

INDIANA UNIVERSITY SCHOOL OF MEDICINE

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Indiana University School of Medicine

Overview

The School of Medicine is responsible for providing medical education within the state of Indiana. As part of a major university, it accepts and fulfills five crucial responsibilities: (1) it provides its students with the opportunity to acquire a sound basic education in medicine and fosters the development of lifelong habits of scholarship and service; (2) it advances knowledge through research in biomedical studies and studies related to the cultural and behavioral aspects of medicine and the delivery of health care; (3) it provides graduate education in order to produce practitioners, teachers, and investigators through clinical residency programs and advanced degree programs in the basic medical sciences; (4) it offers continuing education programs aimed at maintaining and improving the competence of those professionals engaged in patient care; and (5) it provides multiple services to the people of Indiana in all areas of the medical sciences and health care.

History

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 of all medical schools in the state within Indiana University in 1908, the General Assembly of the State of Indiana, in 1909, mandated that Indiana University assume the responsibility for medical education in the state. Initially, students had the opportunity of taking the first two years of their medical school work at either Bloomington or Indianapolis. In 1912 all students entered through the Bloomington program and moved to Indianapolis for their second-, third-, and fourth-year courses. This system remained in effect until 1958, when the work of the Bloomington division was transferred to Indianapolis. Excellent facilities for the teaching of the basic medical sciences and a strong nucleus of basic science faculty members remained in Bloomington. Consequently, in 1959 an experimental program of medical education was started in Bloomington in cooperation with the College of Arts and Sciences and the Graduate School. This program, the Medical Sciences Program, included studies that could lead to the combined M.D./M.S. and M.D./Ph.D. degrees.

In 1965 a School of Medicine faculty committee recommended the adoption of a comprehensive plan for medical education throughout the state of Indiana. The plan involved the use of regional facilities in addition to those of the Medical Center in Indianapolis. The plan would coordinate and utilize elective programs in community hospitals, preceptorships with practicing physicians, internship and residency programs, and continuing medical education programs throughout the state.

The plan also resulted in the formation, within existing educational institutions, of "centers for medical education" for teaching basic medical science courses to first-year medical students. In 1971 the General Assembly of the State of Indiana unanimously authorized legislation establishing the Indiana Statewide Medical Education System. This legislation mandated that the Indiana University School of Medicine be responsible for selection, admission, and assignment of students, for curricular development, and for evaluation and accreditation of the system. Further development of the Indiana Statewide Medical Education System was approved in the 1979 Indiana General Assembly. Approval for planning and funding for a second year of medical study at each of the centers for medical education was passed, and second-year students were first appointed to all centers except Fort Wayne in the fall 1980 semester. Funding for second-year students at the Fort Wayne campus began in fall 1990. The School of Medicine currently has eight centers for medical education, located in Bloomington, Evansville, Fort Wayne, Gary, Muncie, South Bend, Terre Haute, and West Lafayette.

Facilities

The Indiana University Medical Center (IUMC) campus covers some 85 acres within one mile of the center of Indianapolis. Half of the first- and second-year classes are on the IUMC campus; the other half are at the centers for medical education. The School of Medicine's enrollment in 2002–2003 consisted of nearly 1,100 M.D. students, 186 Ph.D. students, 120 M.S. students, 90 M.P.H. students, and 45 M.D./Ph.D. students. In addition to opportunities at the centers for medical education, M.D. students may participate in clinical and elective rotations in physician offices and hospitals throughout the state and nation. Students may study or serve abroad during their medical school careers.

The IUMC campus includes Fesler Hall, Van Nuys Medical Sciences Building, Indiana Cancer Pavilion, IU Cancer Research Institute, the Rotary Building, and Emerson Hall. The William H. Coleman Hospital, Robert W. Long Hospital, and the Willis D. Gatch Clinical Building have been renovated to provide research and administrative offices at IUSM. The construction of a new research building began in the 2000–2001 academic year, and yet another was planned.

Hospitals that are staffed by faculty and provide residency training programs include Wishard Memorial Hospital (a city–county hospital recently listed among the top 100 U.S. public hospitals), Roudebush VA Medical Center, Riley Hospital for Children, Indiana University Hospital and Outpatient Center, and LaRue Carter Psychiatric Hospital (state owned—about five minutes from campus). Riley and IU Hospital separated from the School of Medicine in 1997 to join Methodist Hospital of Indiana in forming Clarian Health Partners. Clarian Health is committed to supporting the school's mission of advancing education, research, and patient care. Located approximately two miles from IUMC, Methodist Hospital provides additional significant educational opportunities to IU students and residents.

Clarian Health's hospitals—Riley Hospital for Children, IU Hospital, and Methodist Hospital of Indiana—currently record approximately one million in- and out-patient visits per year. The affiliated hospitals—Wishard, Roudebush, and LaRue Carter—together handle another 1 million patient visits each year. This enormous patient base provides a broad range of superb clinical educational opportunities. The hospitals host 71 residency and fellowship programs with 992 residents and fellows, and provide clinical experiences in both inpatient and outpatient facilities to second- through fourth-year students. IUSM's nearly 800 teaching faculty members staff all the hospitals. In addition, the hospitals host educational programs for nursing, dentistry, and allied health sciences students as well as Purdue University pharmacy doctoral students.

An additional undergraduate course in microbiology is taught by the School of Medicine:

MICR J210 Microbiology and Immunology (4 cr.) P: N261, C101-C102, and N217, or equivalent. For prenursing, health professions, and dental hygiene students; others by consent of instructor. Consideration of immunology and host-defense mechanisms, and pathogenic bacteria, viruses, fungi, and parasites in human disease. Laboratory exercises include microbial biology, microscopy, asepsis, pure culture, identification, antimicrobial agents, viral hemagglutination, representative immunological reactions. There are 3 hours of lecture and 2 hours of laboratory exercises each week in a 15-week course.

Health Professions Programs

Overview and Directory

The Indiana University School of Medicine Health Professions Programs offer degrees and course work in emergency medical services, clinical laboratory sciences, cytotechnology, histotechnology, medical imaging technology, nuclear medicine technology, radiation therapy, radiography, and respiratory therapy. These programs are housed within appropriate clinical departments in the School of Medicine but are collectively called the Health Professions Programs (HPP). Other degrees in the health professions are offered on the IUPUI campus through the School of Dentistry, School of Nursing, and the School of Health and Rehabilitation Sciences. Related degree programs are also found on the Indiana University regional campuses in Gary (Northwest), South Bend, Fort Wayne (IPFW), Kokomo, and New Albany (Southeast).

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Cytotechnology (B.S.)

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Department of Radiation Oncology**Radiation Therapy (B.S.)**

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Department of Radiology**Medical Imaging Technology (B.S.)**

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Nuclear Medicine Technology (B.S.)

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Radiography (A.S.)

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Division of Pulmonary and Critical Care Medicine**Respiratory Therapy (B.S.)**

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Purpose

The Indiana University School of Medicine Health Professions Programs (HPP) are charged with providing undergraduate health professions education on the Indiana University-Purdue University campus in Indianapolis (IUPUI). 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 Indiana University School of Medicine Health Professions Programs are committed to 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 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 believes 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. It is believed 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 School of Medicine Health Professions Programs are fully qualified in their fields of expertise and hold appropriate degrees and certification or licensure. In implementing the objectives of the HPP, 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 HPP 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 HPP vision, mission, objectives, policies, and procedures are derived.

Vision

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

Mission

The School of Medicine Health Professions Programs (HPP) have a long tradition of academic excellence. The major purpose of the HPP is to provide quality degree programs in the health professions to meet the needs of the people of the state of Indiana. In fulfilling its fundamental purpose, the HPP 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 for 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 or in the brochures produced by individual programs. Please see the appropriate Web site or contact individual programs for further information.

History of Current Degree Programs

All School of Medicine Health Professions Programs were formerly part of the School of Allied Health Sciences. On July 1, 2002, nine programs were moved to the School of Medicine as part of a restructuring of Allied Health to move it toward a graduate school model. Through the Health Professions Programs, the School of Medicine will continue to offer undergraduate degrees and certificates.

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 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.

Accreditation

The School of Medicine Health Professions Programs share with the other schools of the university the accreditation accorded Indiana University as a member of the North Central Association of Colleges and Schools.

In addition, the professional programs are individually accredited by appropriate governing agencies within the discipline. See program-specific sections.

Preadmission Status

Enrollment at Indiana University does not guarantee admission to any of the health professions programs. To be eligible for admission to one of the health professions programs, students must adhere to the academic regulations of the academic unit in which they are enrolled and meet HPP and individual program preadmission requirements as stipulated in the general education and 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 School of Medicine Health Professions Programs as a preprofessional student; however, this status is for academic advising purposes only and in no way influences admittance into a professional program.

Change of Educational Objective for Preprofessional Students

Changing one's educational objective to a health professions program 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 School of Medicine, or other Indiana University schools or divisions must follow that academic unit's procedures for changing the educational objective. All students must meet HPP and individual program admission requirements in order to be admitted to a professional program.

Admission Policies

The admission policies of individual programs within the School of Medicine Health Professions Programs comply with the following standards:

Prerequisite Course Work Applicants must complete prerequisite courses at an accredited high school (or by GED equivalent), college, or university. Individual programs determine the specific courses and the minimum grade that must be achieved in any course (see specific program information); therefore, program-specific requirements may differ. The completion of a prerequisite course with a Pass/Fail grade must be approved by each 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 class entering the professional program. Applicants should read the "Admission Policies" and "Program Descriptions" in the School of Medicine sections of this bulletin for specific entry-level requirements.

Grade Requirements Without exception, applicants to a degree program must have a cumulative grade point average of at least 2.0 on a 4.0 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 2.0 on a 4.0 scale. Some programs also use a component of the overall grade point average (for example, math/science grade point average). See specific program information. Only completed course work and the resultant grade point average are evaluated. In evaluating the high school record of applicants to an associate degree program, only academic course work will be used in calculating the admission grade point average. 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 an HPP program. Students are placed on probation within the School of Medicine Health Professions Programs when the cumulative and/or most recently completed semester grade point average falls below 2.0 on a 4.0 scale. The applicant must also maintain the minimum grade point average as established by the program. The applicant's grade point average will be the major consideration (51 percent or greater) for admission. (See specific program information.)

Repeated Courses Applicants whose cumulative grade point average is at least 2.0 on a 4.0 scale and who have repeated courses may petition to have their *admission* grade point average recalculated. The recalculation will use the most recent grade of the repeated course. 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 toward the 15 credit hours. 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 taking of the course must be taken in the fall of 1996 or later.

Academic Bankruptcy Applicants whose grade point average is at least 2.0 on a 4.0 scale may petition the program for up to one year (fall, spring, and summer) of academic bankruptcy based on compelling nonacademic reasons. The bankrupted semesters 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. The petition must be attached to the application.

Fresh Start The Health Professions Programs, for the purposes of selecting candidates for its various undergraduate programs, will allow an applicant to appeal to the program's admissions committee for a fresh start that allows an "academic forgiveness" for the early portion of the student's academic pursuits. Students must request a fresh start at the time of program application.

Fresh start will eliminate, during the forgiveness period, all courses and grades earned by the applicant for the purpose of calculating the HPP admission grade point average. Only grades from courses completed after the fresh start period will be considered in admission calculations. No course taken during this fresh start period may be used for the fulfillment of any prerequisite or graduation requirement.

The forgiveness period begins with the applicant's first academic enrollment period (at any college/university) and ends on a date designated by the applicant but no less than four calendar years for baccalaureate degree programs (two calendar years for associate degree programs) before the program's starting date. To invoke this policy, the student must meet the following conditions:

1. have a 2.0 grade point average (on a 4.0 scale), including all course work taken during the requested forgiveness period;
2. complete a minimum of 24 credit hours for bachelor's degree programs (12 credit hours for associate degree programs) of graded course work after the forgiveness period; and
3. meet all other program-specific admission requirements.

The granting of a fresh start by a program does not alter the student's official academic record. Students must meet all minimum degree requirements and may invoke this policy only one time. The petition for fresh start must be attached to the application.

Credit by Examination Applicants to any of the Indiana University School of Medicine Health Professions programs who have received "credit by examination" 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 IUPUI, "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.

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.

Technical Standards for Admission and Retention

Since a degree in one of the health professions disciplines 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, which all applicants/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 office.

Preference to In-State Residents Preference is given to applicants who are Indiana residents and to applicants who complete the majority of applicable course work at a public college or university in Indiana.

Equal Opportunity/Affirmative Action Policy Indiana University pledges to continue its commitment to the achievement of equal opportunity within the university and throughout American society. In this regard, Indiana University will recruit, hire, promote, educate, and provide services to persons based upon their individual qualifications. Indiana University prohibits discrimination based on arbitrary consideration of such characteristics as age, color, disability, ethnicity, gender, marital status, national origin, race, religion, sexual orientation, or veteran status. 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 Vietnam-era veterans. An office on each campus monitors the university's

policies and assists individuals who have questions or problems related to discrimination.

Policy Changes Policies concerning the minimum grade point average for admission consideration are subject to change. Changes for beginning freshmen become effective the semester following the announcement of the decision to the university counselors and other constituencies. Changes in prerequisite courses or the minimum grade required in a prerequisite course will be applied as follows for continuing students:

1. Applicants who have taken the course before the change and who meet the old requirement will have satisfactorily completed the requirement.
2. Applicants who have taken the course before the change and who do not meet the old requirement must complete the course under the new requirements.
3. Applicants enrolled in the course at the time of the change will be permitted to meet the old requirements.
4. Applicants who have not taken the course before the change will have to meet the new requirements.

Admission Procedures

1. In addition to the general admission requirements, individuals must read the program-specific sections in the bulletin for additional admission requirements and deadlines.
2. Individuals seeking admission to a professional program must submit a complete School of Medicine Health Professions Programs (HPP) application prior to the 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.
3. Applicants who are not Indiana University students must also file an Indiana University application and pay the application fee prior to the program application deadline. Applications for admission to Indiana University–Purdue University Indianapolis can be obtained from the IUPUI Office of Admissions at (317) 274-4591 or apply@iupui.edu. This application process can also be completed online at enroll.iupui.edu.
4. 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 written notification of their admission status.
5. Applicants may appeal any admission decision except the requirement of a grade point average of a cumulative 2.00 on a 4.00 scale. Copies of the policies and procedures governing the appeals process are available on request from the HPP office.
6. Individuals interested in being admitted to one of the school's programs should contact the program of interest annually for an update of admission criteria. For more information visit the

admissions section of the school's Web site at msa.iusm.iu.edu/hpp/admissions/.

7. The HPP 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 deadlines for submission.
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.
10. A student whose name appears on the state of Indiana's Sex Offenders Registry will not be allowed to pursue admission to any program in the School of Medicine Health Professions Programs.
11. Grades earned in remedial courses may be utilized differently by programs to calculate the competitive grade point average. See the program-specific sections.

Transfer Credit

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

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 (2.0) or above will be considered for transfer. The university does not accept the transference 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.

Correspondence Courses

All credit to be applied to an HPP degree earned through IU's Independent Study Program, correspondence study, or other nontraditional methods must be validated and approved by the faculty of the program to which the student is applying. The School of Medicine Health Professions Programs retains the right to determine the acceptability of transfer credit to meet degree requirements.

Undergraduate 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 HPP 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. (Exception: State rules require students in paramedic science to complete the professional program in two years.)

The professional program's 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 dean of the School of Medicine Health Professions Programs 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.

General Undergraduate Requirements

Minimum Degree Requirements

1. Based upon earned Indiana University credits, a minimum cumulative grade point average of 2.0 must be maintained.
2. A minimum of 30 credit hours of program or program-related course work must be completed in residence on the Indiana University campus at which the degree is awarded.
3. Additional general requirements must be completed for the bachelor's degree or associate degree as listed below:

Bachelor's Degree

- a. Minimum of 122 credit hours.
- b. Health Professions Programs' baccalaureate degree general education requirements.
- c. Minimum of 30 credit hours in courses at the 300-400 (junior-senior) level.

Associate Degree

- a. Minimum of 60 credit hours.
- b. Health Professions Programs' associate degree general education requirements.

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.

During the fall semester before the graduation year, the student is responsible for submitting an intent-to-graduate form, which indicates that the student plans to complete all requirements for the appropriate degree.

Work for a degree must be completed within five years from the time the student first enrolls in the professional program. (Exception: State rules require students in paramedic science to complete the professional program in two years.) 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 exercises are held only in May.

Basic General Education Areas

A.S. Degree

Written Communication, one course
Verbal Communication, one course

At least one course from any two of the following categories:

College-level Mathematics
Social-Behavioral Sciences

Basic Life-Physical Sciences
Humanities

(Classical studies, literature, English, folklore, foreign language, history, journalism, philosophy, religion, speech communication, minority studies, visual and performing arts)

B.S. Degree

Written Communication, three courses
(Two prerequisites: one in professional curriculum. See program section for specific content emphasis.)

Verbal Communication, one course
Humanities, one course

(Classical studies, literature, English, folklore, foreign language, history, journalism, philosophy, religion, speech communication, minority studies, visual and performing arts)

College-level Mathematics, one course
Social-Behavioral Sciences, two courses
Basic Life-Physical Sciences, two courses

In addition to the above general education 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.

Program Prerequisites

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

Professional Program Requirements

An outline of the professional program is contained in the program-specific information in this bulletin.

Academic Regulations

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

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

*In addition to the specific text, the Health Professions Programs follow the Academic Policies and Procedures that are found at the beginning of this bulletin. Applicants/students should be familiar with the IUPUI Academic Policies and Procedures.

Grade Point Average*

R Grade, Deferred*

Pass/Fail* HPP 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.

Satisfactory/Fail*

Incompletes*

Special Credit Policy* The Indiana University School of Medicine 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 health profession represented in the HPP. The mechanisms by which a student may be awarded credit include credit by credentials, credit by experience, and credit by examination. Each program has policies that define how these mechanisms apply to a student seeking credit from that program. Students may obtain a copy of the HPP's *Special Credit Policy and Procedure* by contacting any of the health professions programs administrative offices.

Dropped or Added Courses* Students who alter their original class schedule, whether by personal incentive or university directive, must do so officially by filing the appropriate forms with the registrar. 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* A double major does not exist in the School of Medicine Health Professions Programs, and second major options have not been established between the HPP 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 a degree from the School of Medicine Health Professions Programs are required to complete the professional component in sequence with their class of admission.

Grade Replacement Policy*

Remedial Courses Generally, remedial and refresher courses do not satisfy any course requirement for any health professions programs degree. Contact the program for further information.

Academic Policies

Students in Good Standing Students must maintain a minimum cumulative grade point average of 2.0 (C) and a minimum grade point average of 2.0 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 HPP, 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 and spring semester and 6 credit hours each summer I and II. The maximum load is 18 credit hours. 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 3.0 (B) average or have earned a 3.0 (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 2.0 (C) cumulative and/or semester grade point average. Individual programs may have additional academic and/or 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 upon entering the program. 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 of Medicine 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 HPP. 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 of Medicine dean or the dean's designee. A student who has been dismissed from the HPP 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 HPP's Advisory Committee for action.

Academic Standards A student may be dismissed from the School of Medicine Health Professions Programs 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 2.0 (C) grade point average for two consecutive academic sessions, has a cumulative grade point average below 2.0 (C) for two consecutive semesters, or fails to earn higher than a 1.0 (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 not to be making satisfactory 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 HPP 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 of Medicine Health Professions Programs. 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 HPP and program.

Other Withdrawal A student who withdraws without arranging in writing for a continuation agreement with the program director, or fails to enroll in any semester, will not be allowed further enrollments in the HPP 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 as 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.

Honors

The School of Medicine Health Professions Programs offer the following honors to recognize superior student performances.

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 within the highest 10 percent of their graduating class. The determination of eligibility for graduation with academic distinction will be made by the School of Medicine Health Professions Programs 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).
2. If the 10 percent determination of any class results in a fractional value, the number will be rounded upward (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 upon 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 dean of the School of Medicine Health Professions Programs or the dean's designee for consideration.

Dean's List Each semester, students who excel academically have the privilege of being listed on the School of Medicine Health 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.

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

IUPUI Honors Degree

Qualified students at IUPUI may work toward the General Honors Degree, which can be earned at the baccalaureate or associate degree level.

At the baccalaureate level, the student must fulfill both general and departmental requirements. Minimum requirements for an honors degree are 24 hours of honors credit, at least 6 of which are outside the major. A student passing in an honors course will receive credit toward graduation; however, only grades of A or B count for honors credit. There is a grade point average requirement of 3.30 overall and 3.50 for honors courses.

At the associate level, students must complete all regular associate degree requirements. In addition, they must complete a minimum of 12 credit hours in honors work of which no more than 3 may be in skills courses. In their required courses, they must include 3 credit hours (usually honors courses) outside the department or school in which they are majoring. Students must earn a grade point average of 3.30 overall and 3.50 for honors work.

Students in the School of Medicine Health Professions Programs who would like to pursue courses under the IUPUI Honors Program should consult with program faculty regarding the availability of such courses within the particular program of interest.

Student Rights and 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 additional School of Medicine Health Professions Programs statements, which 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.*

Appeals The School of Medicine Health Professions Programs abides by the appeals procedures discussed in the *Indiana University Code of Student Rights, Responsibilities, and Conduct*. Students may obtain a copy of the HPP *Appeals Policy and Procedure* from any of the program's administrative offices.

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

Cheating and Plagiarism 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. Individuals must remain active in avoiding violation of academic ethics.

Cheating Dishonesty of any kind with respect to examinations, course assignments, alteration of records, or illegal possession of examination questions shall be considered cheating.

It is the responsibility of the student not only to abstain from cheating but, in addition, to guard against making it possible for others to cheat. Any student who helps another student to cheat is as guilty of cheating as the student assisted. Students should also do everything possible to induce respect for the examination process and for honesty in the performance of assigned tasks in or out of class.

Plagiarism Honesty requires that any ideas or materials taken from another source for either written or oral use must be fully acknowledged. Offering the work of someone else as one's own is plagiarism. The language or ideas thus taken from another may range from isolated formulas, sentences, or paragraphs to entire articles copied from books, periodicals, speeches, or the writings of other students. The offering of materials assembled or collected by others in the form of projects or collections without acknowledgment also is

considered plagiarism. Any student who fails to give credit for ideas or materials that are taken from another source is guilty of plagiarism.

Clinical Affiliations Clinical affiliations (fieldwork experiences) are required in most School of Medicine Health Professions 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 and to the parents if the student is under 21 and 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*.

Degree Applications Each fall, 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 changes in the anticipated date of degree completion occur, 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.

Costs Students are responsible for the following costs:

Fees and Tuition Fees and tuition are established annually by the Trustees of Indiana University.

Books and Supplies Books and supplies are determined by the program.

Uniforms 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.

Transportation Students are responsible for travel and lodging costs associated with clinical/fieldwork experiences.

While tuition, fees, and other related expenses change each year, the estimated annual cost associated with matriculating in one of the undergraduate professional programs for the 2003-2004 academic year ranged from \$5,750 to \$7,800 for students continuing in the IU system and \$6,550 to \$8,800 for new matriculants. This estimate does not include living allowances. Contact the program of interest for a current cost sheet.

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 Before the beginning of the professional program, students are required to demonstrate proof of immunization for tetanus and diphtheria, rubella, rubeola (measles), mumps, varicella (chicken pox), and hepatitis. All students must have a PPD tuberculin skin test within the last three months. Students may be required to complete a physical examination (see program specific requirements). All students must show proof of health insurance before beginning the professional program.

International Students Foreign nationals enrolled in the HPP are subject to the same rights and responsibilities as all other students. International students should consult the IUPUI Office for International Affairs. A processing fee may be charged to entering students.

Orientation School of Medicine Health Professions Programs require students to attend orientation programs before the beginning of the professional courses. Students are responsible for attending these sessions and for the program-specific policies and standards distributed and discussed at the sessions.

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 filing the necessary Student Record Change form with the School of Medicine Health Professions Programs in the Medical Science Building, MS 158 as soon as possible following a change of name or permanent address.

Credentials/Licensure

Students completing any of the professional programs are qualified to sit for the appropriate licensure and/or credentialing examinations. Contact the program director for further information.

Clinical Laboratory Science

The educational program in clinical laboratory science is located on the Indiana University–Purdue University Indianapolis campus, Indiana University Medical Center.

Mission Statement The mission of the Clinical Laboratory Science Program at Indiana University–Purdue University Indianapolis is to provide a quality education in the knowledge, skills, and professional attitudes required to follow good laboratory practice in providing quality testing for the diagnosis, monitoring, and treatment of disease.

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

- engage in good laboratory practice,
- participate as an effective member of the health care team,
- successfully complete national certification examinations, and
- value active participation in professional organizations.

To accomplish these goals, the program faculty fosters the development of critical thinking and life-long learning skills as well as evaluates overall program effectiveness through outcomes assessment.

Description of the Profession Clinical laboratory science is a diverse, science-based profession aimed at accurate performance of clinical 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 clinical 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 susceptibilities
- Preparation of blood components for patient therapy
- Evaluation of new techniques, procedures, and instruments

These laboratory personnel 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.

Clinical 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 clinical laboratory science program and have a baccalaureate degree are eligible to take national certification examinations. Nationally recognized certification is a requirement for employment in many settings.

Credentials Required to Practice MT(ASCP), Medical Technologist or CLS(NCA), Clinical 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.

Bachelor of Science in Clinical Laboratory Science at Indiana University–Purdue University Indianapolis

Medical Director: Professor Eble

Program Director: Associate Professor Kasper

Professors: Allen, Davis, Leland, Ryder

Associate Professors: Baenziger, Marler, Rodak

EDUCATIONAL PROGRAM

Length of Program Clinical laboratory science is a four-year baccalaureate degree program that is typically full-time days; however, some part-time day positions are available. The program is structured in a 3 + 1 arrangement in which three years are spent in regular college courses in order to complete prerequisite courses, and the fourth year is the senior/professional year. The professional year includes both didactic and supervised clinical education experiences.

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

Description of Program Facilities The Clinical Laboratory Science Program has program offices, a classroom, and a student laboratory located on the fourth floor of Fesler Hall.

Location of Clinical Education Sites Facilities utilized for clinical experiences include University Hospital, Riley Hospital, Wishard Memorial Hospital, and Richard Roudebush Veterans Administration Medical Center.

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

Accreditation The Clinical Laboratory Science Program at Indiana University–Purdue University Indianapolis is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences

8410 West Bryn Mawr Avenue
Suite 670
Chicago, IL 60631
Phone (773) 714-8880

ADMISSION

General Information

Students accepted into the program must complete 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 Cumulative and science/math grade point average, essay, interview, and motivation factors

Class Size 24 students

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 Clinical Laboratory Science Program at IUPUI.

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

Total Number of Prerequisite Credit Hours 90

Distribution of Credit Hours in Specific Hours

Applicants must complete at least 18 credit hours in the biological sciences and 18 credit hours in chemistry. See prerequisite list.

Limitations of Course Work Courses in chemistry (upper level), microbiology, and immunology must have been completed within the previous six years.

Minimum Cumulative Grade Point Average 2.5 on a 4.0 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 2.5 on a 4.0 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.

Minimum Grade in a Stated Prerequisite Course C (2.0 on a 4.0 scale) in all required courses.

Interview Applicants must complete the interview process. Interviews are scheduled between November and January.

Technical Standards See Health Professions Programs policy.

Indiana Residents Preference Policy See Health Professions Programs policy.

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

CURRICULUM

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. Prerequisites may be taken at any accredited college or university. The code "G" indicates a course that meets the school's general-education requirements.

Written communication (G)	2 courses
Verbal communications (G)	3 credits
Humanities (G)	3 credits
Social/Behavioral science (G)	6 credits

Biological Sciences Applicant must complete, by entry date, at least 18 credit hours or the equivalent of biology, to include the following courses:

Introductory biology (G)
Microbiology (with Lab)
Genetics
Human physiology
Immunology

Chemistry Applicant must complete, by entry date, at least 18 credit hours or the equivalent of chemistry, to include the following courses:

Qualitative (with lab) (G)
Quantitative (with lab)
Organic I (with lab)
Advanced chemistry elective

Suggested Chemistry Electives: Organic II, biochemistry, analytical chemistry

Mathematics Applicant must complete, by entry date, the following courses:

Mathematics (algebra and trigonometry or higher content) (G)
Statistics

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

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

Freshman

Fall

Elementary Composition I3 cr.
Algebra and Trigonometry3 cr.
Biology—Plants5 cr.
Principles of Chemistry I (with lab)5 cr.
Total16 cr.

Spring

Speech Communication or
Interpersonal Communication3 cr.
Algebra and Trigonometry3 cr.
Biology—Animals5 cr.
Principles of Chemistry II (with lab)5 cr.
Total16 cr.

Sophomore

Fall

Organic Chemistry I3 cr.
Organic Chemistry I Lab2 cr.
Human Physiology5 cr.
Electives6 cr.
Total16 cr.

Spring

Microbiology (with lab)3–4 cr.
Chemistry elective3 cr.
Sociology3 cr.
Humanities elective3 cr.
Elective3 cr.
Total15–16 cr.

Junior

Fall

Immunology3 cr.
Genetics3 cr.
Electives6 cr.
Total12 cr.

Spring

Statistics3 cr.
Psychology3 cr.
Written Communication II3 cr.
Electives6 cr.
Total15 cr.

Professional Program

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

Fall

Urine Analysis PATH C4102 cr.
Diagnostic Medical Microbiology PATH C4114 cr.
Diagnostic Microbiology Laboratory PATH C4212 cr.
Serology PATH C4211 cr.
Serology Laboratory PATH C4291 cr.
Principles of Immunohematology PATH C4081 cr.
Techniques in Immunohematology PATH C4281 cr.
Hematology PATH C4073 cr.
Hematologic Techniques and Procedures
PATH C4273 cr.
Total18 cr.

Spring

Clinical Chemistry PATH C4064 cr.
Clinical Chemistry Instrumentation and
Methodologies PATH C4262 cr.
Mycology/Parasitology PATH 4202 cr.
Hemostasis PATH C4041 cr.
General Externship I PATH C4012 cr.
General Externship II PATH C4022 cr.
Total13 cr.

Summer Session I

General Externship III PATH C4032 cr.
General Externship IV PATH C4052 cr.
Topics in Medical Technology PATH C4123 cr.
Total7 cr.

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

Awards Based on academic performance, the program faculty will recommend students for degrees awarded with distinction in accordance with the school's honors criteria. The program recognizes one superior student meeting specific academic performance criteria for the senior/clinical year with the Clinical Laboratory Science Academic Achievement Award.

Graduation Requirements Satisfactory completion of 128 credit hours to include 90 credit hours of prerequisite and general-education courses and 38 credits of professional courses. All course work must be completed in compliance with the program's and school's academic and professional policies.

For further information, contact:

Professor Linda Kasper, Director of the Clinical Laboratory Science Program
Fesler Hall 409
1120 W. South Drive
Indianapolis, IN 46202-5113
Phone: (317) 274-1264
Fax: (317) 278-0643
E-mail: lmkasper@iupui.edu

Courses in Clinical Laboratory Science

"P" refers to a course prerequisite and "C" to a course that must be taken concurrently.

PATH C401 General Externship I (2 cr.) P: C406 and C426. Supervised clinical experience in clinical chemistry. Student rotates through various areas of clinical chemistry.

PATH C402 General Externship II (2 cr.)

P: C404, C407, C410. Supervised clinical experience in clinical hematology. Student rotates through various areas of clinical hematology, coagulation, and urinalysis.

PATH C403 General Externship III (2 cr.)

P: C409, C411, C420, C421, and C429. Supervised clinical experience in clinical microbiology. Student rotates through various areas of microbiology, serology, virology, mycology, and parasitology.

PATH C404 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 C405 General Externship IV (2 cr.)

P: C408 and C428. 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 C406 Clinical Chemistry (4 cr.)

C: C426. 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 C407 Hematology (3 cr.)

C: C427. 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 C408 Principles of Immunohematology (1 cr.)

C: C428. 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 C409 Serology (1 cr.) C: C429. 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 C410 Urine Analysis (2 cr.) Routine urine examination and special tests; laboratory and special lectures.

PATH C411 Diagnostic Medical Microbiology (4 cr.) P: C421. 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 C412 Topics in Medical Technology (3 cr.) Selected topics in medical technology covered by lecture and clinical experience.

PATH C413 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 C420 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 C421 Diagnostic Microbiology Laboratory (2 cr.) C: C411. Laboratory experience in the performance of skills and procedures needed for the isolation, identification, and susceptibility testing of clinically significant microorganisms.

PATH C426 Clinical Chemistry Instrumentation and Methodologies (2 cr.) C: C406. 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 C427 Hematologic Techniques and Procedures (3 cr.) C: C407. 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 C428 Techniques in Immunohematology (1 cr.) C: C408. Emphasis on laboratory techniques used in blood banks, including blood typing, crossmatching, antibody identification, record keeping, and quality control.

PATH C429 Serology Laboratory (1 cr.) C: C409. Laboratory experience in performance of various testing procedures utilized in serologic diagnosis of infectious diseases and various syndromes. Techniques include precipitation, flocculation, and various hemagglutination and hemagglutination inhibition techniques, fluorescent antibody testing, and complement fixation.

PATH C431 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 C432 Hematology II (2 cr.)* P: C431. C432 and C434 offer more experience than C431 allows in the same techniques and offer additional techniques such as erythrocyte sedimentation rate, hematocrit, and the calculation of indices.

PATH C434 Hematology III (2 cr.)* P: C431 and C432. Continuation of practice and experience in hematologic techniques. Individual projects assigned if student is sufficiently advanced.

PATH C440 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 C441 Bacteriology II (2 cr.)* P: C440. 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 C442 Bacteriology III (2 cr.)* P: C440 and C441. At the end of this course, students should be able to handle usual and somewhat unusual hospital bacteriologic and mycologic problems independently.

PATH C450 Serology I (2 cr.)* Introduction to serologic and immunologic principles.

PATH C451 Serology II (2 cr.)* P: C450. Additional experience in adapting complement fixation, agglutination, hemagglutination, precipitin, and flocculation techniques to diagnostic procedures.

PATH C471 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 C472 Clinical Chemistry II (2 cr.)* P: C471. Limited experience with less frequently performed special procedures.

PATH C473 Clinical Chemistry III (2 cr.)* P: C471 and C472. Special equipment utilization; preparation and maintenance of solutions.

PATH C476 Clinical Chemistry IV (2 cr.)* P: C471, C472, and C473. Advanced procedures, method development, special projects.

PATH C477 Clinical Chemistry V (2 cr.)* P: C472, C473, C473, and C476. Training and experience in special technical and methodological microprocedures.

PATH C491 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 C492 Blood Bank II (2 cr.)* P: C491. 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 C493 Blood Bank III (2 cr.)* P: C491 and C492. Required for students working toward special certificate in blood banking. Emphasis on supervision, reference techniques, and such accessory functions as plasma production.

Cytotechnology

An educational program in cytotechnology is located in Corporate Square West, 5610 Crawfordsville Road, Building 24, Suite 2401, Speedway, IN 46224.

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 administered by the Board of Registry leading to certification and registration in cytotechnology with the American Society of Clinical Pathologists. Graduates should be prepared for management, supervisory, and educational responsibilities and should seek ways to contribute to the growing body of knowledge in clinical cytology. 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. Cytotechnologists normally practice in hospitals, laboratories, or research laboratories.

Credential Required to Practice B.S.; CT(ASCP), cytotechnology certification by American Society of Clinical Pathologists.

Licensure Requirements to Practice No license is required to practice in Indiana.

* This course is offered intermittently and is *not* part of the traditional curriculum.

Bachelor of Science in Cytotechnology at Indiana University–Purdue University Indianapolis

Medical Director: Associate Professor H. Cramer

Program Director: Associate Professor W. Crabtree

Clinical Assistant Professor: B. McGahey Frain

Length of the Program Four years, including three years (90 semester hours) of prerequisite course work plus 11 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 utilized 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.

Program Facilities The Cytotechnology Program is offered at the IUPUI campus, which has modern educational and medical facilities. Classroom facilities and faculty offices are located in Corporate Square West, 5610 Crawfordsville Road, Building 24, Suite 2401, Speedway, IN 46224. The combined student and cytology service laboratory is located on the third floor of Indiana University Hospital. Cytology laboratories located in Wishard Memorial Hospital, Methodist Hospital, and the Veterans Administration Hospital are also utilized.

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

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, proficiency must be demonstrated 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 following 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 Cumulative grade point average, biology grade point average, interview.

Class Size: Eight 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 90

Distribution of Credits in Specific Areas 25 credit hours in biology

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 2.5 on a 4.0 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 2.5 on a 4.0 scale. This requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.0 on a 4.0 scale).

Interview All qualified applicants must participate in an interview. Interviews start the second week of January.

Technical Standards See Health Professions Programs policy.

Medical Requirements Students accepted into the professional program must complete a health form, immunization card, chest X ray, and eye examination before classes begin.

Indiana Residents Preference Policy See Health Professions Programs policy.

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

CURRICULUM

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 may be taken at any accredited college or university. The code "G" indicates a course that meets the school's general-education requirements. **Courses taken via correspondence will not be accepted as fulfilling stated prerequisites.** No more than 15 semester hours of correspondence course work will be counted toward the degree.

Written communications (G)	2 courses
Verbal communications (G)	3 cr.
Humanities (G)	3 cr.
College algebra (G)	3 cr.
Introductory biology (G)	4-5 cr.
Social-behavioral science (G)	6 cr.
Chemistry 1 (with lab) for science majors (G)	4-5 cr.
Chemistry—sequential course(s) (for science majors beyond above)	4 cr.
Minimum; 5-8 cr. Preferred	
Human anatomy and physiology	5-10 cr.

Advanced Science In addition to the courses listed above, students must also take upper-level biology courses to total a minimum of 25 credit hours, including human anatomy and human physiology. Recommended courses include microbiology with laboratory, 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.

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, and statistics.

A Suggested Plan of Study The following is a suggested three-year plan of prerequisites.

Freshman

Fall

Elementary Composition I	3 cr.
Algebra and Trigonometry	3 cr.
Biology—Plants	5 cr.
Elementary Chemistry I or Principles of Chemistry I	5 cr.
Total	16 cr.

Spring

Speech Communication or Interpersonal Communication	3 cr.
Biology—Animals	5 cr.
Elementary Chemistry II	5 cr.
Electives	3 cr.
Total	16 cr.

Sophomore

Fall

Humanities Elective	3 cr.
Beginning Psychology or higher	3 cr.
Human Anatomy	5 cr.
Electives	6 cr.
Total	17 cr.

Spring

Elementary Composition II or Professional Writing	3 cr.
Biology Elective	3 cr.
Biology Elective	4 cr.
Sociology	3 cr.
Total	13 cr.

Junior**Fall**

Human Physiology	5 cr.
Electives	9 cr.
Total	14 cr.

Spring

Biology Elective	3 cr.
Electives	12 cr.
Total	15 cr.

Professional Program

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

Senior**Fall**

Gynecologic Cytology, Normal PATH A412	3 cr.
Gynecologic Cytology, Abnormal PATH A422	3 cr.
Techniques in Medical Cytology PATH A462	2 cr.
Certification Internship I PATH A465	3 cr.
Seminar in Cytology I PATH A470	2 cr.
Pulmonary Cytology PATH A432	3 cr.
Total	16 cr.

Spring

Cytology of Body Fluids PATH A442	2 cr.
Urinary Tract Cytology PATH A454	2 cr.
Seminar in Cytology II PATH A470	2 cr.
Cytology of the Gastrointestinal Tract PATH A453	2 cr.
Certification Internship II PATH A465	6 cr.
Total	14 cr.

Summer

Investigations in Cytopathology PATH A490	2 cr.
Cytology of Fine Needle Aspiration PATH A455	2 cr.
Certification Internship II PATH A465	3 cr.
Total	7 cr.

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

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 127 credit hours to include 90 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.

For further information, contact:

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Courses in Cytotechnology

PATH A412 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 A422 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 A432 Pulmonary Cytology (3 cr.) Systematic study of normal, nonmalignant, and malignant cells in the lower respiratory system.

PATH A442 Cytology of Body Fluids (2 cr.) Cytology of the eye, central nervous system, synovial membranes, and serosal cavities in fluids associated with nonmalignant and malignant disease processes.

PATH A453 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 A454 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 A455 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 A462 Techniques in Medical Cytology (2 cr.) Fixation and staining procedures, preparation of smears and cell blocks from fluids and other exfoliates; use of filter techniques and microscopy.

PATH A465 I Certification Internship (3 cr.) Includes the fall semester of clinical internships where students gain practical experience by working with routine cytology material.

PATH A465 II Certification Internship (3-6 cr.) Includes six months of clinical internships. Students gain further practical experience by working with routine cytology material. Conferences and lectures are used to provide additional experience.

PATH A470 Seminar in Cytology (2 cr.) Review of current literature pertaining to diagnostic cytology. Reports and discussions by students and faculty.

PATH A490 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.

Emergency Medical Services

Educational Program An educational program in Emergency Medical Technician-Basic and Paramedic Science is located on the Indiana University-Purdue University Indianapolis campus.

Description of the Profession and Career

Requirements Emergency medical technicians (EMTs)—basic respond to emergency calls to provide efficient and immediate care to the critically ill and injured, and 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, such 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 prehospital emergency medical care of simple and multiple system trauma, such as controlling hemorrhage, treating shock (hypoperfusion), bandaging wounds, and immobilization 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 and 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.

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 prehospital setting. Graduates of both the EMT—basic and the paramedic 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 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 Public Safety Training Institute.

Emergency Medical Technician—Basic at Indiana University—Purdue University Indianapolis

Chair: Professor of Emergency Medicine McGrath

Medical Director: Assistant Professor of Clinical Emergency Medicine Olinger

Program Director: Assistant Professor of Clinical Paramedic Science Bell

Faculty: Assistant Professor of Clinical Paramedic Science Hallam

Adjunct Faculty: Clinical Lecturers in Paramedic Science Ervin, Abram, Hawkins, Hutchinson

EDUCATIONAL PROGRAM

Length of Program Either one or two semesters; students can take both courses in the program during the same semester or in back-to-back semesters. A new course begins each fall and spring semester.

Additional Costs Students are encouraged to purchase their own stethoscopes.

ADMISSIONS

General Information Students from the university at large are eligible to attend. Students must complete program prerequisite before the first day of classes.

Prerequisite Current credential in Health Care Provider CPR.

Proposed Class Size 24 each fall semester.

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

CURRICULUM

Prerequisites

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

Fall

EMT Basic I EMER E2013 cr.

EMT Basic II EMER E2023 cr.

Spring

EMT Basic I EMER E2013 cr.

EMT Basic II EMER E2023 cr.

Students may take EMT Basic II EMER E202 in either the fall or spring semester.

Associate of Science in Paramedic Science at Indiana University—Purdue University Indianapolis

Chair: Professor of Emergency Medicine McGrath

Medical Director: Assistant Professor of Clinical Emergency Medicine Olinger

Program Director: Assistant Professor of Clinical Paramedic Science Bell

Faculty: Assistant Professor of Clinical Paramedic Science Hallam

Adjunct Faculty: Lecturer Ervin, Senior Adjunct Lecturers Abram, Hawkins, Hutchinson

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 performance 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 aims to

- Enable the student to perform as a paramedic.
- Provide didactic instruction in the body of paramedic knowledge that will lead a student to hold competencies that will guide the student in a lifelong learning as a health care professional.
- Provide 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 health care professional.
- Provide a field internship that will develop a student's ability to apply mastered competencies, guided by mentors in real-time situations.
- Develop values that will prepare the student to be sensitive to the cultural needs of all patients.
- 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 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.
- The student must demonstrate the ability to safely perform endotracheal intubation.
- The student must demonstrate the ability to safely gain venous access in patients of all age groups.

- The student must demonstrate the ability to effectively ventilate un-intubated patients of all age groups.
- The student must demonstrate the ability to perform a comprehensive assessment on pediatric, adult, geriatric, obstetric, trauma, and psychiatric patients.
- The student must demonstrate the ability to perform a comprehensive assessment and formulate and implement a treatment plan for patients with chest pain.
- The student must demonstrate the ability to perform a comprehensive assessment and formulate and implement a treatment plan for patients with dyspnea/respiratory distress.
- The student must demonstrate the ability to perform a comprehensive assessment and formulate and implement a treatment plan for patients with syncope.
- The student must demonstrate the ability to perform a comprehensive assessment and formulate and implement a treatment plan for patients with abdominal complaints.
- The student must demonstrate the ability 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 (27-29 credit hours) of prerequisite work plus 12 months of professional course work (40 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. 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 nontraditional 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 Wishard Hospital. In addition to classroom and laboratory facilities located on the Indiana University—Purdue University Indianapolis campus, area health care facilities involved in the preparation of EMT—paramedics in this program include Wishard Hospital, Wishard Ambulance Service, Avon Fire Department, and Riley Hospital for Children.

Location of Clinicals The primary locations of the clinical rotations are in Indianapolis. A few rotations may be required elsewhere in central Indiana.

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 Wishard Memorial Hospital. The classroom and laboratory are located in the Wayne Township Training Academy. The primary clinical site is at Wishard Ambulance Service. Other clinical sites may be available in central Indiana.

Admissions 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 10 each 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 December 1 of the year before anticipated entry.

Total Number of Prerequisite Credit Hours 27-29.

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 2.3 on a 4.0 scale. This requirement is applied at the time of program application and must be maintained.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.0 on a 4.0 scale).

Interview All qualified applicants must participate in an interview. Interviews are generally conducted in February.

Technical Standards See School of Medicine Health Professions Programs policy.

Medical Requirements Documentation must include a current immunization record that indicates immunization in hepatitis B, rubella, rubeola, mumps, PPD, tetanus and chicken pox.

Student Health Insurance All School of Medicine Health Professions Programs 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 IUPUI campus. Additional information regarding health insurance coverage options and all the immunizations required before the start of the program is also enclosed. Proof of health insurance and immunizations is due on the first day of classes.

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.

CURRICULUM

Prerequisites

In addition to the following 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. 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 "G" indicates a course that meets the school's general-education requirements. Correspondence courses will not be accepted for any of the prerequisite course work.

Human anatomy (G)	4-5 cr.
Human physiology (G)	4-5 cr.
English composition (G)	3 cr.
Speech (G)	3 cr.
Mathematics (G)	4 cr.
Psychology (G)	3 cr.
Sociology (G)	3 cr.
Computer technology (G)	3 cr.

Suggested Plan of Study

Freshman

Fall

Elementary Composition (W131)	3 cr.
Human Anatomy (N261) or Human Biology with lab (B212, B213)	4-5 cr.
Mathematics (110 or 111)	4 cr.
Sociology (R100)	3 cr.
Total	14-15 cr.

Spring

Speech or Interpersonal Communication (C110 or C180)	3 cr.
Human Physiology (N217) or Human Biology with lab (B214, B215)	4-5 cr.
Psychology (B104 or B105)	3 cr.
Computer Technology (CPT106)	3 cr.
Total	13-14 cr.

Suggested Alternative Plan of Study

Fall

EMT I and II (EMER E201 and E202)	6 cr.
Anatomy (N261) or Human Biology with lab (B212, B213)	4-5 cr.
Speech or Interpersonal Communication (C110 or C180)	3 cr.
Total	13-14 cr.

Spring

Human Physiology (N217) or Human Biology with lab (B214, B215)	4-5 cr.
English Composition (W131)	3 cr.
Sociology (R100)	3 cr.
Psychology (B104 or B105)	3 cr.
Total	13-14 cr.

Summer I

Mathematics (110 or 111)	4 cr.
Total	4 cr.

Summer II

Computer Technology (CPT106)	3 cr.
Total	3 cr.

Professional Program

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

Sophomore**Fall**

Emergency Paramedic Pharmacology (EMER E215)	3 cr.
Medical Emergencies I (EMER E210)	3 cr.
Techniques Laboratory I (EMER E212)	2 cr.
Clinical Rotation I (EMER E213)	6 cr.
Total	14 cr.

Spring

Pediatrics (EMER E214)	3 cr.
Medical Emergencies II (EMER E220)	3 cr.
Trauma EMER (E221)	3 cr.
Techniques Laboratory II (EMER E222)	2 cr.
Clinical Rotation II (EMER E223)	5 cr.
Total	16 cr.

Summer I

Clinical Rotation III (EMER E233)	5 cr.
Total	5 cr.

Summer II

Clinical Rotation IV (EMER E243)	5 cr.
Total	5 cr.

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

Awards Based on academic performance, 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 and 40 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.

For further information, contact

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Courses in Emergency Medical Services

"P" refers to a course prerequisite and "C" to a course that must be taken concurrently.

EMER E201 Emergency Medical Technician Basic I (3 cr.) This course focuses on well-being of the EMT, basic patient assessment and airway management, and special considerations for the pediatric and geriatric patient.

EMER E202 Emergency Medical Technician Basic II (3 cr.) The content of the course covers specific medical emergencies, trauma, and basic pharmacology.

EMER E210 Medical Emergencies I (3 cr.) C: E212, E213, E215. This course offers an introduction to the role of the paramedic, radio communications, and general patient assessment and a review of body chemistry. The student learns to assess and manage medical emergencies involving the respiratory and cardiovascular systems.

EMER E212 Techniques Laboratory I (2 cr.) C: E210, E213, E215. This course provides a hands-on setting in which the student will learn how to present reports, conduct patient assessments, and perform various invasive procedures. Also included is the study of electrocardiograms for rhythm interpretation and the techniques of cardiac arrest management.

EMER E213 Clinical Rotation I (6 cr.) C: E210, E212, E215. Interaction with patients in the hospital and prehospital settings. Assessment and management of the patient with respiratory and cardiovascular disorders. Perform invasive respiratory and intravenous techniques. Deliver radio and written patient reports.

EMER E214 Pediatrics (3 cr.) P: E210, E215. C: E220, E221, E222, E223. This course focuses on the care of the sick or injured child. Also included is growth and development of children and emergency prehospital care of the neonate.

EMER E215 Emergency Paramedic Pharmacology (3 cr.) C: E210, E212, E213. This course focuses on the use of specific emergency medications during life-threatening situations as well as the use of prescribed medications for specific chronic illnesses.

EMER E220 Medical Emergencies II (3 cr.) P: E210. C: E214, E221, E222, E223. This course prepares the student to assess and manage medical emergencies involving the endocrine, gastrointestinal, neurological, gynecological, and genitourinary systems. Also included are obstetrics, behavioral, and environmental emergencies.

EMER E221 Trauma (3 cr.) C: E214, E220, E222, E223. 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 E222 Techniques Laboratory II (2 cr.) P: E212. C: E214, E220, E221, E223. This course provides a hands-on setting in which students will

learn how to manage trauma victims. This course includes PHTLS, PALS, and ACLS certification courses.

EMER E223 Clinical Rotation II (5 cr.) P: E213. C: E214, E220, E221, E222. This course provides students an opportunity to manage the trauma victim and the obstetrical patient in the hospital and prehospital settings.

EMER E233 Clinical Rotation III (5 cr.) P: E223. This course provides students an opportunity to interact with patients in the hospital and in urban, rural, and private prehospital settings. Students function as team members with the prehospital team.

EMER E243 Clinical Rotation IV (5 cr.) P: E233. This course provides a clinical setting in which students practice as paramedics in urban, rural, and private ambulance services. Students will be expected to function as the team leaders of the prehospital team.

EMER E299 Independent Study in Paramedic Science (1-4 cr.) Special topics, projects, or readings for students enrolled in paramedic science.

Histotechnology**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 Registry Histotechnician examination.
- To provide the nationwide health care 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 advisement.
- To instill in students a lifelong desire to achieve professional and academic excellence.

Program Objectives

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

A. Technical Skill

1. Perform procedures of basic histologic laboratory techniques, instrumentation, and problem solving at 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.

B. Communication

1. Communicate effectively with the clinical education supervisor 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.

C. 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.

Certificate in Histotechnology at Indiana University–Purdue University Indianapolis

Medical Director: Ulbricht

Program Director: Hoye

EDUCATIONAL PROGRAM

Length of the Program 10 months of professional course work beginning with 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 Histotechnology didactic course lecture teleconferences are delivered once per week during the day; practicum course work is performed at qualified clinical sites and can be completed at any time approved by the supervisor in the student's laboratory.

Design of Professional Curriculum Students who are employed in laboratories that qualify as clinical affiliate sites are accepted into the Histotechnology Program to begin the course of study in the fall semester. The curriculum consists of didactic and practicum courses delivered by distance learning to students pursuing on-the-job training in histology laboratories. The 120-minute interactive audio teleconference lectures are delivered once per week and are accompanied by related assignments that require approximately 3.5 hours per week for completion. The practicum course modules are designed to be accomplished in approximately 16 hours per week; 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 Histotechnology Program is designed to:

- Provide educational and clinical experiences in all area 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 site's histology trainers in effectively 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 located in Coleman Hall at Indiana University–Purdue University Indianapolis (IUPUI). "Classrooms" for delivery of teleconferences, as well as practical training sites, are located in institutions throughout the United States that qualify as clinical affiliates where students are located. Clinical affiliate sites may vary from year to year, as training needs change.

Additional Costs of the Program In addition to Indiana resident tuition and course fees, students are required to purchase books. Completion of course requirements may necessitate the purchase of laboratory supplies not ordinarily used at the student's training facility laboratory. 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 \$400.00 per year.

Feasibility of Work for Students Since the program is designed with the on-the-job student in mind, full-time employment in a histology laboratory is assumed.

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

ADMISSION

Criteria Used for Selection of Class

High school diploma (or equivalent), completion of prerequisite courses, employment in or appropriate access to a qualified training laboratory, and completion of all application requirements. Admission to the program is limited by the number of teleconference connections available for delivery of lectures; therefore, completion of the program application does not guarantee admission.

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 Class size is limited by the teleconference connections available for delivery of course lectures to distance sites. Affiliate sites may accommodate more than one student, depending on the laboratory's capacity for training, or the training

facility may accommodate students from additional local sites for teleconference purposes. Average class size is 45 students.

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 Histotechnology Program.

Application Deadline May 1 of the year of anticipated entry

Minimum Academic Requirements High school graduation or equivalent. A minimum of 2.0 on a 4.0 scale in prerequisite courses is required for admission and must be maintained in professional courses. See prerequisites.

Technical Standards See Health Professions Programs technical standards

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.

Scholarships The American Society for Clinical Pathology, the National 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 Office of Scholarships and Financial Aid.

CURRICULUM

Prerequisites

Students are required to have completed, within 10 years before admission date, courses in chemistry, biology, and mathematics. High school or college courses with a grade point average of 2.0 on a 4.0 scale (C) are acceptable. All prerequisite courses must be completed before admission into the program.

Professional Program

Paired didactic and practicum courses must be taken concurrently. Courses are offered and must be completed in sequence. Students register for classes as follows:

Fall

Histotechnology I PATH H101.....	3 cr.
Histotechnology Practicum I PATH H181.....	3 cr.
Histotechnology II PATH H102.....	3 cr.
Histotechnology Practicum II PATH H182.....	3 cr.
Total	12 cr.

Spring

Histotechnology III PATH H103.....	3 cr.
Histotechnology Practicum III PATH H183.....	3 cr.
Histotechnology IV PATH H104.....	3 cr.
Histotechnology Practicum IV PATH H184.....	3 cr.
Total	12 cr.

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.

Associate of Science in Histotechnology at Indiana University–Purdue University Indianapolis

EDUCATIONAL PROGRAM

Length of Program One year of full-time certificate-level course work, or prior certification by the Board of Registry of the American Society for Clinical Pathology, plus additional time for completion of degree requirements. Students should have as their goal to complete the course work in no more than five years from the time they first enroll in the program.

Structure of Program Designed for the employed histologist, the professional course work is offered by distance education. General-education courses may be completed at Indiana University or at other accredited colleges or universities.

Design of Professional Curriculum Completion of the certificate-level course work (24 credit hours) is required before pursuit of the associate degree. Alternately, the previously certified HT(ASCP) may apply for special credit in lieu of completion of the certificate course work. Required general-education courses may be transferred from any accredited college or university, in accordance with university and school policy, or completed through Indiana University's School of Continuing Studies' independent study courses. The histotechnology capstone course, offered by distance education via audio teleconferencing, will be taken as the student nears completion of the degree.

Program Facilities The Histotechnology Program office is in Coleman Hall at Indiana University–Purdue University Indianapolis. Students access accredited course work by attendance at IUPUI or another college or university or through distance education offerings.

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

ADMISSION

General Information

Students accepted into the program must complete the following program admission requirements before the first day of classes. Enrollment in the associate degree program is not limited; therefore, most qualified applicants are admitted. 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.

Criteria Used for Selection of Class Successful completion of the certificate-level course work. Alternately, prior certification by the American Society for Clinical Pathology Board of Registry as an HT or HTL and application for the program's special credit option.

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

Application Deadline Applications are accepted year-round.

Minimum Academic Requirements High school diploma or equivalent. A minimum grade point average of 2.0 on a 4.0 scale (C) is required for admission and must be maintained in all courses throughout the program.

Minimum Cumulative Grade Point Average 2.0 on a 4.0 scale (C). This requirement is applied at admission and must be maintained. Grades earned in remedial courses are not used to calculate the cumulative grade point average.

Technical Standards See Health Professions Programs policy.

CURRICULUM

Prerequisites Completion of the Certificate in Histotechnology, or prior certification by the American Society for Clinical Pathology as a histotechnician (HT) or histotechnologist (HTL).

Professional Program

Most required general-education courses are offered through the School of Continuing Studies at Indiana University; however, courses may be completed elsewhere and transferred to IUPUI. General-education courses may be completed in any sequence. The histotechnology capstone course is designed to be taken near the completion of the associate degree; the student must complete the technical writing course requirement before registering for the capstone course.

Degree Completion Courses

The following courses must be satisfactorily completed for the associate degree. The code "G" indicates a course that meets the school's general-education requirements.

Introductory Psychology (G)	3 cr.
Introduction to Sociology (G)	3 cr.
College Pre-Calculus Math (G)	3 cr.
Elementary Composition (G)	3 cr.
Professional (technical) Writing Skills (G)	3 cr.
Interpersonal Communication (G)	3 cr.
Introduction to Microcomputers and Computing (G)	3 cr.
Contemporary Biology (G)	3 cr.
Medical Terms from Greek and Latin (G)	2 cr.
Anatomy (G)	3 cr.
Elementary Chemistry (G)	3 cr.
Histotechnology Capstone	6 cr.
Total Professional and Degree Completion Courses	62 cr.

Special Credit Policy Practicing histologists certified by ASCP (HT or HTL) may apply for special credit courses H105 and H185, in lieu of taking certificate-level courses, when working toward the associate degree at IUPUI. Special credit courses H105 and H185 are not transferable to other colleges or universities.

Scholarships The American Society for Clinical Pathology, the National 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 IUPUI Office of Scholarships and Financial Aid.

Graduation Requirements Satisfactory completion of 62 credit hours to include 32 credit hours of general-education courses and 30 credit hours of professional courses. All course work must be completed in compliance with the program's and school's academic and professional policies.

For further information, contact:

Glenda F. Hoye, B.S., HT(ASCP)
Histotechnology Program Director
Coleman Hall
1140 W. Michigan Street
Indianapolis, IN 46202-5119
Phone: (317) 278-1599 or 278-1690
Fax: (317) 278-1820
E-mail: ghoye@iupui.edu

Courses in Histotechnology

("P" refers to a course prerequisite and "C" to a course that must be taken concurrently.)

PATH H101 Histotechnology I (3 cr.) C: H181. Teleconference lectures and related written supplemental assignments with focus on specimen receipt and accessioning, laboratory safety, laboratory chemistry and math, instrumentation and fixation.

PATH H102 Histotechnology II (3 cr.) P: H101; C: H182. 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 H103 Histotechnology III (3 cr.) P: H102; C: H183. 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 H104 Histotechnology IV (3 cr.) P: H103; C: H184. 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 H105 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 H181 Histotechnology Practicum I (3 cr.) C: H101. Clinical practicum experience in topics covered in H101, performed under direct supervision of designated registered histologist.

PATH H182 Histotechnology Practicum II (3 cr.) P: H101, H181; C: H102. Clinical practicum experience in topics covered in H102, performed under direct supervision of designated registered histologist.

PATH H183 Histotechnology Practicum III (3 cr.) P: H102, H182; C: H103. Clinical practicum experience in topics covered in H103, performed under direct supervision of designated registered histologist.

PATH H184 Histotechnology Practicum IV (3 cr.)
P: H103, H183; C: H104. Clinical practicum experience in topics covered in H104, performed under direct supervision of designated registered histologist.

PATH H185 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 H201 Comprehensive Experience in Histotechnology (6 cr.) (Capstone course) P: Completion of 50 credit hours toward Associate of Science in Histotechnology, to include a technical writing 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 Imaging Technology

An educational program in medical imaging technology is located on the Indiana University–Purdue University Indianapolis campus. This program is an advanced program for the registered radiographer.

Description of the Profession The medical imaging technologist in radiologic sciences is a skilled radiographer qualified to provide patient service in interventional procedures, computed tomography, ultrasonography, and magnetic resonance imaging. These areas represent the most advanced imaging in diagnostic radiology. Effective medical imaging technologists utilize principles of radiation protection as they determine exposure factors and position patients for a variety of examinations. Many of the patient examinations are highly specific, utilizing computers or computerized equipment. Medical imaging technologists are also capable of assisting in the surgical procedures performed during the examination, 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 RT(R) (ARRT) registered radiographer. Advanced qualification credentials are available and may be required by some employers. Currently, depending on the clinical major completed, graduates may be eligible for one or more of the following credentials in addition to the RT(R) (ARRT) required for entry into the program: from the ARRT, cardiovascular-interventional technology (CV), computed tomography (CT), mammography (M), and magnetic resonance imaging (MR), ultrasound (U); from the ARDMS, medical sonography (RDMS) and vascular technology (RVT).

Indiana Certification Requirements to Practice State certification is required to operate an X-ray machine. The state accepts the ARRT Registry for Certification.

Bachelor of Science in Medical Imaging Technology at Indiana University–Purdue University Indianapolis

Medical Director: Professor Jackson

Program Director: Associate Professor Hernandez

Coordinator: Assistant Professor Kehrein

Associate Professor: Long

Assistant Professor: Cox

Adjunct Lecturers: Hinchman, Smith

EDUCATIONAL PROGRAM

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 interventional procedures, computed tomography, magnetic resonance imaging, and ultrasound. Students receive theory in all areas and select one major for clinical experiences.

Length of the Program A new class begins with summer session II each year and continues through the end of the spring semester the next year (10.5 months).

Structure of the Program Students have professional classes or clinical experiences from 8 a.m. to 4 p.m., Monday through Friday. Some evening clinical hours may be required.

Design of the Professional Curriculum The lecture material and clinical experiences are integrated.

Opportunity for Students to Work Generally, employment as a part-time radiographer is available at one of the medical centers or area hospitals.

Additional Cost In addition to regular university tuition and fees, students should expect to pay program-related expenses such as books, uniforms, etc. Contact the program 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 the Clinical Building. Clinical education sites are in the Indianapolis metropolitan area. Students are responsible for their transportation to these sites.

ADMISSION

General Information

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 by the American Registry of Radiologic Technologists (ARRT), an essay, recommendation letters, and availability of major clinical concentration.

Class Size Based on the availability of clinical education sites for each major area.

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 Medical Imaging Technology Program.

Application Deadline November 15 of the year before anticipated entry.

Total Number of Prerequisite Credit Hours 80.

Minimum Cumulative Grade Point Average 2.5 on a 4.0 scale at the time of application. All college courses taken, including remedial courses and courses that do not meet prerequisite requirements, are considered when calculating the minimum cumulative grade point average.

Minimum Specific Grade Point Average Cumulative 2.3 on a 4.0 scale for all math, biological, and physical science course work. All college math, biological, and physical sciences courses taken, including remedial courses and courses that do not meet prerequisite requirements, are considered when calculating the minimum life and physical science grade point average. 2.7 for all radiography courses and 3.0 for clinical radiography courses.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.0 on a 4.0 scale).

Interview An interview is not required.

Technical Standards See the Health Professions Programs' policy.

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

Experience While radiography experience beyond the initial radiography program is not required, it is highly recommended.

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

CURRICULUM

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. Equivalent prerequisites may be taken at any accredited college or university. The code "G" indicates a course that meets the school's general-education requirements.

General Education Areas

Verbal communication (G)	2-3 cr.
Written communication (G)	4-6 cr.
(The second writing course should focus on writing a research paper.)	
Introductory psychology (G)	3 cr.
College algebra, trigonometry, or calculus (G)	3-5 cr.

Biological and Physical Sciences 16-20 cr.
(The following courses must be included):

Elementary Chemistry I with lab
General Physics
Anatomy and Physiology I (or Human Biology I)
with lab*
Anatomy and Physiology II (or Human Biology II)
with lab*

Introduction to computers 2-3 cr.
Preprofessional radiography course work 40 cr.

Radiography

This area is complete for applicants who have earned 40 college credit hours in radiography.

Students who received their radiography education without transferable university credit and who have full credentials in radiography (ARRT) may be awarded credit for their credentials and experience and/or may petition to test out of professional radiography courses. 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 they lack 40 semester hours of earned college credit in radiography.

General Education (required by graduation)

Humanities Elective (G) 3 cr.
Social/Behavioral Science Elective (G) 3 cr.

Suggested Elective (To bring total credit hours up to 80). The number of elective credit hours will differ for each student to complete a total of 80 credit hours of prerequisite course work. Additional electives may be required, before or during the professional program, to complete a minimum of 122 credit hours of academic work for graduation.

Professional Program

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

Senior

Summer Session II

Sectional Imaging Anatomy RADI R4043 cr.
Seminar: Medical Imaging RADI R4072 cr.
Topics: Introduction to MIT Project
RADI R4081 cr.
Total 6 cr.

Fall

Seminar: Essential Radiology I RADI R4072 cr.
Topics: MIT Project I RADI R4082 cr.
Medical Imaging Theory RADI R4513 cr.
Clinical Practicum: A choice of
6 credit hours from one or a combination
of the following courses; some restrictions
apply according to major.
Interventional Imaging RADI R4811-6 cr.
Computed Tomography Imaging RADI R4821-6 cr.
Magnetic Resonance Imaging RADI R4831-6 cr.
Ultrasound Imaging RADI R4841-6 cr.
Total (minimum) 13 cr.

Spring

Seminar: Essential Radiology II RADI R4072 cr.
Topics: MIT Project II RADI R4082 cr.
Medical Imaging Applications RADI R4523 cr.
Clinical Practicum: A choice of
6 credit hours from one or a
combination of the following
courses; some restrictions
apply according to major.
Interventional Imaging RADI R4811-6 cr.
Computed Tomography Imaging RADI R4821-6 cr.
Magnetic Resonance Imaging RADI R4831-6 cr.
Ultrasound Imaging RADI R4841-6 cr.
Total (minimum) 13 cr.

Graduation Requirements Satisfactory completion of 122 credit hours. All course work must be completed in compliance with the program's and school's academic and professional policies.

For further information, contact

Professor Suetta Kehrein, Coordinator, Medical
Imaging Technology Program
Clinical Building 120
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Indianapolis, IN 46202-5111
Phone: (317) 274-3803
Fax: (317) 274-4074
E-mail: skehrein@iupui.edu.

Courses in Medical Imaging Technology

"P" refers to a course prerequisite and "C" to a course that must be taken concurrently.

RADI R404 Sectional Imaging Anatomy (3 cr.)

An in-depth study of sectional anatomy pertinent to ultrasound, computed tomography, and magnetic resonance imaging. Standard transverse, parasagittal, and coronal planes are included, utilizing images from all three imaging modalities. A discussion of technique, artifact, and pathology-related alterations of cross-sectional anatomic appearances is included.

RADI R407 Seminar (1-5 cr.) Individual and group study focusing upon advances in medical imaging.

RADI R408 Topics (0.5-4 cr.) Study of selected topics in radiologic sciences. May be repeated for credit if topics differ.

RADI R451 Medical Imaging Theory (3 cr.) P: Math, Physics, RADI R404. 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 R452 Medical Imaging Applications (3 cr.) P: RADI R451. 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 R481 Clinical Practicum: Interventional Imaging (.5-8 cr.) P:

RADI R404, RT(R).
Clinical experience in the performance of interventional imaging studies.

RADI R482 Clinical Practicum: Computed Tomography (.5-8 cr.) P:

RADI R404, RT(R).
Clinical experience in the performance of computed tomographic imaging studies.

RADI R483 Clinical Practicum: Magnetic Resonance Imaging (.5-8 cr.) P:

RADI R404.
Clinical experience in the performance of magnetic resonance imaging studies.

RADI R484 Clinical Practicum: Ultrasound Imaging (.5-8 cr.) P:

RADI R404. Clinical experience in the performance of ultrasound imaging studies.

RADI R485 Clinical Practicum (.5-8 cr.) P: RADI R404. Clinical experience in medical imaging studies. Specific area of experience will be determined by availability of instruction.

Nuclear Medicine Technology

An educational program in nuclear medicine technology is located on the Indiana University–Purdue University Indianapolis campus and housed in the IU School of Medicine Department of Radiology, 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, and beta rays. These radiations emanate from radioactive materials. Nuclear medicine technologists perform patient organ imaging procedures, radioactive analysis of biological specimens (blood, urine), and some therapeutic applications of radioactive materials. Effective nuclear medicine technologists utilize principles of radiation protection as they prepare and administer radioactive materials for a variety of examinations. They are capable of performing 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 receive a Bachelor of Science degree from Indiana University and are eligible to take the certification examination of the American Registry of Radiologic Technologists (ARRT) and the Nuclear Medicine Technology Certification Board (NMTCB) to become certified as a nuclear medicine technologist, R.T.(N) or C.N.M.T.

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

* Individual Anatomy and Physiology courses (with labs) may be used.

Bachelor of Science in Nuclear Medicine Technology at Indiana University–Purdue University Indianapolis

Medical Advisor: Professor Fletcher

Program Director: Associate Professor Hernandez

Educational Program Director: Associate Professor Kosegi

Full Professor: DeGrado

Associate Professors: Liang, Mock

Assistant Professors: Anger, Richard

Instructor: Lewis

Lecturers: Clift, Dick, Giger, Hall, Lewis, Shiplett

EDUCATIONAL PROGRAM

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

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 Monday, Wednesday, and Friday plus up to eight hours of clinical practicum on each Tuesday and Thursday and four hours on Friday mornings. Senior students have up to eight hours of clinical practicum on each Monday, Wednesday, and Friday plus classes on Tuesday and Thursday. Clinical practicums may also require some evening and off-hour assignments.

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 Some part-time employment may be available in the radiology departments at the Indiana University Medical Center. 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 clock 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 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, etc. Contact the program for a current cost sheet.

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 Clinical Building. Students obtain clinical experience in the nuclear medicine areas of radiology departments located in University, Riley, Wishard, and Veterans Administration hospitals. Two other clinical education sites in the Indianapolis area are also used.

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

ADMISSION

General Information Admission to the professional program is competitive; therefore, completion of the prerequisites does not guarantee admission to the program.

Class Size Seven students are admitted to 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 following apply to the Nuclear Medicine Technology Program.

Application Deadline November 15 of the year before anticipated entry.

Total Number of Prerequisite Credit Hours 60.

Minimum Cumulative Grade Point Average 2.5 on a 4.0 scale. This requirement is applied at the time of program application and must be maintained. The grades from all college courses taken, including remedial courses and courses that do not meet prerequisite requirements, are considered when calculating the minimum cumulative grade point average.

Minimum Specific Grade Point Average 2.5 on a 4.0 scale for all life and physical science course work. This requirement is applied at the time of program application and must be maintained. The grades from all college life and physical sciences courses taken, including remedial courses and courses that do not meet prerequisite requirements, are considered when calculating the minimum specific grade point average.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.0 on a 4.0 scale).

Interview Qualified applicants must participate in an interview. Interviews are conducted in January or early February.

Technical Standards See School of Medicine Health Professions Programs' policy.

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

Volunteer Experience Volunteer experience is not required. Applicants must, however, observe in a nuclear medicine facility before an interview will be scheduled.

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.

CURRICULUM

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. Prerequisites may be taken at any accredited college or university. The code "G" indicates a course that meets the HPP general-education requirements.

Written communications (2 courses) (G)	4-6 cr.
(The second writing course should focus on writing a research paper.)	
Verbal communications (G)	2-3 cr.
Psychology (G)	3 cr.
Biological and Physical Sciences	20-25 cr.
(The following courses must be included):	
Elementary Chemistry I with lab	
Elementary Chemistry II with lab	
General Physics	
Anatomy and Physiology I (or Human Biology I) with lab*	
Anatomy and Physiology II (or Human Biology II) with lab*	
College Algebra and Trigonometry or Algebra and Survey of Calculus (G)**	5-6 cr.
Introduction to Computers	1-3 cr.
Science Electives	3 cr.
Other Electives*** (to complete 60 credit hours selected from the following graduation requirements):	
Humanities elective (G)	3 cr.
Social/Behavioral Science electives (G)	6 cr.
General electives	6 cr.
Total (minimum)	60 cr.

A Suggested Plan of Study

Freshman

Fall

English composition	3 cr.
Verbal communications course	3 cr.
Algebra	3 cr.
Chemistry I (with lab)	5 cr.
Total	14 cr.

Spring

English composition	3 cr.
Psychology	3 cr.
Trigonometry or Brief Survey of Calculus	3 cr.
Chemistry II (with lab)	5 cr.
Total	14 cr.

* Individual Anatomy and Physiology courses (with labs) may be used.

** Or 4 credits of 200 level or higher college calculus

*** Must have all 15 hours of "other electives" but 9 hours may be taken during the program

Sophomore*Fall*

Anatomy and Physiology I.....	4 cr.
Introduction to Computers.....	3 cr.
Science elective.....	3 cr.
General electives.....	6 cr.
Total	16 cr.

Spring

Anatomy and Physiology II.....	4 cr.
General physics.....	5 cr.
Social/Behavioral science elective.....	3 cr.
Humanities elective.....	3 cr.
Total	15 cr.

Professional Program

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

The 62 professional credits listed below are obtained within a 22-month period and fulfill eligibility requirements for the registry examination in nuclear medicine technology. Some electives may be taken (as shown below) during the 22-month program.

Junior*Summer Session II*

Patient Care I RADI R112.....	3 cr.
Medical Terminology RADI R108.....	1 cr.
(may be taken before professional program)	
Radiation Protection in Nuclear Medicine RADI R437.....	1 cr.
Total	5 cr.

Fall

Projects in Nuclear Medicine Technology RADI R410.....	2 cr.
Physics and Instrumentation of Nuclear Medicine I RADI R412.....	2 cr.
Applications of Radionuclides I RADI R432.....	3 cr.
Clinical Nuclear Medicine Practicum I RADI R445.....	6 cr.
Elective (if needed for graduation).....	3 cr.
Total	13-16 cr.

Spring

Seminar: Nuclear Medicine In-Service I RADI R407.....	1 cr.
Projects in Nuclear Medicine Technology RADI R410.....	2 cr.
Physics and Instrumentation of Nuclear Medicine II RADI R417.....	2 cr.
Radionuclide Measurement RADI R422.....	2 cr.
Clinical Nuclear Medicine Practicum I RADI R445.....	5 cr.
Elective (if needed for graduation).....	3 cr.
Total	12-15 cr.

Senior*Summer Session I*

Patient Care II RADI R212.....	1 cr.
Radiobiology in Nuclear Medicine RADI R440.....	1 cr.
Clinical Nuclear Medicine Practicum II RADI R446.....	2 cr.
Elective (if needed for graduation).....	3 cr.
Total	4-7 cr.

Summer Session II

Topics: Nuclear Medicine Management RADI R408.....	1 cr.
Clinical Nuclear Medicine Practicum II RADI R446.....	2 cr.
Elective (if needed for graduation).....	3 cr.
Total	3-6 cr.

Fall

Seminar: Essential Radiology I RADI R407.....	2 cr.
Seminar: Nuclear Medicine In-Service II RADI R407.....	1 cr.
Radiopharmaceuticals RADI R427.....	2 cr.
Projects in Nuclear Medicine Technology RADI R410.....	1 cr.
Clinical Nuclear Medicine Practicum III RADI R447.....	7 cr.
Total	13 cr.

Spring

Seminar: Essential Radiology II RADI R407.....	2 cr.
Seminar: Nuclear Medicine In-Service III RADI R407.....	1 cr.
Projects in Nuclear Medicine Technology RADI R410.....	1 cr.
In Vivo and In Vitro Studies RADI R430.....	1 cr.
Applications of Radionuclides II RADI R433.....	2 cr.
Clinical Nuclear Medicine Practicum III RADI R447.....	5 cr.
Total	12 cr.

Graduation Requirements Satisfactory completion of a minimum of 122 credit hours. All course work must be completed in compliance with the program's and school's academic and professional policies.

For further information, contact:

Professor Sarah Baker, Nuclear Medicine Admissions Advisor or
Judy Kosegi, Educational Director, Nuclear Medicine Technology Program
Clinical Building 120
541 Clinical Drive
Indianapolis, IN 46202-5111
Phone: (317) 274-3802
Fax: (317) 274-4074
E-mail: ssbaker2@iupui.edu or jkosegi@iupui.edu.

Courses in Nuclear Medicine Technology

The RADI courses with R100- or R200-level numbers are found in the radiography section of this bulletin.

"P" refers to a course prerequisite and "C" to a course that must be taken concurrently.

RADI R407 Seminar: (1-5 cr.) Selected topics

RADI R408 Topics in Radiologic Sciences (0.5-4 cr.) Study of selected topics in radiologic sciences. May be repeated once for credit if topics differ.

RADI R410 Project in Nuclear Medicine Technology (1-3 cr.) Independent readings and research on a selected topic in nuclear medicine technology. A paper in publishable form must be written as part of the project.

RADI R412 Physics and Instrumentation of Nuclear Medicine I (2 cr.) An introduction to the

physical disciplines of nuclear medicine. Lectures and laboratory exercises on radiation physics, computer programming, and the statistics of radiation measurements.

RADI R417 Physics and Instrumentation of Nuclear Medicine II (2 cr.) A continuation of RADI R412. Lectures and exercises on electronic principles, the operational fundamentals of radiation counting devices and imaging systems, and quality assurance programs.

RADI R422 Radionuclide Measurements (2 cr.) Lectures and laboratory sessions emphasizing the clinical utilization of nuclear counting and imaging systems and principles of quantitative measurements.

RADI R427 Radiopharmaceuticals (2 cr.) Lectures and laboratories concerning properties and preparation of radiopharmaceuticals.

RADI R430 In Vivo and In Vitro Studies (1 cr.) This course will introduce the principles of tracer methodology and apply that methodology to the measurement of dynamic and steady state systems within the body. Special emphasis will be placed on measuring physiological and hematological functions.

RADI R432 Application of Radionuclides I (3 cr.) Lectures covering the clinical aspects of nuclear medicine procedures, including the physiological and technical procedures for each type of study.

RADI R433 Application of Radionuclides II (2 cr.) P: RADI R432. Lectures covering the clinical aspects of nuclear medicine procedures. Includes pathology related to procedures and the role technologists play in helping physicians gather information for accurate interpretations.

RADI R437 Radiation Protection in Nuclear Medicine (1 cr.) Lectures on the principles of radiation protection in nuclear medicine.

RADI R440 Radiobiology in Nuclear Medicine (1 cr.) Lectures on the biological effects of ionizing radiation.

RADI R445 Clinical Nuclear Medicine Practicum I (4-8 cr.) Practical clinical application of nuclear medicine theory.

RADI R446 Clinical Nuclear Medicine Practicum II (2-8 cr.) Continuation of RADI R445.

RADI R447 Clinical Nuclear Medicine Practicum III (2-8 cr.) Continuation of RADI R446.

Radiation Therapy

The educational program in radiation therapy is located on the Indiana University-Purdue University Indianapolis campus, Indiana University Medical Center.

Description of the Profession Radiation therapy involves the use of different forms of ionizing radiation for the treatment of benign and malignant tumors. Radiation therapists administer the prescribed dose of ionizing radiation to specific sites of the patient's body as directed by the physician. They operate varied types of equipment, including high energy linear accelerators, and work with

radioactive materials. In addition, radiation therapists observe the clinical progress of the patient undergoing radiation therapy, observe the first signs of any complication, and determine when treatment should be withheld until a physician may be consulted.

Graduates of the Program The Radiation Therapy Program is designed to prepare graduates to meet the scope of practice standards for radiation therapy. Upon completion of the program, graduates are eligible to take the radiation therapy certification examination given by the American Registry of Radiologic Technologists (ARRT). Having successfully passed this exam, certificate holders are classified as registered radiation therapists, R.T.(T)(ARRT).

Licensure Required to Practice Licensure of radiation therapists is not required in Indiana, but licensure requirements are mandated in some states.

Bachelor of Science in Radiation Therapy at Indiana University-Purdue University Indianapolis

Medical Advisor: Professor Randall

Program Director: Assistant Professor Dunn

Clinical Coordinator: Assistant Professor Schneider

EDUCATIONAL PROGRAM

Length of the Program The radiation therapy program is a four-year baccalaureate degree program and has two tracks: one for the nonradiographer and one for the radiographer. For the nonradiographer, the program is composed of 50 credit hours of prerequisite 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.

Structure of the Program The classroom and clinical experiences are provided Monday through Friday from 8 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 located in radiation oncology departments of area hospitals and in other buildings on the Indiana University-Purdue University Indianapolis campus.

Location of Clinicals The clinical practicums are provided at a variety of clinical sites located within a 60-mile radius of Indianapolis.

Accreditation The program is accredited by the Joint Review Committee on Education in Radiologic Technology, 20 N. Wacker Drive, Suite 900, Chicago, IL 60606-2901.

ADMISSION—NON-RADIOGRAPHER

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.

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 December 1 of the year before desired entry into the program.

Minimum Number of Prerequisite Credit Hours 50.

Minimum Cumulative Grade Point Average 2.5 on a 4.0 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 Science and math grade point average of 2.3 and a 2.5 grade point average in stated prerequisite courses (on a 4.0 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 (2.0 on a 4.0 scale).

Interview A personal interview is 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 two times the number of positions available in the class. Interviews are conducted in February.

Technical Standards See School of Medicine Health Professions Programs policy.

Medical Requirements All required immunizations must be completed before the start of the program. Verification of immunizations and the health form must be submitted during orientation.

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

Volunteer Experience The student must observe in a radiation oncology facility before applying to the program.

CURRICULUM—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.

General-Education Areas

Verbal communication (G)	2-3 cr.
Written communication (G) (2 courses) (Second writing course must focus on research and professional writing skills)	6 cr.
Humanities electives (G)	3 cr.
Social/Behavioral science elective (G)	3 cr.
Introductory psychology (G)	3 cr.
College algebra and trigonometry (G)	5-6 cr.
General physics (with lab) (G)	4-5 cr.
Human anatomy (with lab)	4-5 cr.
Human physiology	4-5 cr.
Medical terminology	1 cr.
Introduction to computers	2-3 cr.
Business electives	6 cr.

Suggested Electives (To bring total credits up to 50.) The number of elective courses differs among students but must bring the student's total prerequisite course work to at least 50 credit hours. Additional electives may be required, before or during the professional program, to complete a minimum of 122 credit hours of academic course work for graduation.

Suggested Plan of Study

Freshman

<i>Fall</i>	
Elementary Composition	3 cr.
Humanities	3 cr.
Algebra and Trigonometry	3 cr.
Human Anatomy	5 cr.
Total	14 cr.

Spring

Speech communications or Interpersonal communication	3 cr.
Algebra and trigonometry	3 cr.
Introductory psychology	3 cr.
Human physiology	5 cr.
Total	14 cr.

Sophomore

Fall

Elementary Composition II or Professional Writing Skills	3 cr.
General physics (with lab)	4-5 cr.
Introduction to computers	2-3 cr.
Business elective	3 cr.
Total	12-14 cr.

Spring

Social/Behavioral science elective	3 cr.
Business elective	3 cr.
Medical Terminology	1 cr.
Electives	4-5 cr.
Total	11-12 cr.

Professional Program—Non-Radiographer

Summer Session II (Junior)

Introduction to Radiography (RADI R110)	3 cr.
Patient Care I (RADI R112)	3 cr.
Total	6 cr.

Fall (Junior)

Radiographic/Fluoroscopic Equipment (RADI R240).....	2 cr.
Medical Imaging and Processing in Radiation Oncology RAON J307.....	2 cr.
Simulation/Treatment Procedures RAON J300.....	6 cr.
Clinical Dosimetry I RAON J305.....	2 cr.
Clinical Experience: Basic RAON J350.....	3 cr.
Total	15 cr.

Spring (Junior)

Radiation Oncology Techniques I RAON J302.....	3 cr.
Clinical Dosimetry II RAON J306.....	2 cr.
Radiation Oncology Patient Care RAON J304.....	2 cr.
Quality Management in Radiation Oncology RAON J404.....	3 cr.
Clinical Practicum I RAON J351.....	3 cr.
Total	13 cr.

Summer Session I (Junior)

Radiation Oncology Techniques II RAON J402.....	3 cr.
Clinical Practicum II RAON J450.....	4 cr.
Total	7 cr.

Summer Session II (Senior)

Clinical Practicum III-RAON J451.....	6 cr.
Total	6 cr.

Fall (Senior)

Physics of Radiation Oncology I RAON J400.....	2 cr.
Clinical Oncology I RAON J303.....	3 cr.
Senior Project in Radiation Oncology RAON J409.....	3 cr.
Clinical Practicum IV RAON J452.....	5 cr.
Total	13 cr.

Spring (Senior)

Physics of Radiation Oncology II RAON J401.....	2 cr.
Clinical Oncology II RAON J403.....	3 cr.
Radiation and Cancer Biology RAON J406.....	2 cr.
Clinical Practicum V RAON J453.....	5 cr.
Total	12 cr.

ADMISSION—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 December 1 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 2.5 on a 4.0 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 Science or mathematics grade point average of 2.3 and a 2.5 grade point average in stated prerequisite courses (on a 4.0 scale); this requirement is applied at the time of program application and must be maintained. Students must attain a cumulative grade point average of 2.3 for all radiography courses. Grades from

remedial courses are not calculated into the mathematics and science grade point average to determine the admission index.

Minimum Grade Requirement in a Stated Prerequisite Course C (2.0 on a 4.0 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 School of Medicine Health Professions Programs policy.

Medical Requirements All required immunizations must be completed before the start of the program. Verification of immunizations and the health form must be submitted during orientation.

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

Volunteer Experience Students must observe in a radiation oncology facility before applying to the program.

CURRICULUM—RADIOGRAPHER

Prerequisites

The following prerequisite course of study must be completed for students to be eligible for admission into the professional program. 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 "G" indicates a course that meets the school's general-education requirements.

Verbal communication (G)	2-3 cr.
Written communication (G) (2 courses) (Second course must focus on research and professional writing skills.)	6 cr.
Humanities elective (G)	3 cr.
Social/Behavioral science elective	3 cr.
Introductory psychology (G)	3 cr.
College algebra and trigonometry	5-6 cr.
General physics (with lab) (G)	4-5 cr.
Human anatomy (with lab)	4-5 cr.
Human physiology	4-5 cr.
Medical terminology	1 cr.
Introduction to computers	2-3 cr.
Business elective	3 cr.

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 degree in radiography.

Students who received their technical training in noncredit 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.

Professional Program—Radiographer

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

Fall (Junior)

Orientation to Radiation Oncology RAON J301.....	4 cr.
Clinical Dosimetry I RAON J305.....	2 cr.
Clinical Experience: Basic RAON J350.....	3 cr.
Business Elective.....	3 cr.
Total	12 cr.

Spring (Junior)

Radiation Oncology Techniques I RAON J302.....	3 cr.
Radiation Oncology Patient Care RAON J304.....	2 cr.
Quality Management in Radiation Oncology RAON J404.....	3 cr.
Clinical Dosimetry II RAON J306.....	2 cr.
Clinical Practicum I RAON J351.....	3 cr.
Total	13 cr.

Summer Session I (Senior)

Radiation Oncology Techniques II RAON J402.....	3 cr.
Clinical Practicum II RAON J450.....	4 cr.
Total	7 cr.

Summer Session II (Senior)

Clinical Practicum III RAON J451.....	6 cr.
Total	6 cr.

Fall (Senior)

Physics of Radiation Oncology I RAON J401.....	2 cr.
Clinical Oncology I RAON J303.....	3 cr.
Clinical Practicum IV RAON J452.....	5 cr.
Senior Project in Radiation Oncology RAON J409.....	3 cr.
Total	13 cr.

Spring (Senior)

Physics of Radiation Oncology II RAON J401.....	2 cr.
Radiation and Cancer Biology RAON J406.....	2 cr.
Clinical Oncology II RAON J403.....	3 cr.
Clinical Practicum V RAON J453.....	5 cr.
Total	12 cr.

Scholarships Some hospitals and employers offer financial assistance for students pursuing radiation therapy.

Graduation Requirements for Baccalaureate Degree To be eligible for graduation with a baccalaureate degree, students must successfully complete the general-education requirements, technical specialty (radiographers), and professional core in radiation therapy. They must also achieve clinical competency in each area identified in the clinical manual requirements.

For further information, contact:

Professor Donna Dunn, Director, Radiation Therapy Program
Department of Radiation Oncology
Indiana Cancer Care Pavilion
535 Barnhill Drive, RT 041
Indianapolis, IN 46202-5289
Phone: (317) 274-1302
E-mail: dodunn@iupui.edu

Courses in Radiation Therapy

"P" refers to a course prerequisite and "C" to a course that must be taken concurrently.

RAON J300 Simulation/Treatment Procedures (6 cr.)

P: RADI R103, RADI R104, and RADI R185. Lecture and laboratory sessions emphasizing the clinical utilization of simulators and treatment machines.

RAON J301 Orientation to Radiation Oncology (4 cr.)

P: R.T.(R). An overview of radiation oncology and the role of the radiation therapist. Presentations will orient students to the physical and biological basis of radiation oncology equipment, procedures, tumor pathology, and patient interaction.

RAON J302 Radiation Oncology Techniques I (3 cr.)

P: R.T.(R) or RADI R102, RAON J300, and RAON J350. Lecture and laboratory sessions presenting concepts of treatment-planning techniques of head, pelvis, spine, lung, and brain. To include implant localization techniques.

RAON J303 Clinical Oncology I (3 cr.)

P: R. T. (R) or RADI R102, and RAON J300. 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 J304 Radiation Oncology Patient Care (2 cr.)

P: R.T.(R) or RADI R104. Concepts of radiation oncology patient care, including considerations of patients' physical and psychological condition. Factors influencing patients' general health during and following a course of radiation therapy treatments will be identified.

RAON J305 Clinical Dosimetry I (2 cr.) Review of fundamental mathematics concepts as they relate to practical dosimetry and performing routine calculations pertaining to patient set-up and treatment.

RAON J306 Clinical Dosimetry II (2 cr.) P: RAON J305. Development of computer treatment planning skills in radiation oncology.

RAON J307 Medical Imaging and Processing in Radiation Oncology (2 cr.)

Fundamentals of radiologic exposure techniques, latent image formation, and processing of radiographs utilized in radiation oncology.

RAON J350 Clinical Experience: Basic (3 cr.)

P: RADI R103 and RADI R104. Clinical observation and assistance in the clinical skills of radiation therapy technology under the direct supervision of a registered radiation therapist or equivalent.

RAON J351 Clinical Practicum I (3 cr.)

P: R.T.(R) or RAON J350. 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 J400 Physics of Radiation Oncology I (2 cr.)

P: R.T.(R) or RADI R250; MATH 153 and 154 or MATH 150; PHYS P201 and P218. Fundamental principles of the physical quantities of radiation and

atomic and nuclear theory. To include discussions of radiation oncology equipment.

RAON J401 Physics of Radiation Oncology II (2 cr.)

P: RAON J400. Continuation of J400 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 J402 Radiation Oncology Techniques II (3 cr.)

P: RAON J302. Lecture and laboratory sessions present concepts of treatment-planning techniques of breast, esophagus, mantle and inverted-Y, pituitary, total body and hemi-body, and common palliative portals.

RAON J403 Clinical Oncology II (3 cr.)

P: R.T.(R) and RAON J303 or RADI R102, RADI R103, RADI R104, RADI R185, RAON J300, and RAON J303. 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, and pediatric sites. Student case presentations required.

RAON J404 Quality Management in Radiation Oncology (3 cr.)

P: RAON J300 or RAON J301, RAON J305, and RAON J350. 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 emphasis on quality improvement techniques.

RAON J406 Radiation and Cancer Biology (2 cr.)

Emphasis on the modern principles of cellular and molecular biology as they relate to normal and cancer cell response both in vitro and in vivo to various radiation types, i.e., X/gamma rays, neutrons, and charged particles. Topics include dose time, fractionation, repair, tumor kinetics, hyperthermia, and radiation protection.

RAON J409 Senior Project in Radiation Oncology (3 cr.)

Individual research in radiation oncology. Research proposal requires the approval of the program director.

RAON J450 Clinical Practicum II (4 cr.)

P: RAON J351. 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 J451 Clinical Practicum III (6 cr.)

P: RAON J450. 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.

RAON J452 Clinical Practicum IV (5 cr.)

P: RAON J451. Clinical application of patient positioning immobilization, block fabrication, patient simulation techniques, treatment delivery, patient care

management, and radiation protection under the direct supervision of a registered radiation therapist.

RAON J453 Clinical Practicum V (5 cr.)

P: RAON J452. 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.

Radiography

Educational programs in radiography are located on the following Indiana University campuses: Indiana University–Purdue University Indianapolis, Indiana University Northwest (Gary), Indiana University South Bend, Indiana University Kokomo, and Indiana University–Purdue University Fort Wayne. The following information is for the Indiana University School of Medicine Radiography Program located on the IUPUI campus.

Description of the Profession Radiologic technology is a science involving the medical use of X rays in the diagnosis of disease. A radiologist is a physician specializing in this science, and a radiologic technologist (radiographer) is the technical assistant to the radiologist. Radiographers make up the largest group of imaging professionals. Their principal duties consist of performing X-ray examinations of patients. 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 often 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 Radiographer.

Indiana Certification Requirements to Practice State certification is required to operate an X-ray machine. The state accepts the ARRT registry for certification.

Associate of Science in Radiography at Indiana University–Purdue University Indianapolis

Program Director: Associate Professor Hernandez

Medical Advisor: Professor Cohen

Associate Professors: Baker, Kosegi, Long, Rafert

Assistant Professor: Kehrein

Associate Clinical Professors: Cox, Robinson

Clinical Lecturer: DeVore

EDUCATIONAL PROGRAM

Length of the Program A new class begins in summer session II 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, during approximately four weeks of evening rotations and one holiday. Indiana University holidays are observed. The schedule of classes and clinical experiences closely follow the IUPUI 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 program-related expenses such as books, uniforms, and other supplies. Contact the program for a current cost sheet.

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 clock 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. Please contact the program for more information.

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 the Clinical Building. Students obtain clinical experience in the radiology departments located in Indiana University, Riley, Wishard, and the Veterans Administration hospitals and the Regenstrief Health Center and St. Francis Hospital (Beech Grove and

Indianapolis). 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 900, Chicago, Illinois 60606-2901, (312) 704-5300, www.jrcert.org.

ADMISSION

General Information

Students accepted into the program must complete the Health Professions Programs (HPP) and the following 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 In the selection of applicants to be offered admission, the Radiologic Science Admission Committee considers academic background, including total and science/mathematics GPA, the completion of general-education courses that are part of the associate degree curriculum, any background applicants may have in a health-care related area, including but not limited to radiography, previous application for admission to the program, and the results of a personal interview.

Class Size 37 new students are admitted to start the professional program at the beginning of summer session II each year.

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 apply to the Radiography Program.

Application Deadline November 15 of the year before anticipated entry in the program.

Total Number of Prerequisite Credit Hours 7.

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. Applicants with fewer than 12 college credit hours Completion of fewer than 12 credit hours of GPA-earning courses including the prerequisite courses in composition (ENG W131) and algebra (MATH 110 or 111).

Qualifying Criteria:

1. High school cumulative academic GPA of at least 3.0 on a 4.0 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 3.0 on a 4.0 scale.
3. Qualifications for regular admission to IUPUI if not already admitted.
4. College GPA of at least 2.5 on a 4.0 scale.
5. No less than a C in either of the prerequisite courses.

B. Applicants with 12 or more college credit hours Completion of a minimum of 12 credit hours of GPA-earning courses to include the prerequisite courses in composition (ENG W131) and algebra (MATH 110 or 111).

Qualifying Criteria:

1. College GPA of at least 2.5 on a 4.0 scale for all college work completed. (Course grades from *all* institutions attended will be used.)
2. No less than a C in either of the prerequisite courses.
3. College mathematics/science GPA of at least 2.3 on a 4.0 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 of 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 two prerequisite courses.

GED Applicants Those who have completed the GED certificate must qualify under Section B above. In addition to the required prerequisite courses, the GED applicant must include a college science course in the minimum of 12 credits to qualify.

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 An interview is required for admission. If, however, the number of applications to the program far exceeds the number of positions available, the program admissions committee reserves the right to limit the number of applicants interviewed to two times the number of positions available in the class. Interviews are scheduled during late January.

Technical Requirements See the Health Professions Programs' policy.

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

Volunteer Experience The admissions committee urges all interested applicants to spend time observing or volunteering in a radiology department. If you cannot arrange to do so at a local hospital by calling the chief technologist and indicating your desire to learn more about the field, a time can be scheduled in one of the Medical Center hospital departments.

CURRICULUM**Prerequisites**

English Composition (ENG W131).....	3 cr.
Intermediate Algebra (MATH 111).....	4 cr.

Professional Program**First Year***Summer Session II*

Introduction to Radiography (RADI R110)	3 cr.
Patient Care I (RADI R112).....	3 cr.
Medical Terminology (RADI R108).....	1 cr.
Total	7 cr.

Fall Semester

Radiographic Procedures I (RADI R114).....	4 cr.
Radiographic Procedures I lab (RADI R115).....	1 cr.
Principles of Radiography I (RADI R118).....	3 cr.
Radiography Clinical Lab I (RADI R150).....	1 cr.
Basic Clinical Experience course (RADI R151 or R152 & R153).....	3 cr.
Human Biology (BIOL N212).....	3 cr.
Human Biology lab (BIOL N213).....	1 cr.
Total	16 cr.

Spring Semester

Radiographic Procedures II (RADI R124)	3 cr.
Principles of Radiography II (RADI R128).....	3 cr.
Physical Basis for Radiography (RADI R140).....	2 cr.
Radiography Clinical Lab II (RADI R170).....	1 cr.
Basic Clinical Experience (RADI R171 or R172 & R153).....	3 cr.
Human Biology (BIOL N214).....	3 cr.
Human Biology lab (BIOL N215).....	1 cr.
Total	16 cr.

Second Year*Summer Session I*

Clinical Experience Course (RADI R271 or R274 or R275).....	2 cr.
Patient Care II (RADI R212).....	1 cr.
Total	3 cr.

Summer Session II

Clinical Experience course (RADI R271 or R274 or R275).....	2 cr.
Processing Theory (RADI R218).....	1 cr.
Total	3 cr.

Fall Semester

Pathology (RADI R210).....	2 cr.
Principles of Radiography III (RADI R228).....	3 cr.
Radiographic/Fluoroscopic Equipment (RADI R240).....	2 cr.
Advanced Contrast Imaging (RADI R224).....	1 cr.
Clinical Experience course (RADI R271 or R272 or R274 & R275).....	4 cr.
Oral communications (COMM R110 or C180).....	3 cr.
Total	15 cr.

Spring Semester

Radiographic Procedures III (RADI R214)	3 cr.
Quality Control in Radiography (RADI R242).....	2 cr.
Radiation Biology and Protection in Diagnostic Radiology (RADI R262).....	1 cr.
Advanced Non-Contrast Imaging (RADI R214).....	2 cr.
Imaging a Diverse Population (RADI R226).....	2 cr.
Clinical Experience course (RADI R272 or R274 & R275).....	4 cr.
Social/behavioral science elective.....	3 cr.
Total	17 cr.

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 86 credit hours to include 24 credit hours of graduation requirements and 62 credit hours of professional courses. All course work must be completed in compliance with the program's and Health Professions Programs' academic and professional policies.

For further information, contact:

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E-mail: ehernand@iupui.edu.

Courses in Radiography

“P” refers to a course prerequisite and “C” to a course that is taken concurrently.

RADI R108 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 R110 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 R112 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 R114 Radiographic Procedures I (4 cr.)

P: RADI R110 and R112. Concepts in radiography with emphasis on the radiographic procedures used to demonstrate the skeletal system and major contrast media procedures. Includes image study.

RADI R115 Radiographic Procedures I lab (1 cr.)

C or P: RADI R114. Practice and instruction in methods of performing radiographic examinations presented in R114.

RADI R118 Principles of Radiography I (3 cr.)

P: MATH 111 R110. Basic concepts of radiation, its production, and its interactions with matter. Introduction to imaging production including digital radiography.

RADI R124 Radiographic Procedures II (3 cr.)

P: RADI R114. Concepts in radiography with emphasis on radiographic procedures used for the skull, advanced orthopedics, vascular and sectional anatomy, fluoroscopy and contrast media.

RADI R128 Principles of Radiography II (3 cr.)

P: RADI R118. In-depth study of the properties that

effect the quality of the radiographic image and exposure conversion.

RADI R140 Physical Basis for Radiography (2 cr.) P: MATH 111 or R110. A conceptual study of the science behind the production of the x-ray beam.

RADI R150 Radiography Clinical Lab I (1 cr.)

C: RADI R151 or R152. Supervised laboratory activities to promote understanding of physical and imaging principles needed to facilitate learning in the Basic Clinical Experience courses.

RADI R151 Basic Clinical Experience I (3 cr.)

C: RADI R150. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients, while under the supervision of a registered radiologic technologist.

RADI R152 Basic Clinical Experience I (2 cr.)

C: RADI R151 and R153. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients, while under the supervision of a registered radiologic technologist.

RADI R153 Pediatric Clinical Experience I (3 cr.)

C: RADI R152 or R172. 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 R155 Clinical Re-entry 1 (1 cr.)

Clinical application of radiographic positioning, procedure, and exposure emphasizing re-familiarization with skills and knowledge needed to continue the clinical experience courses, while under the supervision of a registered radiologic technologist.

RADI R170 Radiography Clinical Lab II (1 cr.)

P: RADI R150, C: RADI R171 or RADI R172. 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 R171 Basic Clinical Experience II (3 cr.)

C: RADI R170. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients, while under the supervision of a registered radiologic technologist.

RADI R172 Basic Clinical Experience II (1 cr.)

C: RADI R170 and R153. Clinical application of radiographic positioning, procedure, and exposure on cooperative, uncomplicated patients, while under the supervision of a registered radiologic technologist.

RADI R210 Radiographic Pathology (2 cr.)

P: anatomy/physiology, RADI R114 and R124. 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 R212 Patient Care II (1 cr.)

P: RADI R112. Overview of extended patient care procedures including venipuncture, pharmacology, electrocardiography, and code-response procedures.

RADI R214 Radiographic Procedures III (3 cr.)
P: RADI R124. 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 R216 Advanced Non-Contrast Imaging (2 cr.) P: RADI R124. Presentations, problem solving and discussion on methods of performing radiographic procedures on patients with trauma or disease conditions that necessitate adaptation of routine procedures. Topics will include chest, surgical procedures, bone fractures, and arthritides.

RADI R218 Processing Theory (1 cr.) Concepts in radiography with emphasis on the fundamentals of wet and dry processing.

RADI R224 Advanced Contrast Imaging (1 cr.)
P: RADI R124. Selected topics in radiographic imaging using contrast media, with emphasis on knowledge needed for effective clinical practice

RADI R226 Imaging a Diverse Population (2 cr.)
P: RADI R124. 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 R228 Principles of Radiography III (3 cr.)
P: RADI R128. 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 R236 Seminar in Radiography (0.5 - 3 cr.)
Individual and group study focusing on current and emerging imaging topics. May be repeated for if topics differ.

RADI R238 Topics in Radiography (0.5 - 3 cr.)
Selected topics in imaging. May be repeated for credit if topics differ. Prerequisites may be required for topic.

RADI R240 Radiographic/Fluoroscopic Equipment (2 cr.) P: RADI 140 or PHYS P201 or R218. A detailed study of equipment used to generate an x-ray beam.

RADI R242 Quality Control in Radiography (2 cr.) P: RADI R240. 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 R262 Radiation Biology and Protection in Diagnostic Radiology (1 cr.) P: RADI R140. 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 R271 Clinical Competency Experience 1 (2-4 cr.) P: RADI R172. 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 R272 Clinical Competency Experience 2 (2-4 cr.) P: RADI R271. 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 R274 Experience in Imaging Modalities (2 cr.) P: RADI R172. 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 R275 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.

Respiratory Therapy

Program Director Adjunct Associate Professor
Van Scoder

Clinical Director Adjunct Assistant Professor
Johnson

Professor Cullen

Associate Professor Koss

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 types 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. Students in the respiratory therapy major will learn diagnostic procedures ranging from physical examination to the use of highly sophisticated computerized equipment. Patient treatment skills will include everything from the administration of inhaled medications to maintaining critically ill patients on ventilators. The Bachelor of Science in Respiratory Therapy will provide graduates with the critical thinking and problem-solving skills that they will need to be successful in their careers.

Graduates of the Program The graduates of the Respiratory Therapy Program are eligible for state licensure examinations as well as examinations offered by the National Board for Respiratory Care. Completion of the program will allow a graduate to sit for the Registered Respiratory Therapist (R.R.T.) examination.

Credential Required to Practice C.R.T., Certified Respiratory Therapist; R.R.T., Registered Respiratory Therapist

Licensure Requirements to Practice Graduates of the Respiratory Therapy Program will file an application for a license as a Respiratory Care Practitioner in the State of Indiana. Over 40 states require Respiratory Therapists to be licensed in order to practice.

Bachelor of Science in Respiratory Therapy at Indiana University-Purdue University Indianapolis

EDUCATIONAL PROGRAM

Description of the Program The Bachelor of Science in Respiratory Therapy is offered by a consortium that includes Indiana University, Ball State University, the University of Indianapolis, and Clarian Health. Students will take their prerequisite course work on the IUPUI campus, and their professional course work will be offered in classrooms and laboratories located at Methodist Hospital. A free monorail service connects Methodist Hospital with the IUPUI campus. The professional phase of the program consists of a carefully planned sequence of classroom and laboratory instruction, as well as over 1000 hours of supervised clinical instruction. Clinical instruction is provided in a variety of hospitals and health care facilities located throughout central Indiana.

Length of the Program Four years; two years of prerequisite course work plus two years (70 credit hours) of professional course work.

Structure of the Program The prerequisites may be taken on a part-time basis; the professional program is full-time and is conducted primarily during the day.

Design of the Professional Curriculum The program is designed to cover all aspects of respiratory therapy, with an emphasis on general and critical care.

Program Facilities The program offices are located in Coleman Hall on the IUPUI campus and in Wile Hall on the Methodist Hospital campus.

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.

Additional Cost In addition to standard university fees, students are responsible for travel to clinics, laboratory fees, clinical fees, uniforms, vaccination costs, and CPR card fees. 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 Most 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 Respiratory Therapy Program is accredited by the Commission on Accreditation for Allied Health Education Programs.

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. At the time of application, students may request any of the following options: repeated courses, academic bankruptcy, and fresh start. For more information about these options, please see an advisor.

Criteria Used for Selection of Class Grade point average.

Class Size Approximately 20 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 following admission policies apply to the Respiratory Therapy Baccalaureate Degree Program.

Application Deadline January 1. Late applications will be considered on a space-available basis.

Total Number of Prerequisite Hours 55. Graduates from accredited associate degree respiratory therapy programs are eligible to apply; however, all applicants must complete the prerequisites.

Minimum Cumulative Grade Point Average 2.5 on a 4.0 scale. This requirement is applied at the time of program application and must be maintained. Students admitted for fall 2004 will have a minimum GPA requirement of 2.3 on a 4.0 scale.

Minimum Grade Requirement in a Stated Math or Sciences Prerequisite Course C (2.0 on a 4.0 scale).

Interview All qualified applicants must participate in an interview.

Technical Standards All accepted students will be required to sign a statement certifying that they can meet the program's technical standards.

Medical Requirements All students are required to complete a medical history and document a complete vaccination program once accepted into the Respiratory Therapy Program.

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

Shadowing Experience All applicants are required to complete and document at least 3 hours of clinical observation with a respiratory therapist. For students admitted for fall 2004, the shadowing experience is highly recommended but not required.

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.
3. Students must maintain American Heart Association Healthcare Provider CPR or American Red Cross CPR for the Professional Rescuer 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 2.3.
2. A student will be placed on probation if there is a failure to progress either academically or professionally. The following are examples of failure to progress.

Probation resulting from a failure to progress is not limited to these examples:

- failure to maintain CPR 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;
 - 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 (including documentation of a critical incident).
3. A student will be dismissed from the program if there is failure to complete the bachelor's degree three years subsequent to the initial admission to the professional program.

Appeals Procedure On occasion, students and faculty will have differing beliefs, perceptions, or accounts of situations or events. It is important for those 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 to an appropriate person.

- A. Discuss problem, concern, or disagreement with faculty member directly involved. (If no faculty are directly involved, contact either your faculty advisor or the Program Director.)
- B. If the matter cannot be resolved by direct discussion, then the student and the faculty member/instructor will meet with a superior faculty member, such as the director of clinical education or program director, for review.

CURRICULUM

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 may be taken at any accredited college or university. The code "G" indicates a course that meets the school's general-education requirements.

Written Communication (G)	6 cr
(second course should focus on professional and technical writing)	
Verbal Communication (G)	3 cr
College Math (G)	5-6 cr
Social and Behavioral Science (G)	3 cr
Lifespan Development (G)*	3 cr
Statistics (G)	3 cr
Human Anatomy (with laboratory) (G)	3-5 cr
Human Physiology (with laboratory) (G)	3-5 cr
Chemistry (with Laboratory) (G)	3-5 cr
Microbiology (G)	3-4 cr
Ethics (G)*	3 cr
Physics (G)	3 cr
Introduction to Computers (G)	3 cr

* For students admitted to the program in fall 2004, Lifespan Development and Ethics are graduation requirements but need not be completed before entering the program. For all subsequent years, these courses are prerequisites.

Suggested Electives

The following courses, while not inclusive or mandatory, are suggested: 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 both adult, child, and infant CPR before entry into the program. This must be the Healthcare Provider CPR or CPR for the Professional Rescuer. These courses are offered for a fee through the American Heart Association and American Red Cross.

A Suggested Plan of Study**First Year***Fall*

Elementary Composition I	3 cr.
Chemistry (with laboratory)	3-5 cr.
Social and Behavioral Science	3 cr.
College Math I	3 cr.
Total	12-14 cr.

Spring

Speech Communication	3 cr.
College Mathematics II	3 cr.
Human Anatomy (with laboratory)	3-5 cr.
Ethics/Philosophy*	3 cr.
Total	12-14 cr.

Second Year*Fall*

Professional Writing	3 cr.
Physics I	3 cr.
Human Physiology (with laboratory)	4-5 cr.
Introduction to Computers	3 cr.
Total	13-14 cr.

Spring

Statistics	3 cr.
Introduction to Microbiology	3-4 cr.
Lifespan or Human Development*	3 cr.
Elective	3+ cr.
Total	12+ cr.

Professional Program

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

Third Year*Fall*

PULM F303 Introduction to Human Disease for Respiratory Therapists	2 cr.
PULM F311 Cardiorespiratory Physiology	3 cr.
PULM F325 General Respiratory Care	4 cr.
PULM F326 Respiratory Care Techniques I	2 cr.
PULM F315 Cardiorespiratory Assessment and Patient Care	3 cr.
PULM F333 Cardiorespiratory Pharmacology I	2 cr.
Total	16 cr.

Spring

PULM F350 Cardiorespiratory Diseases	3 cr.
PULM F355 Life Support	3 cr.
PULM F356 Respiratory Care Techniques II	2 cr.
PULM F385 Respiratory Care Practicum I	3 cr.
PULM F405 Neonatal-Pediatric Respiratory Care	3 cr.
PULM F444 Cardiorespiratory Pharmacology II	2 cr.
Total	16 cr.

Summer Session I

PULM F395 Respiratory Care Practicum II	4 cr.
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Fourth Year*Fall*

PULM F371 Pulmonary Diagnostics	3 cr.
PULM F451 Cardiorespiratory Monitoring and Special Techniques	3 cr.
PULM F456 Respiratory Care Practicum III	6 cr.
PULM F420 Introduction to Research in Respiratory Care	2 cr.
PULM F461 Pulmonary Rehabilitation and Geriatrics	3 cr.
Total	17 cr.

Spring

PULM F430 Management and Leadership for Respiratory Care	3 cr.
PULM F485 Respiratory Care Practicum IV	6 cr.
PULM F445 Seminar in Cardiorespiratory Care	3 cr.
PULM F480 Patient Education Techniques	3 cr.
PULM F440 Advanced Cardiac Life Support	2 cr.
Total	17 cr.

Scholarships Once accepted to the program, students are eligible for scholarships offered by the Indiana Society for Respiratory Care and the American Association for Respiratory Care.

Graduation Requirements Satisfactory completion of 125 credit hours to include 55 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.

For further information contact:

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Courses in Respiratory Therapy

"P" refers to a course prerequisite and "C" to a course that must be taken concurrently.

PULM F303 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 F311 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 F315 Cardiorespiratory Assessment and Patient Care (3 cr.) Basic cardiorespiratory assessment, vital signs, laboratory studies, and charting. Includes required preclinical skills and practice.

PULM F325 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 F326 Respiratory Care Techniques I (2 cr.) C: F325. 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 F333 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 F350 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 F355 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 F356 Respiratory Care Techniques II (2 cr.) C: F355. 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 F371 Pulmonary Diagnostics (3 cr.) This course outlines and discusses both normal and abnormal lung volumes and capacities, mechanics of

*For students admitted in 2004, these courses may be completed before or during the professional program.

ventilation, inspiratory and expiratory flows, and diffusion of the lung. Additionally, specialty.

PULM F385 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 F395 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 F405 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 F420 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 F430 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 F440 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 F444 Cardiorespiratory Pharmacology II (2 cr.) P: F333. 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 F445 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 F451 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 F456 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 F461 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 F480 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 F485 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.

Indiana University School of Medicine Administrative Officers for the Health Professions Programs

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Faculty Credential Abbreviations

C.N.M.T. (NMTCB)—Certified Nuclear Medicine
Technologist

C.L.S. (NCA)—Clinical Laboratory Scientist

C.L.Sp.H. (NCA)—Clinical Laboratory Specialist in
Hematology

C.T. (ASCP)—Cytotechnologist

E.M.T.-P.—Emergency Medical
Technician—Paramedic

E.A.S.R.T.—Fellow, American Society of Radiologic
Technologists

H.T. (ASCP)—Histotechnician

M.T. (ASCP)—Medical Technologist

N.P.S.—Neonatal/Pediatric Specialist

R.N.—Registered Nurse

R.R.T.—Registered Respiratory Therapist

R.T. (CT) ARRT—Registered Computed Tomography
Technologist

R.T. (CV) ARRT—Registered Cardiovascular
Interventional Technologist

R.T. (MR) ARRT—Registered Magnetic Resonance
Imaging Technologist

R.T. (QM) ARRT—Registered Quality Management
Technologist

R.T. (N) ARRT—Registered Nuclear Medicine
Technologist

R.T. (R) ARRT—Registered Radiographer

R.T. (T) ARRT—Registered Radiation Therapy
Technologist

S.B.B. (ASCP)—Specialist in Blood Banking

S.C. (ASCP)—Specialist in Chemistry

S.C.T. (ASCP)—Specialist in Cytotechnology

S.H. (ASCP)—Specialist in Hematology

S.I. (ASCP)—Specialist in Immunology

S.M. (ASCP)—Specialist in Microbiology

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