3.0
Statistics (GE)	3.0
Cultural Understanding (GE)	3.0
Social Sciences - Introductory Psychology (GE)	3.0
Life Span or Developmental Psychology (GE)	3.0
Ethics (GE)	3.0
Human Biology I (with lab) or Human Anatomy (with lab) (GE)	4.0
Human Biology II (with lab) or Human Physiology (with lab) (GE)	4.0
Chemistry (with lab)	5.0
Microbiology	3.0
Physics	4.0

Suggested Electives

The following course subjects, while not inclusive or mandatory, are suggested for those who require additional prerequisites: science, cellular biology, nutrition, health care administration, exercise physiology, medical terminology, epidemiology, public health, computer literacy, and psychology.

Cardiopulmonary Resuscitation In addition to the above courses, all students are required to complete instruction for adult, child, and infant CPR before entry into the program. This must be the Healthcare Provider Basic Life Support course offered for a fee through the American Heart Association. Students are advised to wait until the summer before beginning the program so that their BLS certification does not expire before they graduate.

A Suggested Plan of Study

Freshman	
Fall	*Credits*
Elementary Composition I	3.0
Human Biology I (with lab) or Human Anatomy (with lab)	4.0
Introduction to Psychology	3.0
College Algebra & Trig I	3.0
Total	13.0
Spring	*Credits*
Speech Communication	3.0
Cultural Understanding	3.0
Human Biology II (with lab) or Human Physiology (with lab)	4.0

College Algebra & Trig II	3.0
Total	13.0
Sophomore	
Fall	*Credits*
Written Communication	3.0
Physics	4.0
Chemistry (with lab)	5.0
Total	12.0
Spring	*Credits*
Statistics	3.0
Introduction to Microbiology	3.0
Lifespan Development or Developmental Psychology	3.0
Ethics	3.0
Total	12.0

Updated: March 2024

Professional Program

Courses in the professional program are sequential and must be taken in the order specified by the program faculty.

Junior		
Fall		*Credits*
Introduction to Human Disease for Respiratory Therapists	PULM-F 303	2.0
Cardiorespiratory Physiology	PULM-F 311	3.0
Cardiorespiratory Assessment and Patient Care	PULM-F 315	3.0
General Respiratory Care	PULM-F 325	4.0
Respiratory Care Techniques I	PULM-F 326	2.0
Cardiorespiratory Pharmacology I	PULM-F 333	2.0
Total		16.0
Spring		*Credits*
Cardiorespiratory Diseases	PULM-F 350	3.0
Life Support	PULM-F 355	3.0
Respiratory Care Techniques II	PULM-F 356	2.0
Respiratory Care Practicum I	PULM-F 385	3.0
Neonatal-Pediatric Respiratory Care	PULM-F 405	3.0
Cardiorespiratory Pharmacology II	PULM-F 444	2.0
Total		16.0
Summer Session I		*Credits*
Respiratory Care Practicum II	PULM-F 395	4.0
Total		4.0
Senior		
Fall		*Credits*
Pulmonary Diagnostics	PULM-F 371	3.0
Introduction to Research in Respiratory Care	PULM-F 420	2.0
Cardiorespiratory Monitoring and Special Techniques	PULM-F 451	3.0
Respiratory Care Practicum III	PULM-F 456	6.0
Pulmonary Rehabilitation and Geriatrics	PULM-F 461	3.0
Total		17.0
Spring		*Credits*
Management and Leadership for Respiratory Care	PULM-F 430	3.0
Advanced Cardiac Life Support	PULM-F 440	2.0
Seminar in Cardiorespiratory Care	PULM-F 445	3.0
Patient Education Techniques	PULM-F 480	3.0
Respiratory Care Practicum IV	PULM-F 485	6.0
Total		17.0

Graduation Requirements Satisfactory completion of 120 credit hours to include 50 credit hours of prerequisite course work and 70 credit hours of professional

course work. All course work must be completed in compliance with the program's and school's academic and professional policies.

Updated: March 2024

Student Learning Outcomes

- Cytotechnology, B.S.
- Diagnostic Sonography, B.S.
- Histotechnology, Certificate and A.S.
- Medical Imaging Technology, B.S.
- Medical Laboratory Science, B.S.
- Nuclear Medicine Technology, B.S.
- Ophthalmic Technician Training Program, Certificate
- Paramedic Science, A.S.
- Radiation Therapy, B.S.
- Radiography, A.S.
- Respiratory Therapy, B.S.

Updated: March 2024

Medical Laboratory Science, B.S.

The mission of IU School of Medicine's Medical Laboratory Science Program is to provide a high quality education in the knowledge, skills, and professional attitudes in medical laboratory science in order to prepare graduates who have entry-level competency to practice in the medical laboratory.

The goal of the MLS program is to prepare graduates who:

1. Have the knowledge and skills needed to provide health care professionals with accurate and timely diagnostic and therapeutic laboratory data and participate as effective members of the health care team.
2. Demonstrate professionalism through honesty and integrity in reporting results, respect for patient confidentiality, and a desire for life-long learning through continuing education, scholarship, service, and participation in professional organizations.
3. Successfully complete the national certification examination.

Medical Laboratory Science Program Competencies

Upon successful MLS program completion, the medical laboratory scientist will be able to demonstrate the behaviors described in the entry-level competencies as shown:

- **Knowledge**: Demonstrate an understanding of the underlying scientific principles of laboratory testing, including technical, procedural, and problem solving aspects. Recognize the importance of proper test selection, causes of discrepant test results, deviations of test results, and correlation of abnormal data with pathologic states.
- **Technical Skills**: Perform proficiently in the full range of clinical laboratory tests in areas such as hematology/hemostasis, clinical chemistry, immunohematology/transfusion medicine, microbiology, serology/immunology, urine and body fluid analysis, and molecular and other emerging diagnostics. Identify and troubleshoot pre-analytical, analytical, and post-analytical components of the testing process. Play a role in the development and evaluation of new test systems and interpretative algorithms.
- **Communication**: Communicate effectively, orally and in writing, at a level sufficient to serve the needs of patients, the public, and members of the healthcare team. Demonstrate scientific literacy by finding, interpreting, critically analyzing, scientific literature to inform decision making for the benefit of the profession and the patient community.
- **Clinical Studies**: Engage in the scientific process by understanding the principles and practices of clinical study design, implementation, and dissemination of results.
- **Educational Methodologies and Training Responsibilities**: Effectively apply educational methodologies and terminology at a level to train/educate users and providers of laboratory services.
- **Supervision, Management, Administration**: Apply safety and governmental regulations and standards in medical laboratory science. Apply knowledge of principles and practices of administration and supervision as applied to medical laboratory science to improve the efficiency of the workplace as well as contribute to quality assurance/quality improvement plans and collaborative healthcare teams to ensure quality healthcare delivery to the community.
- **Professional and Ethical Conduct and Continuing Professional Development:** Apply the principles and practices of professional and ethical conduct to ensure the safe and ethical treatment of all patients. Recognize the significance of continuing professional development and development of a professional community.

Updated: March 2024

Cytotechnology, B.S.

To provide education of the highest quality in accordance with the guidelines established by the Commission on Accreditation of Allied Health Education Programs, and the Board of Certification of the American Society for Clinical Pathologist, the Cytotechnology Program Advisory Committee adopted the following "Program Goals and Objectives" and "Outcomes."

Program Goals

The Indiana University Cytotechnology Program adopts the following goals and minimum expectations for its graduates:

"To prepare competent entry-level Cytotechnologists in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains."

Outcomes Assessment

- Student Retention of at least 80%.
- Job Placement of at least 75% (does not include positive placement i.e. those going to professional school).
- ASCP-Board of Certification Pass Rate, 3 year average for 2020-2023: 100%

Updated: March 2024

Diagnostic Sonography, B.S.

The Medical Imaging Technology program has established the following goals:

1. Graduates will demonstrate clinical competency.
2. Graduates will demonstrate effective communication skills.
3. Graduates will think critically and apply problem-solving skills in a scanning environment.
4. Graduates will demonstrate professional values.
5. Graduates will have the knowledge of professional development opportunities.
6. To prepare competent entry-level sonographers in cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains for the Abdomen-Extended or Adult Cardiac concentrations.

Updated: March 2024

Histotechnology, Certificate and A.S.

Mission

To provide quality education using distance learning technology in preparing individuals for certification in Histotechnology. To meet the healthcare manpower needs in both urban and rural settings nation-wide.

Program Goals

The Program's goals have been developed within the mission of the Health Professions Programs in the School of Medicine. In an effort to provide theoretical background and the development of a high degree of occupational competence, the Program has established the following goals:

- To provide students with the educational experiences necessary to enter a career as a Histologic Technician, including entry#level competence and eligibility for the ASCP Board of Certification Histotechnician exam.
- To provide the national health care community with individuals who are competent to conduct high quality histologic procedures.
- To provide a curriculum containing a balance between technical knowledge and clinical competence gained in the histology laboratory setting.
- To assist the students in reaching their goals by providing academic and occupational advisement.
- To instill in students a lifelong desire to achieve professional and academic excellence.

Upon successful completion of all standard academic requirements established for this program, the graduate is entitled to receive a Certificate or Associate Degree in Histotechnology from Indiana University. By virtue of the standards required by this program, the graduate is eligible to take the Histotechnician (HT) or Histotechnologist (HTL) certification examination administered by the American Society of Clinical Pathologists' Board of Certification. The didactic and practical experience provided by the course of instruction should enable the graduate to accomplish the following objectives:

Histotechnology Program Objectives

Upon successful completion of all standard academic requirements established for this program, the graduate is entitled to receive a Certificate in Histotechnology and/ or an Associate of Science in Histotechnology degree from Indiana University. By virtue of the standards required by this program, the graduate is eligible to take the Histotechnician or Histotechnologist Certification Examination administered by the American Society for Clinical Pathology's Board of Certification. The didactic and practical experience provided by the course of instruction should enable the graduate to accomplish the following objectives:

Technical Skill

1. Perform procedures of basic histologic laboratory techniques, instrumentation and problem solving at the HT entry-level competency.
2. Demonstrate knowledge of general and specific histologic methodology.
3. Perform procedures with accuracy and precision.
4. Monitor internal and external quality assurance measures.
5. Demonstrate knowledge of operational principles of commonly used laboratory instruments to include the ability to perform daily preventative maintenance and correct simple malfunctions.
6. Exercise independent judgment regarding choice of procedure and evaluation of results.
7. Organize tasks to cope with volume of work and unexpected demands.

Communication

1. Communicate effectively with Clinical Liaison and Program Director regarding curriculum and training courses.
2. Effectively organize and present information both in written assignments and oral communication.
3. Communicate effectively with other laboratory and health care providers.

Professional Behavior

1. Display an attitude reflecting pride and professionalism in daily laboratory duties.
2. Demonstrate adaptability, integrity, initiative, neatness, maturity, stability and a desire for excellence.

NAACLS Competencies

At career entry, the histotechnician will be able to perform routine histologic procedures such as:

1. Receiving and accessioning tissue specimens.
2. Preparing tissue specimens for microscopic examinations, including all routine procedures.
3. Assisting with gross examination and frozen section procedures in histopathology.
4. Identifying tissue structures and their staining characteristics.
5. Performing preventive and corrective maintenance of equipment and instruments or referring to appropriate sources for repairs.
6. Recognizing factors that affect procedures and results and taking appropriate action within predetermined limits when corrections are indicated.

7. Performing and monitoring quality control within predetermined limits.
8. Applying principles of safety.
9. Demonstrating professional conduct and interpersonal communication skills with patients, laboratory personnel, other health care professionals, and with the public.
10. Recognizing the responsibilities of other laboratory and healthcare professionals and interacting with them with respect for their jobs and patient care.
11. Recognizing and acting upon individual needs for continuing education as a function of growth and maintenance of professional competence; and,
12. Exercising principles of management, safety, and supervision, as the primary analyst making specimen-oriented decisions on predetermined criteria, including a working knowledge of criteria values. Communications skills will extend to frequent interactions with members of the healthcare team, external relations, customer service, and patient education. The levels of analysis range from routine tissue processing to complex histopathology laboratory procedures in the various major areas of anatomic pathology. The Histotechnician will have diverse functions in areas of pre-analytic, analytic, and post-analytic processes. The Histotechnician will have responsibilities for information processing, training, and quality control monitoring wherever histologic procedures are performed.

From “NAACLS Standards for Accredited and Approved Programs”, National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

Updated: March 2024

Medical Imaging Technology, B.S.

The Medical Imaging Technology program has established the following goals:

1. Graduates will be clinically competent.
2. Graduates will demonstrate effective communication skills.
3. Graduates will think critically and apply critical thinking skills in the healthcare environment.
4. Graduates will demonstrate professional values
5. Graduates will have knowledge of professional development and growth.
6. Students will graduate and will be qualified to work as advance-practice radiologic technologists.

Updated: March 2024

Nuclear Medicine Technology, B.S.

GOAL AND OUTCOMES OF THE NUCLEAR MEDICINE TECHNOLOGY PROGRAM

Goal I

Prepare students to function as competent Nuclear Medicine Technologists.

Outcomes

Upon completion of the Nuclear Medicine Technology Program in the Department of Radiologic and Imaging Sciences the graduate will:

1. Demonstrate the ability to acquire, comprehend, apply and evaluate patient information sufficiently well to offer appropriate patient care.
2. Demonstrate technical proficiency in all skills necessary to fulfill the role as a Nuclear Medicine Technologist.
3. Demonstrate appropriate administrative functions within the scope of the profession.

Goal II

Prepare students in Nuclear Medicine Technology who will continue to learn and grow professionally.

Outcomes

Upon completion of the Nuclear Medicine Technology Program in the Department of Radiologic Sciences the graduate will:

1. Demonstrate and sustain appropriate ethical and interpersonal working relationships with patients, physicians, and co-workers.
2. Demonstrate participation in continuing education and professional activities.
3. Aspire toward professional growth in areas of advanced technical positions, administration, teaching, health care industry or higher educational degree levels.

Updated: March 2024

Paramedic Science, A.S.

The goals of the Paramedic Program are to:

1. Enable the Paramedic Science Student to perform as a Paramedic.
2. Provide didactic instruction in the body of paramedic knowledge that will lead a Paramedic Science Student to hold competencies that will guide the Paramedic Science Student in a lifelong learning process as a health care professional.
3. Provide clinical instruction that will provide the Paramedic Science Student with mastery in clinical competencies necessary to perform as a Paramedic and will guide the Paramedic Science Student in a lifelong learning process as a health care professional.
4. Provide a field internship that will develop a Paramedic Science Student’s ability to apply mastered competencies guided by mentors but in real time situations.
5. Develop values that will prepare the Paramedic Science Student to be sensitive to the cultural needs of patients of all ages.
6. Develop knowledge, competency, and awareness of one’s abilities and limitations, the ability to relate to people, and a capacity for calm and reasoned judgment while under stress.

Develop values that will prepare the Paramedic Science Student to independently process information to make critical decisions

Updated: March 2024

Radiation Therapy, B.S.

Student Learning Outcomes

During the Radiation Therapy Program, the student will be able to:

1. demonstrate the appropriate knowledge of radiation therapy procedures.
2. apply principles of radiation protection for patient, self, and others.
3. perform radiation therapy simulation procedure.
4. deliver radiation therapy treatments as prescribed by a radiation oncologist.
5. perform basic radiation therapy dose calculations and access treatment plans.
6. demonstrate effective communication skills.
7. evaluate patient for effects, reactions, and therapeutic responses.
8. apply basic research methods.
9. participate in professional development and service-learning activities
10. formulate methods for the pursuit of lifelong learning.
11. will become member of a professional organization

At the completion of the radiation therapy program, the graduate will:

1. pass the ARRT national certification exam on the first attempt.
2. be employed within 12 months post-graduation, if pursuing employment.
3. complete the professional program within 20 months for radiographers and within 22 months for non-radiographers.
4. be satisfied with their education.
5. employers will be satisfied with the graduate's performance.

Updated: March 2024

Radiography, A.S.

Goals for the Associate Degree in Radiography Program

1. Graduates will be clinically competent.
2. Graduates will communicate effectively in the healthcare environment.
3. Graduates will think critically and apply problem-solving skills in the healthcare environment.
4. Graduates will have the knowledge and practical skills that maintain the standards of professional & ethical values.

Outcomes for the Associate Degree in Radiography Program

At appropriate points during the radiography program, the student will be able to:

1. Demonstrate appropriate knowledge of radiographic procedures [goal 1].
2. Apply radiographic positioning skills effectively [goal 1].
3. Determine appropriate technical factors [goal 1].
4. Demonstrate overall competence in performance of radiographic procedures [goal 1].
5. Use effective oral communication skills [goal 2].
6. Demonstrate effective written communication skills. [goal 2].
7. Evaluate images and make appropriate adjustments [goal 3].
8. Adapt procedures for complicated patients [goal 3].
9. Demonstrate knowledge of professional & ethical values [goal 4].
10. Attend professional development meetings [goal 4].

At the completion of the radiography program, the graduate will:

1. Pass the ARRT national certification on the 1^S attempt.
2. Be gainfully employed within 6 months post-graduation, if pursuing employment.
3. Complete the program within 22 months.
4. Be satisfied with their education.

Updated: March 2024

Respiratory Therapy, B.S.

Program Goals

To prepare graduates with demonstrated competence in the cognitive, psychomotor, and affective learning domains of respiratory care practice as performed by registered respiratory therapists.

To prepare leaders for the field of respiratory care by including curricular content related to the acquisition of skills in management, education and research.

Program Objectives

1. Upon completion of the program, students will demonstrate professional behavior consistent with employer expectations as registered respiratory therapists.
2. Upon completion of the program, students will demonstrate the ability to comprehend, apply, and evaluate clinical information relevant to their roles as registered respiratory therapists.
3. Upon completion of the program, students will demonstrate technical proficiency in all the skills necessary to fulfill their roles as registered respiratory therapists.

Updated: March 2024

Ophthalmic Technician Training Program, Certificate

The goals of the Ophthalmic Technician Training Program are to:

- Enable the students/graduates to perform as an Ophthalmic Technician
- Provide didactic instruction that will lead the student in a lifelong learning process as a healthcare professional
- Prepare graduates to sit for the certifying exam
- Prepare graduates to work in a variety of ophthalmic clinical settings

Students will be expected to master the role as an ophthalmic technician and prove competency in the core outcomes for accredited ophthalmology programs, including:

- Patient Care that is appropriate and effective for the treatment of ophthalmic health care

- Medical Knowledge regarding systemic and ophthalmic diseases and their applications
- Interpersonal and Communication Skills that are effective in the exchange of information with patients, families, and other healthcare professionals
- Professionalism that is evident through adhering to ethical principles, responsibilities, and interactions with a diverse patient population
- Community and Health Services demonstrating an awareness of the larger health care system and the ability to utilize its resources to maximize care'
- Technical and Scientific Skills showing proficiency in the ability to administer treatment, perform tasks, collect data, and troubleshoot basic technical issues as ordered by an ophthalmologist

Updated: July 2022

Graduate Programs

The IU School of Medicine offers graduate degrees in the following disciplines:

Graduate Degrees (PhD/MS)

For more information regarding the MD, PhD and MS programs please use the below sites:

IU School of Medicine (MD Program)

635 Barnhill Dr
Van Nuys Medical Science, Room 112
Indianapolis, IN 46202

317.274.3772
inmedadm@iupui.edu

IU School of Medicine (PhD/MS Programs)

635 Barnhill Dr
Van Nuys Medical Science, Room 207
Indianapolis, IN 46202

317.274.3441
biomed@iupui.edu

Updated: April 2022

Anesthesia MSA

The Indiana University School of Medicine Anesthesiologist Assistant Program welcomes you to learn more about our program and our profession!

A Certified Anesthesiologist Assistant (CAA) is a highly skilled professional healthcare provider who works under the direction of an anesthesiologist. A CAA carries out a wide range of clinical duties, among them:

- Performing pre-anesthesia history and physical exam
- Forming an anesthesia plan within the Anesthesia Care Team (ACT) model
- Administering anesthetic, adjuvant, and accessory drugs used in anesthetic practice
- Managing airways
- Implementing regional and neuraxial anesthesia blocks
- Administering fluid and blood product
- Inserting peripheral and central venous catheters and arterial lines
- Monitoring of patients and interpretation of data via noninvasive and invasive techniques

Our program offers a Master of Science in Anesthesia degree. This 28-month degree is divided into two phases, the didactic phase, which consists primarily of classroom-based learning, and the clinical phase, which consists primarily of clinical rotations. Even in the didactic phase, our students gain early exposure to the operating room with a limited rotation schedule beginning in the first semester.

If you're interested in applying to our program, take a look at our program requirements here. For an overview of what makes a successful applicant, please review our program averages for accepted students below. (Please note that prospective applicants can take *either* the MCAT or GRE.)

The CAA career path is a rewarding choice for motivated, critically thinking individuals with a passion for patient care. And with an ever-growing demand for anesthesia providers nationwide, there's never been a better time to join our profession.

The IU Anesthesiologist Assistant Program will prepare students to:

- Conduct pre-anesthesia history and physical exam
- Carry out anesthesia plans within the anesthesia care team
    - Administer anesthetic, adjuvant, and accessory drugs used in anesthetic practice
- Manage airways
- Perform regional and neuraxial anesthesia blocks
- Administer fluid and blood product
- Insert of peripheral and central venous catheters, and arterial lines
- Monitor patients and interpret patient data via noninvasive and invasive techniques

To learn more about becoming a Certified Anesthesiologist Assistant, please see our attached flyers or reach out to our Program Coordinator Chris Guagliardo at iusmaa@iu.edu. Also, check out our website here.

Graduate Degrees

A majority of the School of Medicine's graduate degrees can be found within the IU Indianapolis Graduate Bulletin here.

School of Medicine graduate degrees that are not contained within the IU Indianapolis Graduate Bulletin can be found below.

Anesthesia MSA

Medical Science MS

Health Innovation and Implementation Science CT

Updated: April 2023

Health Innovation and Implementation Science CT

Indiana University's Certificate in Innovation and Implementation Science is offered by the School of Medicine through the Center for Health Innovation and

Implementation Science within Clinical and Translational Sciences Institute. The Certificate is designed for working healthcare professionals, specifically practicing clinicians, nurses, pharmacists, allied health professionals, and administrators. At minimum, students are required to have at least two years of relevant healthcare experience, a bachelor's degree, and a GPA of 3.0 to be admitted into the program. Clinicians and administrators with prior process improvement or methodological training can enhance their knowledge base with new theoretical and applied knowledge.

As a prerequisite, students may be required to complete an online statistics tutorial before beginning their formal coursework. This requirement can be waived based on recent completion of a statistics course or employment in a research or data intensive position.

Course Requirements

The Certificate in Innovation and Implementation Science is delivered as a blended program with weekend residencies and online instruction. Students attend one in-person weekend residency per month.

Complementing the instructional learning portion of the Certificate is a practicum portion. Students will apply the theoretical knowledge of the curriculum to an Innovation and Implementation project in their home healthcare system, under the guidance of an organizational sponsor and a faculty mentor.

Grades

Each course within the certificate is graded as Satisfactory/Fail. Students must pass all classes to earn the certificate.

Courses

Fall Quarter

- GRAD-G673 Innovation and Implementation Science I (3.0 credit hours)

Students will study the transfer of evidence-based knowledge into routine practice with a focus on physician practices, continuum of care, and community settings. Innovation and implementation strategies and models will be examined with a focus on outcome measures, fidelity, changing reimbursement and new accountable care and shared savings delivery models.

- GRAD-G674 Health Outcomes and Evaluation in Implementation Science (1.5)

Students will explore stakeholder outcomes and program evaluation methods related to implementation projects and trials, and ongoing program evaluation. The focus is on addressing practitioners' need for informed decision-making. Topics covered include comparative effectiveness research, patient-centered outcomes, quality improvement cycles, and rapid learning health care systems.

Winter Quarter

- GRAD-G676 Innovation and Implementation Science II (3.0)

This course focuses on the robust design of an evidence-based intervention to achieve better care, lower costs, and better patient-centered outcomes. By focusing on effective design, the intervention should result in lower implementation costs, higher stakeholder acceptance, a more rapid time to full scalability, and higher quality of care.

- GRAD-G677 Leading Change, Teams, and Projects (1.5)

This course provides foundational knowledge and practical skills for leading and implementing a new health care invention in diverse types of health care settings. The course emphasizes complex adaptive systems, change strategies, leadership, teaming, and project management with a focus on the unique aspects of innovation and implementation science.

Practicum

Spring Quarter

- GRAD-G678 Practicum in Innovation and Implementation Science I (3.0)

Through an organizational sponsor and faculty mentorship, this practicum synthesizes previous coursework and demonstrates competencies in designing evidence-based interventions and care models to deliver better care, lower costs, and higher patient-centered outcomes. The first practicum project course focuses on identifying an opportunity for a planned change and designing the intervention.

Summer Quarter

- GRAD-G679 Practicum in Innovation and Implementation Science II (3.0)

This practicum builds on the work done in the prerequisite course and continues the project identified therein. The focus of the second practicum course is on intervention design, organizational assessment, and change management planning. Outcomes of this course include development of a project evaluation system, data collection processes, and feedback systems to monitor the initial success of the project, as well as to inform timely revisions as needed.

Learning Outcomes

PGPL Number and Text	Program-Level Learning Outcome	Courses and Experiences
PGPL1: Demonstrating mastery of the knowledge and skills expected for the degree and for professionalism and success in the field	Compare and contrast major categories of study designs that are used in conducting innovation and implementation science	Successful completion of IIS Course 6G74
	Critique the major types of validity used as a basis for evaluating the strength of an	Successful completion of IIS Course 6G74

implementation project and research trial		
Identify data sources available for studying different populations in different settings and describe the relative advantages and disadvantages of different types of data sources	Successful completion of IIS Course 6G74	
Identify the key components of a scalable, evidence-based intervention/care delivery model and evaluate the critical design factors to ensure successful performance outcomes.	Successful completion of IIS Course 6G74	
Identify and explain key change management theories in the context of health care systems with an emphasis on complex adaptive systems	Successful completion of IIS Course 6G74	
PGPL2: Thinking critically, applying good judgment in professional and personal situations.	Analyze local databases or compile qualitative data to justify the need for a planned	Successful completion of IIS Course 6G78
Identify sources of evidence from a systematic literature review	Successful completion of IIS Course 6G78	
Identify sources of evidence from a systematic literature review	Successful completion of IIS Course 6G78	
PGPL3: Communicating effectively to others in the field	Synthesize multi-disciplinary knowledge to effectively design an evidence-	Successful Completion of IIS Course G676
and to the general public	based care delivery mode	
Design an intervention and/ or care delivery model for the specific local environment	Successful Completion of IIS Course G678	
Monitor project and team performance and select the appropriate action to ensure a project achieves the stated objectives	Successful Completion of IIS Course G678	
Evaluate the processes and strategies used to effectively lead an innovation/ implementation project	Successful Completion of IIS Course G676	
Identify the key components of a scalable, evidence-based intervention/care delivery model and evaluate the critical design factors to ensure successful performance outcomes.	Successful Completion of IIS Course G676	
PGPL4: Behaving in an ethical way both professionally and personally	Facilitate key stakeholder engagement in the design and use of health outcomes research	Successful Completion of IIS Course G674
Illustrate operational definitions of health outcomes and program evaluation measures	Successful Completion of IIS G674	
Summarize the models, methods, and theories related to the operating performance of an intervention/care model	Successful Completion of IIS G676	
Effectively integrate economic and quality trade-offs	Successful Completion of IIS G676	

in the design of an intervention/care delivery model	
Evaluate mixed-model evaluation methods (i.e. qualitative and quantitative) and identify the appropriate methods for a specific setting	Successful Completion of IIS G676

Courses

Ophthalmic Technician

Anatomy and Cell Biology

ANAT-A 550 Gross Human Anatomy 1 (4 cr.) This course examines the gross anatomy of the human. Developmental anatomy and regional anatomy of the back, thorax, abdomen, pelvis and perineum are examined. Cadaver-based dissection labs accompany lecture topics.

ANAT-A 560 Cell Biology and Histology (4 cr.)

ANAT-D 503 Gross Anatomy for Medical Students (9 cr.) Study and dissection of entire body, using regional approach. Frequent conferences and discussions with members of staff. Series of lectures on radiographic anatomy and clinical application of anatomy.

ANAT-D 504 Histology (4 cr.) Lectures and laboratory study of the microscopic structure of cells, tissues, and organs of the human body; correlation of structure and function.

ANAT-D 505 Neuroscience and Clinical Neurology (5 cr.) A multidisciplinary consideration of structural, functional, and clinical features of the human nervous system.

ANAT-D 506 Gross Anatomy (7 cr.) The study of anatomy of the adult human body by lectures and dissection, and utilization of prosections, teaching models, and skeletons. Topics of radiographic anatomy will also be presented. Clinical applications will be emphasized by clinical correlation lectures and laboratory presentations.

ANAT-D 507 Histology and Embryology (6 cr.) This course has two points of emphasis. Foremost is the discipline of histology, which is the study of cells, tissues, and their arrangement into organ systems. Examination of these structures will be at both the level of the light and electron microscope with the relationship between anatomical structure and physiologic function emphasized. In addition, embryological events causing and resulting in the formation of adult structures will be examined.

ANAT-D 503 Gross Anatomy for Medical Students (9 cr.) Study and dissection of entire body, using regional approach. Frequent conferences and discussions with members of staff. Series of lectures on radiographic anatomy and clinical application of anatomy.

ANAT-D 523 Gross Anatomy (6 cr.) An intensive study of the human body in relation to medicine using team-based learning, dissections, clinical demonstrations, and participation in autopsies.

ANAT-D 700 Educational Research Practicum (2 cr.)

ANAT-G 901 Advanced Research (6 cr.)

Biochemistry and Molecular Biology

BIOC-B 500 Introductory Biochemistry (3 cr.) Structures of carbohydrates, proteins, lipids, and nucleic acids. Basic principles of enzyme catalysis, protein synthesis, intermediary metabolism and nutrition.

BIOC-B 509 Medical Biochemistry (6 cr.) Introduction to biochemical terminology, methods, and concepts in a framework relevant to the practice of medicine. Principal topics include structures and reactions of the major classes of biological molecules, protein structure and function, enzymology, metabolism of biological molecules, biosynthesis of macromolecules, regulation of cellular activities, and introductory hematology. Demonstrations, case studies, and clinical correlation conferences are presented during laboratory sessions.

BIOC-B 523 Medical Biochemistry (5 cr.) The chemistry and reactions of constituents of living matter, including carbohydrates, lipids, proteins, nucleic acids, vitamins, coenzymes, and minerals; the chemistry and regulations of the reactions and processes of whole organisms; endocrinology; enzymology; nutrition; intermediary metabolism; and biomedical mechanisms in selected disease states.

BIOC-B 800 Medical Biochemistry (3 cr.) Biochemistry for medical students. Structure and function of biological molecules, regulation of cellular processes by nutrients and hormones, biochemical and molecular basis of disease. Designed to develop the knowledge base for Competency III "Using Science to Guide Diagnosis, Management, Therapeutics and Prevention."

BIOC-B 800 Biochemistry (5 cr.) Macromolecules, enzymes, bioenergetics, intermediary metabolism, nutrition, metabolic control systems, and endocrinology. Lectures and problem-based learning.

MCHE-C 580 Medical Biochemistry (3 cr.) The objectives of C580 are mutli-fold: 1) to learn the structures of medically important molecules and their functions in health and disease, 2) to learn basic molecular and cell biology and how these relate to medicine, 3) to fulfill competencies for problem solving and for effective communication.

Cellular and Integrative Physiology

PHSL-F 898 Senior Elective in Physiology (0-24 cr.)

PHSL-G 901 Advanced Research (6 cr.)

PHSL-P 531 Human Physiology I (3 cr.) Basic principles of general physiology; cardiovascular, digestion, respiration, and renal physiology relevant to humans.

Clinical Laboratory Science

PATH-C 401 General Externship I (2 cr.) P: PATH-C 406 and PATH-C 426. Supervised clinical experience in clinical chemistry. Student rotates through various areas of clinical chemistry.

PATH-C 402 General Externship II (2 cr.) P: PATH-C 404, PATH-C 407, PATH-C 410. Supervised clinical

experience in clinical hematology. Student rotates through various areas of clinical hematology, coagulation, and urinalysis.

PATH-C 403 General Externship III (2 cr.) P: PATH-C 409, PATH-C 411, PATH-C 420, PATH-C 421, PATH-C 429. Supervised clinical experience in clinical microbiology. Student rotates through various areas of microbiology, serology, virology, mycology, and parasitology.

PATH-C 404 Hemostasis (1 cr.) Hemostasis is a course covering the basic principles of the hemostasis mechanism, including an overview of the laboratory techniques used to evaluate disorders of hemostasis. Emphasizes the major components of hemostasis, interaction of these components, and laboratory evaluation of the major hemostatic disorders.

PATH-C 405 General Externship IV (2 cr.) P: PATH-C 408 and PATH-C 428. Supervised clinical experience in blood banking. Student rotates through various areas of modern blood bank, including donor room, transfusion service, antibody identification, component therapy, transplantation therapy, and quality control.

PATH-C 406 Clinical Chemistry (4 cr.) C: PATH-C 426. Emphasis on metabolic processes that maintain chemical homeostasis in humans, the application of clinical chemistry assay values in evaluating the integrity of these processes, and the correlation of abnormal results with metabolic dysfunction and/or disease states.

PATH-C 407 Hematology (3 cr.) P: PATH-C 427. Study of functions, maturation, and morphology of blood cells in addition to factors regulating production, metabolism, and kinetics of blood cells. The etiologic and morphologic classifications of blood disorders and diseases; correlations with bone marrows and cytochemistries. Study of cellular contents of other body fluids.

PATH-C 408 Principles of Immunohematology (1 cr.) C: PATH-C 428. Emphasis on major blood group antigens and antibodies including their role in transfusion medicine. Current practices in blood donation, apheresis, and quality control are also covered.

PATH-C 409 Serology (1 cr.) C: PATH-C 429. Lectures describing and comparing all pertinent serologic procedures utilized in diagnosis of rheumatoid arthritis, rubella, streptococcal disease, syphilis, various febrile conditions, fungal infections, parasite infections, and infectious mononucleosis. Selected lectures in viral culturing methods.

PATH-C 410 Urine Analysis (2 cr.) Routine urine examination and special tests; laboratory and special lectures.

PATH-C 411 Diagnostic Medical Microbiology (4 cr.) P: PATH-C 421. An in-depth study of the clinically significant microorganisms with special emphasis on their clinical significance, cultural and biochemical characteristics, and susceptibility testing patterns.

PATH-C 412 Topics in Clinical Laboratory Science (2 cr.) Selected topics in medical technology covered by lecture and clinical experience.

PATH-C 413 Clinical Correlation and Theory (2 cr.) Lectures in theoretical and clinical areas designed to emphasize the relationship between laboratory test results and disease states.

PATH-C 420 Mycology/Parasitology (2 cr.) Lecture and laboratory experience covering clinically significant fungi and parasites. Clinical manifestations, collection and procedures for processing of specimens, and identification techniques will be employed.

PATH-C 421 Diagnostic Microbiology Laboratory (2 cr.) C: PATH-C 411. Laboratory experience in the performance of skills and procedures needed for the isolation, identification, and susceptibility testing of clinically significant microorganisms.

PATH-C 426 Clinical Chemistry Instrumentation and Methodologies (1 cr.) C: PATH-C 406. Emphasis is on utilization of basic and intermediate methodologies and instrumentation and their application to assaying a variety of body constituents in a clinical chemistry laboratory.

PATH-C 427 Hematologic Techniques and Procedures (3 cr.) C: PATH-C 407. Experience in blood cell identification on stained smears; blood& cell, platelet, and reticulocyte counting procedures. Techniques of sedimentation rates, hematocrits, corpuscular indices, hemoglobin determination, and smear preparation staining. Introduction to instrumentation and quality control. Special procedures including bone marrow preparations, flow cytometry, and automated differential counters.

PATH-C 450 Serology I (2 cr.) Introduction to serologic and immunologic principles.

PATH-C 428 Techniques in Immunohematology (1 cr.) C: PATH-C 408. Emphasis on laboratory techniques used in blood banks, including blood typing, crossmatching, antibody identification, record keeping, and quality control.

PATH-C 429 Serology Laboratory (1 cr.) C: PATH-C 409. Laboratory experience in performance of various testing procedures utilized in serologic diagnosis of infectious diseases and various syndromes. Techniques include precipitation, flocculation, various hemagglutination and hemagglutination inhibition techniques, fluorescent antibody testing, and complement fixation.

PATH-C 431 Hematology I (2 cr.) Collecting, staining, and counting blood cells; supervised experience with patients. Experience with specimens of spinal fluid, special determinations (platelets, reticulocytes, etc.), and pathologic smears.

PATH-C 432 Hematology II (2 cr.) P: PATH-C 431. PATH-C 432 and PATH-C 434 offer more experience than PATH-C 431 allows in the same techniques and offer additional techniques such as erythrocyte sedimentation rate, hematocrit, and the calculation of indices.

PATH-C 434 Hematology III (2 cr.) P: PATH-C 431 and PATH-C 432. Continuation of practice and experience in hematologic techniques. Individual projects assigned if student is sufficiently advanced.

PATH-C 440 Bacteriology I (2 cr.) Diagnostic procedures as means to familiarize students with techniques; work on specimens received from hospital patients under

supervision; practical experience with all types of human specimens for bacteriologic and mycologic study.

PATH-C 441 Bacteriology II (2 cr.) P: PATH-C 440. Agglutination and precipitin techniques and their special application to agglutination titers and the use of antibiotics. Special assignments to provide experience with organisms infrequently encountered.

PATH-C 442 Bacteriology III (2 cr.) P: PATH-C 440 and PATH-C 441. At the end of this course, students should be able to handle usual and somewhat unusual hospital bacteriologic and mycologic problems independently.

PATH-C 451 Serology II (2 cr.) P: PATH-C 450. Additional experience in adapting complement fixation, agglutination, hemagglutination, precipitin, and flocculation techniques to diagnostic procedures. *This course is offered intermittently and is not part of the traditional curriculum.

PATH-C 471 Clinical Chemistry I (2 cr.) Training and experience with more frequently used chemistry tests, e.g., determination of glucose and urea nitrogen by automated and manual methods.

PATH-C 472 Clinical Chemistry II (2 cr.) P: PATH-C 471. Limited experience with less frequently performed special procedures.

PATH-C 473 Clinical Chemistry III (2 cr.) P: PATH-C 471 and PATH-C 472. Special equipment utilization; preparation and maintenance of solutions.

PATH-C 477 Clinical Chemistry V (2 cr.) P: PATH-C 472, PATH-C 472, PATH-C 473, and PATH-C 476. Training and experience in special technical and methodological microprocedures.

PATH-C 491 Blood Bank I (2 cr.) Review of serologic principles and technical fundamentals of transfusion practice; comprehensive consideration of blood groups and Rh factors, extensive practice with pre-transfusion techniques and safety practices. Other blood types, antigen-antibody relationships with techniques for demonstrating these. Elementary knowledge of genetics is helpful.

PATH-C 492 Blood Bank II (2 cr.) P: PATH-C 491. Transfusion service bloods provide problem cases in isoimmunization and sensitization, Rh titration, etc. Responsibility for blood bank operation and application to special transfusion problems placed before the student.

PATH-C 493 Blood Bank III (2 cr.) P: PATH-C 491 and PATH-C 492. Required for students working toward special certificate in blood banking. Emphasis on supervision, reference techniques, and such accessory functions as plasma production.

Cytotechnology

PATH-A 412 Gynecologic Cytology, Normal (3 cr.) Detailed microscopic study of normal squamous, endocervical, and endometrial epithelial cells, as well as other non epithelial cells. Cellular changes seen with microbiological infections, repair, inflammation, degeneration, artifact, and vitamin deficiency status.

PATH-A 422 Gynecologic Cytology, Abnormal (3 cr.) Histopathology and cytopathology of lesions of the female genital tract. Detailed studies in the cytologic diagnosis of dysplasia, carcinoma-in-situ, and invasive cancer of this anatomic area. Differential diagnosis of these lesions includes the severity, site of origin, and grade where appropriate.

PATH-A 432 Pulmonary Cytology (3 cr.) Systematic study of normal, nonmalignant, and malignant cells in the lower respiratory system.

PATH-A 442 Cytology of Body Fluids (2 cr.) Cytology of the eye, central nervious system, synovial membranes, and serosal cavities in fluids associated with nonmalignant and malignant disease processes.

PATH-A 453 Cytology of the Gastrointestinal Tract (2 cr.) Study of cells associated with nonmalignant and malignant diseases of the gastrointestinal tract, including the oral cavity, esophagus, stomach, and small and large intestines.

PATH-A 454 Urinary Tract Cytology (2 cr.) Clinical cytologic study of cells from normal, nonmalignant, and malignant diseases of the urinary tract, to include the urethra, ureters, renal pelvis, bladder, prostate, seminal vesicles, and kidney.

PATH-A 455 Cytology of Fine Needle Aspiration (2 cr.) The study of nonmalignant and malignant cells aspirated from lung, thyroid, salivary glands, breast, liver, prostate, lymph nodes, soft tissue masses, and miscellaneous organs; and the study of fine needle aspiration techniques.

PATH-A 462 Techniques in Medical Cytology (2 cr.) Fixation and staining procedures, preparation of monolayers, smears, and cell blocks from fluids and other exfoliates; use of filter techniques and microscopy.

PATH-A 465 Certification Internship (1-6 cr.) Includes the fall semester of clinical internships where students gain practical experience by working with routine cytology material.

PATH-A 470 Seminar in Cytology (2 cr.) Review of current literature pertaining to diagnostic cytology. Reports and discussions by students and faculty.

PATH-A 490 Investigations in Cytopathology (1-3 cr.) To provide the student with an experience in the realm of scientific investigation related to cytopathology. The investigation may be conducted as a research project or a literature review.

Diagnostic Sonography

RADI-E 420 Echocardiography Procedures I (4 cr.) This course is designed to give the beginning echocardiography student knowledge of the echocardiography procedure and scan techniques, commonly encountered cardiac pathology, basic review of EKG and other echocardiographic related examinations.
The content reviews basic cardiac anatomy and physiology, sonographic appearance of cardiac anatomy and how to identify disease or pathology of the heart and related structures. Students will also utilize their research skills to present a topic of interest.

RADI-E 421 Echocardiography Procedures II (4 cr.) In this course, students learn anatomy, pathology, and other procedures related to adult and pediatric echocardiography and vascular ultrasound examinations. The sonographic appearance and protocols for advanced

cardiac pathology as seen on adult echocardiography exams is discussed in detail throughout the semester. The student will learn other imaging modalities and testing as it relates to adult echocardiography. Echocardiography interventional, intraoperative, and stress testing procedures will be reviewed.

RADI-E 430 Echocardiography Lab Fundamentals (3 cr.) This course is an abbreviated, intense introduction to the basic principles of core cardiac and vascular examinations performed in the clinic setting. The course is designed to present material in a brief lecture format, followed by hands-on scanning in the school ultrasound lab, and demonstration of knowledge gained through quizzes.

RADI-E 431 Echocardiography Lab I (2 cr.) This lab course is designed to teach the student the basic functions and manipulations of the ultrasound equipment, locate and recognize normal anatomy on the ultrasound images, and understand and obtain exam image protocols. Students demonstrate their knowledge of proper posture and scanning ergonomics through a project assignment. Standard precautions, Personal Protective Equipment, obtaining patient vital signs, and proper sterile techniques for ultrasound guided procedures are reviewed. Students will role play these patient care skills for assessment.

RADI-E 432 Echocardiography Lab II (2 cr.) This lab course is designed to build upon foundational scanning skills and advance the student's scanning and system optimization ability with more difficult scan techniques, pathologies and/or patient body types. Students will also practice advanced measurement techniques as well as use critical thinking in the identification of sonographic characteristics of common pathologies.

RADI-E 433 Echocardiography Lab III (1 cr.) Senior lab is designed to challenge the student with more advanced sonographic techniques. Students will demonstrate their knowledge and technical skill through lab practice and proficiency assessment. Students will practice equipment Quality Assurance protocols on laboratory ultrasound equipment. Throughout the semester, students may be scheduled to teach medical students, residents, or radiography students basic ultrasound examination skills.

RADI-E 450 Echocardiography Clinical Practicum Introduction (1 cr.) Students will visit multiple program clinical sites throughout the semester. This allows the student to observe the various environments, ultrasound exams, equipment and workflows of each clinical site. These observations may guide future clinical site rotations and/or future employment opportunities. Additionally, students will learn how to use our time management system eValue.

RADI-E 451 Echocardiography Clinical Practicum I (4 cr.) In this course, students begin their integration as a team member in the clinical setting. Students receive feedback of their beginning clinical skills through clinical rotation evaluations and clinical competency evaluations. During this course, students begin to practice image optimization techniques to further improve image quality, gain confidence in echocardiography examinations, and learn clinical site protocols.

RADI-E 452 Echocardiography Clinical Practicum II (2 cr.) In this course, students continue their experiential learning of echocardiography and vascular exams. They also further integrate as a team member in the clinical setting. Students receive feedback of their clinical skills through clinical rotation evaluations and clinical competency evaluations. Students will expand their ability to use system controls to improve image quality, gain confidence in echocardiography examinations, and learn clinical site protocols.

RADI-E 453 Echocardiography Clinical Practicum III (6 cr.) In this course, students should find themselves more integrated as a team member in the clinical setting. This course provides the student feedback on their clinical competency level from both the clinical site as well as the Diagnostic Sonography Clinical Coordinator. During this semester, students should focus on honing image optimization to further improve image quality, gain confidence in more difficult examinations, and solidify their knowledge of clinical site protocols.

RADI-S 410 Sonography Orientation (2 cr.) Placeholder text.

RADI-S 410 Sonography Orientation (2 cr.) Placeholder text.

RADI-S 410 Sonography Orientation (2 cr.) This course prepares the student to complete research projects within the program. Additionally, students will learn the Sonographer Scope of Practice, Code of Ethics, basic tenets of medical ethics, and be introduced to professional opportunities and resources within the sonography community

RADI-S 420 Medical Sonography Procedures I (4 cr.) The course content is designed to review basic anatomy, physiology, structure and function of structures identified in core medical sonography examinations. This is the first of two semesters where the student will learn the normal sonographic appearance, common variants, and how to identify anomalies or pathology for each given structure discussed. Students will also utilize their research skills to present a topic of interest. Lastly, students will learn comprehensive scanning protocols for standard and typical exams performed in a clinical setting.

RADI-S 421 Medical Sonography Procedures II (4 cr.) This is the second of two semesters where the student will learn normal sonographic appearance, common variants, anomaly identification, and pathology in obstetrical, pediatric, and vascular examinations. Students will learn the scanning protocols for standard exams in these sonographic concentrations

RADI-S 430 Medical Sonography Lab Fundamentals (2 cr.) This course is an abbreviated, intense introduction to the basic principles and core examinations performed in the clinic setting. The course is designed to present material in a brief lecture format, followed by hands-on scanning in our personal lab, and demonstration of knowledge gained through quizzes.

RADI-S 431 Medical Sonography Lab I (3 cr.) This lab course is designed to teach the student the basic functions and manipulations of the ultrasound equipment, locate and recognize normal anatomy on the ultrasound images, and understand and obtain exam image protocols. Students demonstrate their knowledge of proper posture and scanning ergonomics through a project assignment.

Standard precautions, Personal Protective Equipment, obtaining patient vital signs, and proper sterile techniques for ultrasound guided procedures are reviewed. Students will role play these patient care skills for assessment.

RADI-S 432 Medical Sonography Lab II (3 cr.) This lab course is designed to build upon foundational scanning skills and advance the student's scanning and system optimization ability with more difficult scan techniques, pathologies and/or patient body types. Students will also practice advanced measurement techniques as well as use critical thinking in the identification of sonographic characteristics of common pathologies.

RADI-S 433 Medical Sonography Lab III (1 cr.) Senior lab is designed to challenge the student with more advanced sonographic exams. Students will demonstrate their knowledge and technical skill of these advanced exams through lab practice and proficiency assessments. Students will practice equipment Quality Assurance protocols on laboratory ultrasound equipment. Throughout the semester, students are responsible for teaching medical students, residents, or radiography students basic ultrasound examination skills.

RADI-S 440 Sonographic Physical Principles I (3 cr.) This is the first of a two-semester course in Sonographic Physical Principles. The student will use reasoning skills to understand, explain, and apply the physical concepts of ultrasound production, ultrasound interaction with anatomic material, Doppler principles, and ultrasound equipment operation.

RADI-S 441 Sonographic Physical Principles II (3 cr.) This is the second of a two-semester course in Ultrasound. It offers the student an opportunity to use reasoning skills to understand and explain the physical concepts of ultrasound production, ultrasound interaction with anatomic material, ultrasound equipment operation, and how these principles contribute to image quality.

RADI-S 450 Medical Sonography Clinical Practicum Introduction (1 cr.) Students will visit multiple program clinical sites throughout the semester. This allows the student to observe the various environments, ultrasound exams, equipment and workflows of each clinical site. These observations may guide future clinical site rotations and/or future employment opportunities. Additionally, students will learn how to use our time management system eValue.

RADI-S 451 Medical Sonography Clinical Practicum I (3 cr.) In this course, students begin their integration as a team member in the clinical setting. Students receive feedback of their beginning clinical skills through clinical rotation evaluations and clinical competency evaluations. During this course, students begin to practice image optimization techniques to further improve image quality, gain confidence in core ultrasound examinations, and learn clinical site protocols.

RADI-S 452 Medical Sonography Clinical Practicum II (3 cr.) In this course, students continue their experiential learning of obstetrical, pediatric, general ultrasound, and vascular examinations. They also further integrate as a team member in the clinical setting. Students receive feedback of their clinical skills through clinical rotation evaluations and clinical competency evaluations. Students will expand their ability to use system controls to improve image quality, gain confidence in sonographic examinations, and learn clinical site protocols.

RADI-S 453 Medical Sonography Clinical Practicum III (6 cr.) In this course, students should find themselves more integrated as a team member in the clinical setting. This course provides the student feedback on their clinical competency level from both the clinical site as well as the Diagnostic Sonography Clinical Coordinator. During this semester, students should focus on honing image optimization to further improve image quality, gain confidence in more difficult examinations, and solidify their knowledge of clinical site protocols.

RADI-S 454 Medical Sonography Clinical Practicum IV (4 cr.) In this course, students should find themselves more integrated as a team member in the clinical setting. Students should focus on honing image optimization to further improve image quality, gain confidence in more difficult examinations, and solidify their knowledge of clinical site protocols. Students receive feedback on their clinical competency level from both the clinical site as well as the Diagnostic Sonography Clinical Coordinator.

RADI-S 460 Medical Sonography Professional Life (3 cr.) Students will learn to transition from student to a credentialed sonographer. They will improve their knowledge by taking mock board exams in preparation for their ARDMS board examination and will contemplate professional life through written personal ethic/professional reflections. Students will increase responsibility of exam findings by completing mock sonographer examination worksheets.

Emergency Medical Services

EMER-E 201 Emergency Medical Technician Basic (6 cr.)
This course focuses on well-being of the EMT, basic patient assessment and airway management, and special considerations for the pediatric, geriatric patient and medical emergencies, trauma, and basic pharmacology.

EMER-E 297 EMT P National Registry (26 cr.) Award of credit in Paramedic Science based on first time score on the credentialing examination of the National Registry of Emergency Medical Technicians (NREMT).

EMER-E 210 The Paramedic and Pulmonology (3 cr.) This course provides an in-depth study of the anatomical and physiological foundation of respiration and the management of respiratory diseases and disorders. Students will have the opportunity to perform adult and pediatric advanced airway management and ventilation techniques and practice pharmacologic intervention during simulation.

EMER-E 213 Paramedic as Team Member (4 cr.) Students will have the opportunity to use interview and physical exam techniques in assessing patients across the lifespan in prehospital and hospital environments. Scheduled and supervised clinical rotations include the advanced life support ambulance, the 911 communications center, the emergency department, anesthesia, and the pediatric clinic.

EMER-E 214 Introduction to Paramedic Practice (3 cr.) This course focuses on the roles and responsibilities, health and safety, and medical, legal and ethical issues that affect the paramedic. Other content includes illness

and injury prevention. The course also helps students acquire the skills to perform a patient assessment.

EMER-E 215 Essentials/Pharmacology & EKG (6 cr.) Course introduces the principles and procedures necessary for the paramedic to properly administer medication in the prehospital environment. Topics include pharmacokinetics, pharmacodynamics, identification of medication, and drug dosage calculations. Students will have the opportunity to practice medication administration and vascular access techniques. General principles of pathophysiology will also be presented.

EMER-E 220 The Paramedic and Medical Matters (5 cr.) This course provides study of the pathophysiology and prehospital management of various medical emergencies. Topics include neurology, endrocrinology, allergies and anaphylaxis, gastroenterology, urology, hematology, toxicology, environmental agents, infectious and communicable diseases, psychiatry, gynecology, and obstetrics. Students will have the opportunity to practice pharmacologic intervention during simulation.

EMER-E 221 The Paramedic and Trauma (3 cr.) This course focuses on the assessment and management of the trauma victim. Also included are rescue techniques, mass casualty and triage principles, and stress management techniques.

EMER-E 223 Paramedic as Team Player (5 cr.) Students will engage patients across the lifespan in prehospital and hospital environments to assess and manage a variety of pulmonary, cardiovascular and other medical emergencies. Scheduled and supervised clinical rotations include ALS ambulance, emergency department, anesthesia, intensive care unit, cardiac catheterization lab, pediatric clinic, labor and delivery, and special care nursery.

EMER-E 226 The Paramedic and Cardiology (3 cr.) This course introduces electrophysiology and electrocardiology and various cardiovascular emergencies. Topics include ECG interpretation, recognition of cardiac dysrhythmias, management of cardiovascular emergencies. Students will have the opportunity to practice ACLS and PALS skills, including pharmacologic intervention and electric therapy during simulations.

EMER-E 233 Paramedic as Team Leader (2 cr.) Students will have the opportunity to be in charge of various prehospital emergencies while under the supervision of a certified paramedic preceptor on an ALS ambulance. Other clinical rotations include emergency department, intensive care, and burn units. This course emphasizes assessment-based management.

EMER-E 243 Paramedic Professional Progress (4 cr.) Students will continue to have the opportunity to be in charge of various prehospital emergencies while under the supervision of a certified paramedic preceptor on an ALS ambulance. The student will have the opportunity to practice PEPP and PALS skills and prepare for the NREMT-Paramedic examination.

EMER-E 246 Contemporary EMS Issues (3 cr.) This course will introduce local response and resources for abuse and assault, mass casualty incidents, triage, weapons of mass destruction, and crime scence awareness. Other topics reviewed include ambulance operations, rescue, and hazardous materials.

EMER-E 299 Independent Study in Paramedic Science (1-4 cr.) Special topics, projects, or readings for students enrolled in paramedic science.

EMER-E 298 Paramedic Certificate Clinical Experience (15 cr.) Award of clinical experience credit based on graduation from the Commission on Accreditation of Emergency Medical Science Programs (CAEMSP) accredited hospital program or an Indiana DHS Training Institution hospital program.

Graduate School

GRAD-G 704 Physiological Proteomics (1 cr.) This is a fundamentals-based course on theory and practice of contemporary proteomics techniques. Graduate students will learn to select and apply appropriate proteomic technologies in their research through exposure to protein analytical, quantitative, and informatic approaches to physiologically-relevant biomedical problems.

GRAD-G 505 Responsible Conduct of Research (1 cr.) The purpose of this course is to provide its students with a formal setting to learn about the basic rules and acceptable standards required for anyone conducting scientific research. It will help its students obtain knowledge and develop skills for dealing with potential ethical problems in the research laboratory on their own. This course is designed for all beginning graduate students working in the life sciences or related fields and other researchers who require basic training in the responsible conduct of research.

GRDM-G 510 MD/Ph.D. Special Options Course (0 cr.)

GRAD-G 620 Research Topics: Adolescent Health (3 cr.)

GRAD-G 707 Physiology of Smooth Muscle (1 cr.) Advanced study of the physiology of the smooth muscle tissues with focus on the normal physiology and pathophysiology of airway smooth muscle and the airways. Biochemical and physiologic mechanisms in the regulation of contraction, growth, and phenotypic expression in smooth muscle tissues will be explored. Focus will be on contemporary molecular and cellular and whole animal approaches for the study of muscle physiology, including tissue transfection and the genetic modification of smooth muscle tissues, organ culture, and methods for the measurement of contractility and contractile protein activation in intact and permeabilized tissues including confocal imaging, and in vivo measurement of airway function.

GRAD-G 660 Clinical Research Methods (3 cr.)

GRAD-G 667 Tools and Tehniques in Translational Research (3 cr.)

GRAD-G 708 Cardiac & Coronary Physiology of Exercise (1 cr.) Given the current epidemic and foreseeable continuing trend of obesity and diabetes in the U.S., emphasis will be placed on responses and adaptations of the heart and coronary circulation to exercise in the setting of obesity- and diabetes-induced coronary disease. Concepts of exercise stimulus, quantification of work, and in vivo responses and adaptations will be fundamental to studies of cellular and

molecular mechanisms of myocardial and coronary artery responses and adaptations to exercise. The approach taken will be the use of current textbooks, select reviews, original research papers, interactive discussion, and laboratory demonstrations and projects.

GRAD-G 714 Development of the Vascular System (1 cr.) This advanced level course is offered to graduate students who have an interest in vascular biology. Concepts of vascular development will be explored with an emphasis on the experimental techniques used to unravel organ development. The course will provide an in-depth knowledge of the physiology, cell, and molecular biology of the development of the vascular system by means of introductory lectures, assigned reviews of current literature, group discussions, and laboratory demonstrations with an emphasis on the experimental techniques used to examine developmental systems. The course will comprise a mixture of didactic lecture, student reading, and presentation of original research and review articles, group discussions, and laboratory demonstrations. The course will comprise four one-hour sessions per week over a four-week session.

GRDM-G 761 Molecular and Cellular Physiology of Ion Transport (1 cr.) Advanced ion transport topics are selected by students from current areas of research on ion channels, pumps, and exchangers. Specific topics include transporter biophysical characteristics, long-term regulation, effects on cell and organ function, electrophysiological and optical methods for study. Format: textbooks, reviews, original research papers, interactive discussion, computer simulations, and laboratory demonstrations and projects.

GRAD-G 804 Cellular and Molecular Biology (3 cr.) Cellular and molecular biology for medical students that emphasizes the structural organization, biochemistry, and molecular biology of cells. Includes cellular processes, development, and differentiation and their relationship to medicine.

GRAD-G 831 Concepts & Controversies in Cardiovascular Science (2 cr.) P: Graduate level physiology course. The focus of this course is topical areas of advanced cardiovascular research, emphasizing modern approaches to study cardiovascular function. Topics will change each semester but may include: regulation of vascular tone, cardiovascular development, control of cardiac function, myopathies, atherosclerosis, and blood pressure. Format: Journal Club/Seminar and facilitated interactive student discussion.

GRAD-G 819 Basic Bone Biology (3 cr.) P: One semester of introductory biology. An introduction to basic bone biology, including bone morphology, composition and physiology; cell biology of bone cells; measurement techniques; adaptation to the mechanical and metabolic environments; regulatory factors and mineral homeostasis; and growth and development.

GRAD-G 825 Advanced Topics in Molecular Biology (2 cr.) The course will highlight selected topics adjusted each year to reflect the most current advancements in molecular biology and will include lectures and paper discussions on: chromatin structure and regulation; transcriptional control; RNA structure and processing; RNAi and miRNA; RNA decay; translational control and its integration in gene expression.

GRDM-G 664 Mentored Clinical Research (1-9 cr.) This is an organized research project in the form of an organized scientific contribution or comprehensive analysis conducted under the mentorship of a faculty scientist from the individual CITE enrollee's core discipline. The capstone experience is submission of an abstract to a scientific meeting, defense of one's research before an advisory committee, and completion of a first-authored paper deemed suitable for publication in a scientific journal.

GRAD-G 715 Biomedical Science I (3 cr.) One of three biomedical science courses intended for incoming doctoral graduate students in the School of Medicine or other graduate students. Covers molecular and metabolic aspects of cellular function. The course will explore topics in the biochemical basis of biological systems, including biological macromolecules, protein ligand interactions, cell-signaling, and metabolic processes.

GRAD-G 716 Biomedical Science II (3 cr.) Second of three biomedical science courses intended for incoming doctoral graduate students in the School of Medicine or other graduate students. Topics covered include DNA structure and replication, recombination and repair, genomics and processes of inheritance, gene expression, eukaryotic systems, and molecular genetics and disease.

GRAD-G 717 Biomedical Science III (3 cr.) Third of a group of three biomedical science core courses intended for incoming doctoral graduate students in the School of Medicine or other graduate students. Organization and function of cells, tissues and physiologic systems using disease examples. Topics include neurophysiology, musculoskeletal, renal, cardiovascular, gastrointestinal, endocrine and pulmonary systems, and cancer.

GRDM-G 718 Research in Biomedical Science (1-4 cr.) A laboratory research rotation course. Allows incoming basic science doctoral graduate students in the School of Medicine programs to take research rotations in laboratories affiliated with all of the school graduate programs.

GRAD-G 855 Experimental Design and Research Biostatistics (1 cr.) This course will provide students with a functional understanding of experimental design and statistical testing in the biological sciences. Students will learn why a thoughtful approach to the design of their experiments and a rigorous, unbiased testing of their results are both important to their work and future careers. Students will receive an introduction to basic statistical theory with a practical focus on interpreting printouts from a variety of statistical programs(rather than a focus on students carrying out their own calculations). Practical examples of experimental design and statistical testing-both good examples and bad-will be worked through for a variety of real situations in biomedical research.

Histotechnology

PATH-H 101 Histotechnology I (3 cr.) C: PATH-H 181. Teleconference lectures and related written supplemental assignments with focus on specimen receipt and accessioning, laboratory safety, laboratory chemistry and math, instrumentation, and fixation.

PATH-H 102 Histotechnology II (3 cr.) P: PATH-H 101. C: PATH-H 182. Teleconference lectures and related written supplemental assignments with focus on decalcification, tissue processing and embedding, microtomy, general staining theories, and nuclear and cytoplasmic staining.

PATH-H 103 Histotechnology III (3 cr.) P: PATH-H 102. C: PATH-H 183. Teleconference lectures and related written supplemental assignments with focus on special staining methodology to include connective tissue, carbohydrates, amyloid, lipids, microorganisms, pigments, and minerals.

PATH-H 104 Histotechnology IV (3 cr.) P: PATH-H 103. C: PATH-H 184. Teleconference lectures and related written supplemental assignments with focus on special staining methodology to include nerve and special cells, enzyme and immunohistochemical staining, with an overview of selected topics.

PATH-H 105 Histotechnology Credential Theory (12 cr.) Special credit awarded for ASCP registry status or for histology experience and accomplishment of partial registry exam. Contact program director for further information.

PATH-H 181 Histotechnology Practicum I (3 cr.) C: PATH-H 101. Clinical practicum experience in topics covered in PATH-H 101, performed under direct supervision of designated registered histologist.

PATH-H 182 Histotechnology Practicum II (3 cr.) P: PATH-H 101, PATH-H 181. C: PATH-H 102. Clinical practicum experience in topics covered in PATH-H 102, performed under direct supervision of designated registered histologist.

PATH-H 183 Histotechnology Practicum III (3 cr.) P: PATH-H 102, PATH-H 182. C: PATH-H 103. Clinical practicum experience in topics covered in PATH H103, performed under direct supervision of designated registered histologist.

PATH-H 184 Histotechnology Practicum IV (3 cr.) P: PATH-H 103, PATH-H 183. C: PATH-H 104. Clinical practicum experience in topics covered in PATH-H 104, performed under direct supervision of designated registered histologist.

PATH-H 185 Histotechnology Credential Practicum (12 cr.) Special credit awarded for ASCP registry status or for histology experience and accomplishment of partial registry exam. Contact program director for further information.

PATH-H 201 Comprehensive Experience in Histotechnology (6 cr.) P: Completion of 50 credit hours toward Associate of Science in Histotechnology, to include a technical writing course. (Capstone course) This course emphasizes critical thinking, problem-solving skills, and literature searches associated with technical and scholarly writing. Introduces students to management issues, supervision, quality assurance principles, and other issues associated with histotechnology laboratory employment.

Medical Biophysics and Biomolecular Imaging

BIOP-A 610 Research in Biophysics (1-15 cr.)

BIOP-A 612 Special Problems in Biophysics (1-15 cr.)

Other Courses

MGEN-G 788 Next Generation Sequencing (3 cr.)

MGEN-Q 603 Medical Genetics (2 cr.) A comprehensive course in human genetics emphasizing the principles of genetics and their application to clinical medicine through the family history, clinical findings, and laboratory studies. Examples of specific problems, their evaluation, and genetic counseling will be used to supplement didactic material. Designed to develop proficiency for Competency III “Using Science to Guide Diagnosis, Management, Therapeutics, and Prevention,” Competency VIII “Problem Solving,” Level 1.

MGEN-Q 640 Special Topics in Human Genetics (1-3 cr.) P: Basic genetics. A continuing, nonrepeating series of lectures and/or review of publications on newer advances in human genetics; discussions in specific areas of human genetics not presently available to all students. Additional credits may be obtained by study of a specific area under individual tutelage.

MGEN-Q 682 Medical Genetics - FWCME (2 cr.) This lecture course covers probability, population genetics, inheritance, metabolic diseases, hemoglobinopathies, genetic diagnosis, and counseling.

Medical Imaging Technology

RADI-B 464 Mammography Principles and Procedures (3 cr.) In Mammography Principles and Procedures, the student will use reasoning skills to understand, explain, and apply the introductory physical concepts of mammography and mammography procedures.

RADI-B 4833 Mammography Clinical Practicum I (6 cr.) This is the first clinical practicum course of two semesters in mammography. In this course, students should become familiar with introductory clinical practice and begin to act as a team member in the clinical setting.

RADI-B 484 Mammography Clinical Practicum II (6 cr.) This is the second and final clinical practicum course of two semesters in mammography. In this course, students should become familiar with advanced clinical practice and begin to act as a team member in the clinical setting.

RADI-C 464 CT Principles and Procedures I (2-3 cr.) An in-depth course covering the physics and instrumentation, patient care, and CT procedures including radiation protection and safety.

RADI-R 351 Principles of Diagnostic Medical Sonography (4 cr.) The first of two semesters covering normal sonographic anatomy, sonographic appearance and common pathology of various organs as seen with ultrasound.

RADI-R 351 Principles of Diagnostic Medical Sonography (4 cr.) The first of two semesters covering normal sonographic anatomy, sonographic appearance and common pathology of various organs as seen with ultrasound.

RADI-I 464 Interventional Radiology and Cardiac Catheterization I (3 cr.) An in-depth course covering the disciplines of Interventional Radiology and Cardiac Catheterization including radiation safety practices, patient care, equipment, procedures and protocols.

RADI-I 465 Interventional Radiology and Cardiac Catheterization II (3 cr.)
The second part of an in-depth course covering the disciplines of Interventional Radiology and Cardiac Catheterization including vascular and cardiac pathology, specific imaging protocols, procedural complications and post-procedural care.

RADI-R 351 Principles of Diagnostic Medical Sonography (4 cr.) The first of two semesters covering normal sonographic anatomy, sonographic appearance and common pathology of various organs as seen with ultrasound.

RADI-R 351 Principles of Diagnostic Medical Sonography (4 cr.) The first of two semesters covering normal sonographic anatomy, sonographic appearance and common pathology of various organs as seen with ultrasound.

RADI-M 464 MRI Principles and Procedures I (3 cr.)
An in-depth course covering the physical principles and procedures of Magnetic Resonance Imaging including physics, MRI safety and pulse sequences.

RADI-RM 465 MRI Principles and Procedures II (3 cr.) The second half of an in-depth course covering the physical principles and procedures of Magnetic Resonance Imaging focusing on equipment, contrast media, and special imaging sequences.

RADI-M 484 MRI Clinical Practicum II (6 cr.) This is the second and final clinical practicum course of two semesters in MRI. In this course, students should become familiar with advanced clinical practice and begin to act as a team member in the clinical setting.

RADI-R 404 Multiplanar Anatomy (.5-4 cr.)

RADI-R 407 Seminar (1-5 cr.) Individual and group study focusing upon advances in medical imaging.

RADI-R 408 Topics: (.5-4 cr.)

RADI-R 415 Essential Radiology for the Imaging Technologist (2 cr.) Course is designed to introduce students to Medical Imaging modalities and the decision making process to determine which imaging method is appropriate for a particular disease, pathology, or injury.

RADI-R 416 Essential Radiology for the Imaging Technologist II (1 cr.) Through independent reading and case review, students will gain an understanding of current medical imaging practices basedon the latest research.

RADI-R 428 Medical Imaging Technology Review Physics (1 cr.) Review of the physical principles of radiation production and image formation for the medical imaging professional.

RADI-R 429 Magnetic Resonance Imaging Principles Review (1 cr.) Instruction into the physical principles of Magnetic Resonance Imaging and image formation.

RADI-R 438 Essential Radiology I (1 cr.) Selected topics in radiology to acquaint the nuclear medicine technology student with a broader understanding of other areas of radiology as well as a more in-depth knowledge about nuclear medicine image/data interpretation and the interconnection of the nuclear medicine with other radiology procedures.

RADI-R 451 Medical Imaging Theory (3 cr.) P: Math, Physics, RADI-R 404. Lectures on the physical principles of advanced imaging modalities, including computed tomography, magnetic resonance, ultrasound, and interventional imaging. Image evaluation of normal studies is stressed. Student presentations and journal reports are required.

RADI-R 452 Medical Imaging Applications (3 cr.)
P: RADI-R 451. Lectures on and evaluations of the computed tomographic, magnetic resonance, ultrasound, and interventional images as applied to pathologic conditions of specific body areas. Student presentations and journal reports are required.

RADI-R 453 Medical Imaging Theory II (3 cr.) Lectures, interactive modules, labs, and written material on the physical principles, anatomy/pathology, and procedures for advanced imaging modalities including computed tomography, magnetic resonance, interventional radiology and cardiac cath.

RADI-R 455 Introduction to Medical Imaging Technology Projects (2-3 cr.) Emphasizes skills needed to complete MIT Projects I and II (information gathering, computer skills and use of digital media) and provides an introduction to research practices in medical imaging.

RADI-R 456 Medical Imaging Technology Projects I (3 cr.) Lecture and independent study on a selected medical imaging topic to produce a proposal, outline, and scientific poster.

RADI-R 457 Medical Imaging Technology Projects II (3 cr.) Lecture and independent study on the selected medical imaging topic to produce a manuscript in publishable format.

RADI-R 480 Medical Imaging Technology Clinical Observation (1 cr.) Course is designed to introduce students to clinical education sites. Students rotate through a variety of sites comparing and contrasting patient populations and exam types to help them recognize and select long term clinical assignments.

RADI-R 481 Clinical Practicum: Interventional Imaging (.5-8 cr.) P: RT(R). Clinical experience in the performance of interventional imaging studies.

RADI-R 482 Clinical Practicum: Computed Tomography (.5-8 cr.) P: RADI-R 404, RT(R). Clinical experience in the performance of computed tomographic imaging studies.

RADI-R 483 Clinical Practicum: Magnetic Resonance Imaging (.5-8 cr.) P: RADI-R 404. Clinical experience in the performance of magnetic resonance imaging studies.

RADI-C 465 CT Principles and Procedures II (2-3 cr.)
This is the second course of a two-semester course in CT Principles and Procedures. The student will use reasoning skills to understand, explain, and apply the advanced physical concepts of CT and CT procedures.

RADI-M 484 MRI Clinical Practicum I (6 cr.) This is the first clinical practicum course of two semesters in MRI. In this course, students should become familiar with

introductory clinical practice and begin to act as a team member in the clinical setting.

Medical Sciences

MSCI-X 503 Problem-Based Learning in Medical Science (2 cr.) A small group, problem-based learning course designed to emphasize active, self-directed learning and application of basic biomedical science to clinical problems - Fall and Spring class.

MSCI-X 804 Cellular and Molecular Biology (3 cr.) Cellular and molecular biology that emphasizes the structural organization, biochemistry and molecular biology of cells. Includes cellular processes, development, and differentiation and their relationship to medicine.

Medicine

MED-M 505 Human Genetics and Development (2 cr.) An introduction to the genetics of human traits and inheritable diseases; normal and abnormal development of the human from embryonic life through early childhood. Open to medical students only.

MED-M 605 Introduction to Medicine 1 (10 cr.) A multidepartmental course designed to introduce clinical medicine. Includes medical history-taking and physical examination skills learned at the bedside with direct patient contact. Clinical medicine is surveyed concurrently with the emphasis on pathophysiology and diagnosis. Problem-solving skills are stressed, including synthesis and interpretation of medical data.

MED-P 610 Molecular Basis of Medicine (6 cr.) This step deals with the basic principles of biochemistry and molecular biology as they apply to medicine. Specifically, in this step, the student will gain a working knowledge of amino acids, proteins, enzymes, thermodynamics, digestion, and metabolism of carbohydrates, lipid, protein, and amino acids (both catabolic and anabolic pathways), metabolic control, lipoprotein metabolism and lipid transport, nitrogen waste disposal, heme metabolism, purine and pyrimidine metabolism, structure of nucleic acids, replication of DNA, synthesis of RNA and protein, genetic code and genetic control in eukaryotes, recombinant DNA technology, the biochemistry of vision, muscle and nerve metabolism, integration of metabolism, vitamins and nutrition, and hormone action. Offered by the Northwest Center only.

MED-P 620 Human Structure (12 cr.) Human Structure is an intensive integrated step combining cell biology, histology, gross anatomy, embryology, and radiology that is designed to acquaint the medical student with the structures of the human body from gross to subcellular. A combination of small-group, case-based sessions, supervised laboratory periods, and selected general lectures are used to instruct the students in this step. The clinical cases are designed to stimulate student-directed learning and problem solving with materials gathered from pathology, surgery, and radiology. The laboratories will offer experience in viewing normal structures from gross dissections to electron micrographs. The emphasis of the step is on gathering a general understanding of the correlations of structure with function and on the views of the body possible with the various macroscopic and microscopic imaging techniques. Offered by the Northwest Center only.

MED-P 650 Invasion and Defense (11 cr.) This interdisciplinary course deals with the nature of infectious agents and tumors and the host response to invasion and injury. Students learn the concepts of general pathology, immunology, microbiology, infectious diseases, and elements of pharmacology through discussion and problem solving of clinical cases and independent study. Offered by the Northwest Center only.

Medicine Registration

MEDC-M 700 Junior Year in Medicine (18 cr.)

MEDC-M 800 Senior Year in Medicine (16 cr.)

Nuclear Medicine Technology

RADI-R 410 Project in Nuclear Medicine Technology I (2 cr.) Introduction to science-based medical research. Basic knowledge required to become a critical consumer of medical literature, data handling and interpretation, plus application of basic medical research statistics.

RADI-R 412 Physics and Instrumentation of Nuclear Medicine I (3 cr.) An introduction to the physical disciplines of nuclear medicine. Lectures and exercises on atomic and nuclear structure, radioactive decay, radionuclide production, interaction of radiation with matter, and internal dosimetry.

RADI-R 417 Physics and Instrumentation of Nuclear Medicine II (3 cr.) A continuation of RADI R412. Lectures and exercises on the principles, operating characteristics, and quality control of radiation detection, counting, and imaging systems. Lectures and laboratory sessions emphasize the clinical utilization of nuclear counting and imaging systems, including principles of quantitative measurements.

RADI-R 421 Projects in Nuclear Medicine Technology V / Capstone Course (2 cr.)
Oral presentation of finalized research project. Demonstration of clinical and didactic knowledge obtained throughout the program with review and assessment in preparation for the national board exam. Presentation of research abstract to nuclear medicine community.

RADI-R 427 Radiopharmaceuticals (2 cr.)
Introduction to the practice of nuclear medicine radiopharmacy. Introduces students to the production, acquisition, compounding and dispensing of radiopharmaceuticals.

RADI-R 432 Application of Radionuclides I (3 cr.)
Introduction to nuclear medicine procedures. Course covers aspects of nuclear medicine procedures, including the physiological and technical portions of each type of study. Includes pathology related to procedures, processing, image analysis and the role technologists play in helping the physicians gather information for accurate diagnosis.

RADI-R 433 Application of Radionuclides II (3 cr.)
Continuation of R432 nuclear medicine procedures. Course covers aspects of nuclear medicine procedures, including the physiological and technical portions of each type of study. Includes pathology related to procedures, processing, image analysis and the role technologists play

in helping the physicians gather information for accurate diagnosis.

RADI-R 437 Radiation Protection in Nuclear Medicine (1 cr.)
Principles of radiation protection in the field of nuclear medicine and positron emission tomography (PET). General principles of radiation protection in general radiography, computed tomography (CT), and fluoroscopy are also covered.

RADI-R 445 Clinical Nuclear Medicine Practicum I (4 cr.) Practical clinical application of nuclear medicine theory.

RADI-R 446 Clinical Nuclear Medicine Practicum II (4 cr.)
Practical clinical application of nuclear medicine theory.

RADI-R 447 Clinical Nuclear Medicine Practicum III (4 cr.)
Practical clinical application of nuclear medicine theory.

RADI-R 423 Nuclear Medicine In-Service I (1 cr.)
Attend and participate in presentations of selected topics in nuclear medicine and related areas.

RADI-R 411 Project in Nuclear Medicine Technology II (2 cr.) Application of science-based research methods. Independent readings, research and written assignments in preparation for a research or literature search project in nuclear medicine.

RADI-R 413 Project in Nuclear Medicine Technology III (2 cr.) Data collection methods for research project. Independent readings, research and written assignments in preparation for a research or literature search project in nuclear medicine. Application of research with clinical course work.

RADI-R 424 Nuclear Medicine In-Service II (2 cr.)
Attend and participate in presentations of selected topics in nuclear medicine and related areas. Students will present their research abstract to the NM community and obtain DOT certification.

RADI-R 438 Emerging Technologies PET/CT (1 cr.)
Principles of radiation protection in the field of nuclear medicine and positron emission tomography (PET). General principles of radiation protection in general radiography, computed tomography (CT), and fluoroscopy are also covered.

RADI-R 420 Projects in Nuclear Medicine Technology IV (1 cr.) Scientific research paper. Independent readings, research and written assignments in preparation for a research or literature search project in nuclear medicine. A paper in published form must be written.

RADI-R 441 Nuclear Medicine Management (2 cr.)
Various topics covered to acquaint the student with a broader understanding of the responsibility of a nuclear medicine technologist in today's healthcare environment.

RADI-R 443 Clinical Nuclear Medicine I (3 cr.)
Practical clinical application of nuclear medicine theory.

RADI-R 444 Clinical Nuclear Medicine II (4 cr.)
Practical clinical application of nuclear medicine theory.

RADI-R 466 CT Principles and Procedures I (3 cr.)
An in-depth course covering the physics and instrumentation, patient care, and CT procedures including radiation protection and safety.

RADI-R 467 CT Principles and Procedures II (2 cr.)
The second half of an in-depth course covering the physical principles and procedures of CT focusing on contrast media, patient care, radiation safety and imaging procedures/protocols.

RADI-R 472 Multi-Planar Anatomy (3 cr.) An in-depth study of sectional anatomy pertinent to ultrasound, computed tomography, and magnetic resonance imaging. Standard traverse, parasaggital, and coronal planes are included, using images from all three imaging modalities. A discussion of technique, artifact, and pathology-related alterations of cross-sectional anatomic appearances included.

Other Courses

MICR-J 210 Microbiology & Immunology (4 cr.) C: Lab

MED-S 400 Service Learning in the Medical Setting for Pre-Professional Students (3 cr.) This course introduces pre-medical students to the medical setting and engages them in serving the medically underserved communities. By incorporating students in providing underserved health care prior to medical school, we hope to stimulate a lasting appreciation for care of the underserved. The course will provide the opportunity for students to work closely with Affiliate Faculty members of the Indiana University School of Medicine. Having students in the Community Health Centers will facilitate relationships between the student, the community, and the institutions (hospitals and institutions of higher learning). In addition to the much sought after exposure to practicing physicians, students will also gain leadership and communication skills. By utilizing these skills in a real life situation, full assimilation of the skills will be possible.

MED-I 200 Service Learning in the Medical Setting for Pre-Professional Students (0 cr.) This undergraduate course is associated with the Life-Health Sciences Internship program. This is a zero credit hour course offered once a year in the spring semester of the internship. Only LHSI students may register for MED-I200. Successful completion of the course is dependent on completion of at least 240 work hours over the course of the internship period and the presentation of a poster at the end of year poster session.

MBIO-M 540 Medical Microbiology/Medical Immunolgy (5 cr.)

MICR-G 901 Advanced Research (6 cr.)

MNEU-G 901 Advanced Research (6 cr.)

SMEP-M 500 State Medical Program - Municie (8-12 cr.)

SMEP-S 500 State Medical Program - South Bend (20-0 cr.)

Pathology and Laboratory Medicine

PATH-C 601 General Pathology (5 cr.)

PATH-C 603 General Pathology (6 cr.) Introduction to mechanisms of disease through demonstrations, lectures, laboratory, and conferences; emphasis on basic concepts and principles of disease processes.

PATH-C 623 General Pathology (7 cr.) An introduction to mechanisms of disease through demonstrations, lectures, laboratory, and conferences; emphasis on basic concepts and principles of disease processes.

PATH-C 643 General Pathology (4 cr.) Introduction to mechanisms of disease through demonstration, lectures, laboratory, and conferences; emphasis on basic concepts and principles of disease processes.

PATH-C 663 General Pathology (6 cr.) Introduction to mechanisms of disease through demonstrations, lectures, laboratory, and conferences; emphasis on basic concepts and principles of disease processes.

PATH-C 683 General Pathology (6 cr.) Students will be introduced to pathologic terminology and disease processes by lectures, laboratory exercises, case studies, autopsies, and medicine/pathology conferences.

PATH-C 800 Advanced Pathology (1-12 cr.) P: C603 Subject material and hours arranged to conform to needs of students.

PATH-C 859 Research in Pathology (1-12 cr.) Supervised initiation of a research project in pathology. Counseling in the completion of a thesis.

PATH-G 901 Advanced Research (6 cr.)

Other Courses

PHAR-F 605 Principles of Pharmacology I (4 cr.) P: P531-P532 or consent of instructor. Basic principles and clinical aspects of modern pharmacology presented in lectures. Physicochemical properties of drugs. Drugs that affect the autonomic nervous system. Drugs that act on cardiovascular and renal systems. Chemotherapy of cancer, infections, and parasites.

PHAR-F 624 Medical Pharmacology (6 cr.) In this course, the drugs are classified as to site and mechanism of action and representative members of each class of drugs are discussed. The emphasis is on rational clinical uses.

PHAR-F 664 Pharmacology (6 cr.) Comprehensive lectures, discussions, reviews, and laboratories with emphasis on the principles of drug action. Representative members of the most important groups of drugs are discussed in detail with regard to sites and mechanisms of action, and ‘‘dry’’ laboratories are designed to involve the student in various types of pharmacological problem-solving skills.

PHAR-F 684 Pharmacology - FWCME (6 cr.) Pathology of the organ systems will be presented by lectures, laboratory exercises, case studies, and pathology/ medicine conferences. Etiologies, morphologic, physiologic changes will be noted; course coverage will be correlated with the Introduction to Clinical Medicine course as much as possible.

PHAR-F 840 Advanced Pharmacology and Toxicology (3 cr.) Advanced studies of pharmacodynamic mechanisms in cardiovascular, central nervous system, and renal pharmacology and toxicology. Experimental design related to recent advances and current hypotheses concerning drug action and toxicity.

PHAR-G 901 Advanced Research (6 cr.)

Radiation Therapy

RAON-J 300 Simulation/Treatment Procedures (6 cr.) P: RADI R 108, RADI R 110, RADI R 112 This course consists of lecture and laboratory sessions that emphasize the clinical utilization of simulators and treatment machines. Students must demonstrate proficiency in simulation and/or the set up procedures, patient immobilization and treatment protocols.

RAON-J 301 Orientation to Radiation Oncology (4 cr.) P: R.T.(R). This course is an overview of radiation oncology and the role of radiation therapist. Presentations will orient students to the technical aspects of radiation oncology and treatment equipment, procedures, tumor pathology, and patient interactions. Student will also learn the details of block-cutting, and machine/equipment faults.

RAON-J 302 Radiation Oncology Techniques I (3 cr.) P: R.T.(R) or RADI-R 118, RAON-J 300, and RAON-J 350. This course consists of lecture and laboratory sessions presenting concepts of treatment-planning techniques of the head, pelvis, spine, lung, and brain. To include implant localization techniques.

RAON-J 303 Clinical Oncology I (3 cr.) P: R.T.(R), RADI R 118, RAON-J 300 This course examines the roles and principles of tumor pathology, surgical oncology, radiation oncology, and medical oncology. To include the characteristics, growth patterns, and treatment modalities utilized for tumors of the lung and central nervous system.

RAON-J 304 Radiation Oncology Patient Care (2 cr.) P: R.T.(R) or RADI R112 This course consists of the concepts of radiation oncology patient care, including considerations of patients’ physical and psychological condition. Students must be able to identify factors influencing patients’ general health during and following a course of radiation therapy treatment. In addition, students must be able to demonstrate knowledge of clinical lab values, management of oncologic emergencies, and knowledge of radiation induced, site specific side effects.

RAON-J 305 Clinical Dosimetry I (2 cr.) This course reviews fundamental mathematic concepts as they relate to the calculative techniques of treatment planning: hand calculations, brachytherapy, simple and complex external photon and electron treatment plans, and simple proton plans.

RAON-J 306 Clinical Dosimetry II (2 cr.) P: RAON-J 305 This course focuses on the development of computer treatment planning skills in radiation oncology. Students perfect their skills in contouring, creating isodose curves, etc.

RAON-J 307 Medical Imaging and Processing in Radiation Oncology (2 cr.) This course teaches the

fundamentals of image formation, and processing in radiation oncology.

RAON-J 350 Clinical Experience: Basic (3 cr.) P: RADI R110 and RADI R 112 This course provides supervised basic clinical education as students navigate their way into the clinical setting for the first time.

RAON-J 351 Clinical Practicum I (3 cr.) P: R.T.(R) or RAON-J 350 This course focuses on the supervised clinical application of patient positioning, immobilization, block fabrication, patient simulation techniques, treatment delivery, dosimetry, treatment planning, patient care management, and radiation protection under the direct supervision of a registered radiation therapist or equivalent.

RAON-J 400 Physics of Radiation Oncology I (2 cr.) P: R.T.(R) or RADI R241; MATH 15300 and MATH 15400 or MATH 15900; PHYS P201 or PHYS 218- This course teaches fundamental principles of the physical quantities of radiation and atomic and nuclear theory. To include discussions of radiation oncology equipment.

RAON-J 401 Physics of Radiation Oncology II (2 cr.) P: RAON-J 400 This course is a continuation of RAON-J 400 with emphasis on the interactions of ionizing radiation with matter, radiation detection and measurement devices, radiation units, equipment calibration, brachytherapy, and calculation techniques. Principles and concepts of radiation protection are discussed.

RAON-J 402 Radiation Oncology Techniques II (3 cr.) P: RAON-J 302 This course requires students to participate in lecture and laboratory sessions identifying main aspects of cancers in Radiation Oncology. Students will learn and identify the following factors of each cancer: anatomy, epidemiology, etiology, clinical presentation, detection and diagnosis, pattern of spread, staging, histology/pathology, treatment, doses, treatment side effects, and survival rates. This course will cover the cancers of the CNS system, head and neck areas, respiratory system, female and male reproductive systems, urinary systems, lymphoreticular system, and pediatric cancers.

RAON-J 403 Clinical Oncology II (3 cr.) P: R.T.(R) and RAON-J 303 or RADI R108, RADI R110, RADI R112, RADI R118, RAON-J 300, and RAON-J 303 This course examines the characteristics, growth patterns, and treatment modalities utilized for tumors of the female genital, urological, male genital, breast, head and neck, bone and soft tissue, hematopoietic, alimentary tract, lymphoreticular, a pediatric sites. Student case presentations required.

RAON-J 404 Quality Management in Radiation Oncology (3 cr.) P: RAON-J 300 or RAON-J 301, RAON-J 305, and RAON-J 350 This course emphasizes identification and application of a comprehensive quality management program in a radiation oncology facility. Includes discussion on the operations and functions of a radiation oncology facility with the emphasis on quality improvement techniques.

RAON-J 406 Radiation and Cancer Biology (2 cr.) This course emphasizes the modern principles of cellular and molecular biology as they relate to normal and cancer cell responses, both in vitro and in vivo to various radiation types, e.g. X/gamma rays neutrons, and charges particles. The students are required to discriminate between types of cellular damage caused by ionizing radiation. The additional topics include fractionated radiotherapy, tumor proliferation kinetics, radiation protection, chronic effects of radiation on human cells and body systems, principles of linear energy transfer, and relative biologic effectiveness.

RAON-J 409 Senior Project in Radiation Oncology (3 cr.) This course consists of individual research in radiation oncology. Research proposal requires the approval of the program director.

RAON-J 450 Clinical Practicum II (3 cr.) P: RAON-J 351 This course focuses on the supervised clinical application of patient positioning immobilization, block fabrication, patient simulation techniques, treatment delivery, treatment planning, patient care management, and radiation protection under the direct supervision of a registered radiation therapist.

RAON-J 451 Clinical Practicum III (2 cr.) P: RAON-J 450 This course focuses on the supervised clinical application of patient positioning immobilization, block fabrication, patient simulation techniques, treatment delivery, treatment planning, patient care management, and radiation protection under the direct supervision of a registered radiation therapist.

RAON-J 452 Clinical Practicum IV (5 cr.) P: RAON-J 451. This course focuses on the supervised clinical application of patient positioning immobilization, block fabrication, patient simulation techniques, treatment delivery, treatment planning, patient care management, and radiation protection under the direct supervision of a registered radiation therapist.

RAON-J 453 Clinical Practicum V (5 cr.) P: RAON-J 452. This course focuses on the supervised clinical application of patient positioning immobilization, block fabrication, patient simulation techniques, treatment delivery, treatment planning, patient care management, and radiation protection under the direct supervision of a registered radiation therapist.

Radiaton Oncology

RAON-D 602 Concepts for Preparation and Planning in Medical Dosimetry II (1 cr.)

RAON-D 603 Clinical Oncology and Dosimetric Considerations (1 cr.)

RAON-D 605 Medical Physics for Radiation Oncology II (2 cr.)

RAON-D 607 Clinical Practicum II – Intermediate Planning in Medical Dosimetry (4 cr.)

RAON-D 691 Clinical Rotation in Radiation Therapy Physics I (6 cr.)

RAON-D 692 Clinical Rotation in Radiation Therapy Physics II (6 cr.)

Radiography

RADI-R 108 Medical Terminology (1 cr.) Introduction to origin and derivation of medical words as well as their meaning. This course uses a self-instructional format.

RADI-R 110 Introduction to Radiography (3 cr.) Introduction to the functions and basic procedures of a diagnostic radiography department. Emphasis is placed on radiographic equipment, radiation protection, positioning terminology and procedures used on typical radiographic examinations. Includes laboratory and clinical observations.

RADI-R 112 Patient Care I (3 cr.) Introduction to health care practices in the radiology department. Provides an overview of the field of radiology, ethics, patient care, and professional standards. Includes lab.

RADI-R 114 Radiographic Procedures I (3 cr.) P: RADI-R 110 and RADI-R 112. Concepts in radiography with emphasis on the radiographic procedures used to demonstrate the skeletal system and major contrast media procedures. Includes image study.

RADI-R 115 Radiographic Procedures I Lab (1 cr.) P: or C: RADI-R 114. Practice and instruction in methods of performing radiographic examinations presented in RADI-R 114. This course includes image study.

RADI-R 118 Principles of Radiography I (4 cr.) P: MATH 153 and RADI-R 110. Basic concepts of radiation, its production, and its interactions with matter. Introduction to imaging production including digital radiography.

RADI-R 124 Radiographic Procedures II (3 cr.) P: RADI-R 114. Concepts in radiography with emphasis on radiographic procedures used for the skull, advanced orthopedics, vascular and sectional anatomy, fluoroscopy, and contrast media.

RADI-R 128 Principles of Radiography II (5 cr.) P: RADI-R 118. In-depth study of the properties that effect the quality of the radiographic image and exposure conversion.

RADI-R 119 Radiography Principles Lab I (1 cr.) C: RADI-R 151 or RADI-R 152. Supervised laboratory activities to promote understanding of physical and imaging principles needed to facilitate learning in the Basic Clinical Experience courses.

RADI-R 151 Basic Clinical Experience I (3 cr.) C: RADI-R 150. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients, while under the supervision of a registered radiologic technologist.

RADI-R 152 Basic Clinical Experience I (2 cr.) C: RADI-R 153. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients, while under the supervision of a registered radiologic technologist.

RADI-R 153 Pediatric Clinical Experience I (1 cr.) C: RADI-R 152 or RADI-R 172. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients in a pediatric practice environment, while under the supervision of a registered radiologic technologist.

RADI-R 155 Clinical Re-entry 1 (1 cr.) Clinical application of radiographic positioning, procedure, and exposure emphasizing refamiliarization with skills and knowledge needed to continue the clinical experience courses, while under the supervision of a registered radiologic technologist.

RADI-R 129 Radiography Principles Lab II (1 cr.) P: RADI-R 119 C: RADI-R 171 Supervised laboratory activities to promote understanding of physical and imaging principles needed to facilitate learning in the Basic Clinical Experience and Clinical Competency Experience courses.

RADI-R 171 Basic Clinical Experience II (3 cr.) C: RADI-R 170. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients, while under the supervision of a registered radiologic technologist.

RADI-R 172 Basic Clinical Experience II (2 cr.) C: RADI-R153 and RADI-R170. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients, while under the supervision of a registered radiologic technologist.

RADI-R 210 Radiographic Pathology (2 cr.) P: Anatomy/Physiology, RADI-R 114 and RADI-R 124. A survey of the changes that occur in the diseased state to include general concepts of disease, causes of disease, clinical symptoms and treatment, and diseases that affect specific body systems. Emphasis is placed on the imaging appearance of disease.

RADI-R 212 Patient Care II (1 cr.) P: RADI-R 112. Overview of extended patient care procedures including venipuncture, pharmacology, electrocardiography, and code-response procedures.

RADI-R 214 Radiographic Procedures III (2 cr.) P: RADI-R 124. An introductory course designed to familiarize the student with terminology, equipment, procedures and principles of various modalities in radiologic sciences. Included are magnetic resonance imaging (MRI), computed tomography (CT), ultrasound (US), mammography, nuclear medicine, radiation therapy, bone densitometry and interventional radiology (IR).

RADI-R 216 Image Evaluation (3 cr.) P: RADI-R 124. Analysis of radiographic images for accuracy, anatomical structures, and technical factors. Explore difference between unacceptable, acceptable, and optimal images. Individually critiquing images aloud in class, making the decision whether to pass or repeat images along with supporting rationale, identifying structures, and supplying an appropriate manual technique. Designed to develop a high degree of problem-solving ability as well as provide a practical image analysis reference for the senior student.

RADI-R 218 Processing Theory (1 cr.) Concepts in radiography with emphasis on the fundamentals of wet and dry processing.

RADI-R 224 Advanced Contrast Imaging (1 cr.) P: RADI-R 124. Selected topics in radiographic imaging using contrast media, with emphasis on knowledge needed for effective clinical practice.

RADI-R 226 Imaging a Diverse Population (4 cr.) P: RADI-R 124. The study of biophysical and psychosocial changes throughout the lifespan emphasizing imaging adaptations. Topics will cover age-specific considerations as well as those needed for the growing ethnically and

culturally diverse groups that present themselves for imaging studies.

RADI-R 228 Principles of Radiography III (3 cr.) P: RADI-R 128. Topics include methods of producing radiographic technical factor charts, automatic exposure controls, rare earth screen technology, digital imaging, and a cumulative examination over the principles courses.

RADI-R 238 Topics in Radiography (.5-3 cr.) P: Prerequisites may be required for topic. Selected topics in imaging. May be repeated for credit if topics differ.

RADI-R 241 Radiographic/Fluoroscopic Equipment (2 cr.) P: RADI-R 140 or PHYS-P 201 or PHYS-P 218. A detailed study of equipment used to generate an x-ray beam.

RADI-R 243 Quality Control in Radiography (2 cr.) P: RADI-R 241. A laboratory course emphasizing methods of assuring the adequate function of radiographic equipment. Major topics include: anode heel effect, inverse square law, film sensitometry, radiation intensity, and quality control testing.

RADI-R 262 Radiation Biology and Protection in Diagnostic Radiology (1 cr.) P: RADI-R 140. Study of the biological effects of ionizing radiation and the standards and methods of protection. Emphasis is placed on x-ray interactions. Also included are discussions on radiation exposure standards and radiation monitoring.

RADI-R 271 Clinical Competency Experience 1 (2-4 cr.) P: RADI-R 172. Clinical application of radiographic positioning, procedure, and exposure emphasizing adaptation of practice to specific patient needs, while under the supervision of a registered radiologic technologist.

RADI-R 272 Clinical Competency Experience 2 (2-4 cr.) P: RADI-R 271. Clinical application of radiographic positioning, procedure, and exposure emphasizing adaptation of practice to specific patient needs, while under the supervision of a registered radiologic technologist.

RADI-R 274 Experience in Imaging Modalities (2 cr.) P: RADI-R 172. Exploration and basic skill development in selected imaging modalities, including sonography, MRI, and vascular-interventional radiology, while under the supervision of a registered radiologic technologist.

RADI-R 275 Pediatric Clinical Experience II (2 cr.) Clinical application of radiographic positioning, procedure, and exposure, emphasizing adaptation of practice to specific patient needs in a pediatric practice environment, while under the supervision of a registered radiologic technologist.

RADI-R 225 Medical Ethics and Law for Imaging Professions (1-2 cr.) Advanced topics and overview of ethical and legal decision making for imaging professionals.

Respiratory Therapy

PULM-F 303 Introduction to Human Disease for Respiratory Therapists (2 cr.) This course gives respiratory therapy students a general introduction to a broad variety of human diseases. Etiology, diagnosis, and treatment will be discussed.

PULM-F 311 Cardiorespiratory Physiology (3 cr.) This course focuses on the normal anatomy and physiology of the cardiorespiratory system, including lung mechanics, ventilation, perfusion, diffusion, gas transport, and acid-base balance.

PULM-F 315 Cardiorespiratory Assessment and Patient Care (3 cr.) Basic cardiorespiratory assessment, vital signs, laboratory studies, and charting. Includes required preclinical skills and practice.

PULM-F 325 General Respiratory Care (4 cr.) This course focuses on basic respiratory therapy procedures. Physiologic applications, effects on the cardiopulmonary system, and hazards for each therapeutic procedure are discussed. Topics include physical principles, airway care, humidity and aerosol therapy, medical gas therapy, hyperinflation therapy, and chest physical therapy.

PULM-F 326 Respiratory Care Techniques I (2 cr.) C: PULM-F 325. This course focuses on the most important clinical laboratory procedures and on procedures used by the respiratory therapist. Specifically, this course instructs students in patient assessment, oxygen administration, humidity and aerosol therapy, chest physical therapy, hyperinflation therapy, and monitoring expired gas.

PULM-F 333 Cardiorespiratory Pharmacology I (2 cr.) This course provides an overview of the basics of pharmacology therapeutics, focusing on dosages and solutions and bronchodilator drugs. Indications, side effects, mechanism of action, and route of administration are discussed.

PULM-F 350 Cardiorespiratory Diseases (3 cr.) This course outlines general cardiorespiratory diseases of the adult, including acute and chronic disorders. Respiratory therapeutics applied to these diseases are discussed.

PULM-F 355 Life Support (3 cr.) This course includes care of the artificial airway, cardiovascular monitoring and supportive therapy, principles of ventilatory care, and maintenance as well as physiologic effects and complications of airway pressure therapy.

PULM-F 356 Respiratory Care Techniques II (2 cr.) C: PULM-F 355. This course focuses on the most important clinical laboratory procedures and equipment used by the respiratory therapist to support critically ill patients. Specifically, this course instructs students in mechanical ventilators, pressure and heart rate monitors, pulmonary mechanics devices, and arterial blood gas sampling.

PULM-F 371 Pulmonary Diagnostics (3 cr.) This course outlines and discusses both normal and abnormal lung volumes and capacities, mechanics of ventilation, inspiratory and expiratory flows, and diffusion of the lung. Additional specialty.

PULM-F 385 Respiratory Care Practicum I (3 cr.) This course applies cardiopulmonary assessment techniques, information gathering, and communication skills in providing general respiratory care in the clinical setting, including medical gas, humidity and aerosol therapy delivery, and treatment modalities.

PULM-F 395 Respiratory Care Practicum II (4 cr.) This clinical practicum introduces students to variations

in oxygen delivery and basic mechanical ventilation. Treatment modalities and hemodynamic monitoring on mechanically ventilated patients will be integrated.

PULM-F 405 Neonatal-Pediatric Respiratory Care (3 cr.) This course outlines fetal physiology, cardiorespiratory transition, and respiratory management of neonatal pathologies, including respiratory distress syndrome. Cardiorespiratory techniques for the pediatric patient as well as pediatric trauma and transport are reviewed.

PULM-F 420 Introduction to Research in Respiratory Care (2 cr.) This course examines research in respiratory care and applies basic statistics and concepts of research design.

PULM-F 430 Management and Leadership for Respiratory Care (3 cr.) Specific theory and practice applied to directing and managing a respiratory therapy department, including the managerial functions of budgeting, controlling, organization, planning, staffing, and coordinating. Leadership and skills pertinent to these functions as well as effective communication and professionalism are included.

PULM-F 440 Advanced Cardiac Life Support (2 cr.) This course introduces students to the didactic and technical skills needed for successful proficiency of Advanced Cardiac Life Support standards as set forth by the American Heart Association.

PULM-F 444 Cardiorespiratory Pharmacology II (2 cr.) P: PULM-F 333. An overview of pharmacologic agents and their effect on the various body systems. Drug effects on the respiratory, circulatory, and nervous systems are emphasized.

PULM-F 445 Seminar in Cardiorespiratory Care (1-5 cr.) Seminar is designed to meet the specialty selected by the student. Students may repeat this course with a new specialty area requested. Each student is required to take a minimum of one hour and a maximum of five hours.

PULM-F 451 Cardiorespiratory Monitoring and Special Techniques (3 cr.) This course reviews electrocardiograms, intracranial pressure monitoring, capnography, and pulmonary artery monitoring techniques. Case studies emphasizing these special procedures are presented.

PULM-F 456 Respiratory Care Practicum III (6 cr.) This course allows students to apply advanced patient assessment techniques, information gathering skills, and communication and leadership skills in the neonatal/pediatric and adult critical care clinical settings.

PULM-F 461 Pulmonary Rehabilitation and Geriatrics (3 cr.) This course gives an overview of rehabilitation therapies and techniques applicable to chronic lung disease, as well as respiratory therapy home care. Basic concepts of gerontology and geriatrics are presented.

PULM-F 480 Patient Education Techniques for Respiratory Therapists (3 cr.) Education techniques for patients and families dealing with chronic respiratory disease. Topics include asthma, chronic obstructive pulmonary disease, and smoking cessation education. Assessment of learning readiness, reading levels, and patient comprehension will be addressed.

PULM-F 485 Respiratory Care Practicum IV (6 cr.) Students will manage patients in critical care settings with emphasis on cardiopulmonary assessment and monitoring. They will participate in pulmonary rehabilitation, home care, advanced cardiac life support, pulmonary functions, polysomnography, and other special procedures.

PULM-F 410 Independent Study/Respiratory Therapy (2 cr.) An opportunity for the student of respiratory therapy to identify a relevant area of concern within the field and to develop a tangible solution to or outcome of the concern. Reports and discussion by the students and faculty.