

## Radiologic Sciences

### COLLEGE OF APPLIED SCIENCES AND ARTS

#### Graduate Faculty:

**Collins, Kevin Scott**, Professor, Ph.D., Southern Illinois University Carbondale, 2011. Radiation therapy.

**Collins, Sandra K.**, Associate Professor, Ph.D., Southern Illinois University Carbondale, 2003; 2000. Health care management.

**Hirsch, Bradon**, Lecturer, M.S., Southern Illinois University Carbondale, 2013. .

**McKinnies, Richard**, Associate Professor, M.S., Southern Illinois University Carbondale, 2000, 2003.

**Mobile, Katherine**, Lecturer, M.S., University of Wisconsin-LaCrosse, 2011.

The Radiologic Science professional is a member of the health care team who has knowledge of the characteristics and clinical relevance of radiographic imaging, is cognizant of patient care procedures and has the education and expertise necessary to generate diagnostic medical images including sonograms, computed tomograms, magnetic resonance images, and roentgenograms. The mission of the Master of Science in Radiologic Sciences program through Southern Illinois University (SIU) is to provide a quality program integrating education, research, and service in order to meet the needs of the profession and improve health care of the people and communities we serve.

Several specific objectives and goals of the program would be to:

- Prepare the student to practice as a radiologic sciences educator or manager by offering a balanced curriculum and quality didactic/experiential instruction.
- Provide didactic and experiential opportunities that lead to research in educational, professional, or health care issues relating to radiologic sciences education and/or management.
- Provide avenues to students for development and growth within the profession.
- Provide avenues for students to develop and apply skills in effective communication, analytical and critical thinking, and problem solving necessary for successful allied health practice.
- Provide an experiential and didactic environment which leads to the refinement of skills and competence appropriate for an advanced educator/manager in the radiologic sciences.
- Provide an accessible opportunity for regional radiologic science professionals to acquire a terminal degree.
- Provide an accessible opportunity for regional radiologic sciences professionals to acquire the necessary means to succeed in a global and diverse workforce/workplace.

The minimum admission guidelines of the MSRS program mirror those of the Graduate School at SIU; however, to elaborate on those requirements, the following is provided:

- Candidates will be granted admittance to the SIUC

Graduate School.

- Candidates will possess a baccalaureate degree and have completed a program of study in an associated field to Allied Health, Radiology, Sonography, Medical Imaging, Health Care Management, or an equivalent field.
- Candidates will be nationally licensed by the ARRT, the ARDMS, the NMDCB, or an equivalent National or International Licensing Body in diagnostic imaging.
- Candidates will have a minimum cumulative grade point average (GPA) of at least 2.7 (where 4.0 = A).
- Student background checks will only be completed if required in the legal agreement to perform the internship.
- The GRE is not required for admission to this program.
- TOEFL score requirements will follow the requirements set forth by the SIUC Graduate School.
- Transfer students will follow the same criteria as all other students.
- Students will complete and submit an application for enrollment in the MSRS program and submit a \$65 application fee to the program.

The MSRS program is a comprehensive program that will prepare students to enter the professional workforce with a graduate degree in radiology, specializing in either management or education. The academic objectives of the program include:

1. Successful completion of 30 didactic credit hours (RAD 511, 516, 521, 526, 531, 536, 541, 546, 551, and 556) plus objective 2 or 3;
2. Successful completion of RAD 593 which consists of 6 credit hours of research/thesis project, culminating in a final scholarly work as outlined by the SIUC Graduate School;
3. Successful completion of a RAD 595 which consists of a 6 credit hour (240 contact hours) internship in either education or management, dependent upon the students' area of interest. (The internship is an option if obtaining state licensure/permission to perform the internship is feasible.)

To facilitate completion of the objectives of the program, the course of instruction will consist of 36 semester hours. As part of these 36 semester hours, students will complete an internship or research/thesis project. The student internship will specialize in instructional or management techniques in a real-world setting consisting of 6 credit hours (where 1 credit hour is equivalent to 40 contact hours).

The curriculum will consist of both didactic and experiential courses. Experiential learning will take place through the use of internships and student teaching at SIUC or other state/regional basic radiography programs or health care facilities. Course material will cover educational theory (including the foundations of education) and/or management theory. Additionally, advanced study of radiologic sciences coursework including radiation physics, radiation biology, anatomy, pharmacology, human disease/pathology, advanced imaging methods, advanced imaging modalities, and patient care will be undertaken for individuals choosing education as their area of specialization. Upon program completion, the student is expected to be fully capable of teaching these topics at an

introductory level for basic radiologic science professionals. Special project assignments, conference attendance and presentations, and journal article reviews are an integral part of the curriculum.

All students graduating from the MSRS program will be required to meet the qualifications of the graduate school at SIUC. Students will be required to complete a culminating scholarly work which may include a research/thesis paper, or graduate project if not completing the internship option.

### Sample Schedule of Course Offerings

#### Master of Science in Radiologic Sciences (MSRS)

**36 semesters hours are required for successful completion of this program.**

#### Fall Semester

- RAD 511-3 Fundamentals of Health Care Systems
- RAD 516-3 Cultural Foundations and Theories of Education
- RAD 521-3 Advance Practice of Radiologic/Imaging Sciences I
- RAD 526-3 Seminar in Radiologic/Imaging Sciences I

#### Spring Semester

- RAD 531-3 Human Resource Management in Health Care
- RAD 536-3 Administration and Supervision in Allied Health
- RAD 541-3 Advance Practice of Radiologic/Imaging Sciences II
- RAD 546-3 Seminar in Radiologic/Imaging Sciences II

#### Summer Semester

- RAD 551-3 Legal and Ethical Fundamentals of Health Care
- RAD 556-3 Advanced Research Methods
- RAD 601-1 per semester Continuing Enrollment

**Final Portion of Program - Must complete one of the following.**

- RAD 593-6 Individual Research
- RAD 595-6 Graduate Internship

The delivery method will be through distance education via Desire2Learn or the current classroom management system in use at SIU.

### Courses (RAD)

**511-3 Fundamentals of Health Care Systems.** This course provides a multi-disciplinary analysis and is designed to provide students with information pertaining to the issues surrounding access to care, medical technology, and the complex financial structures of the health care system. Students will extensively examine aspects of the complex healthcare system such as managed care, Medicare, Medicaid, pharmaceuticals, health promotion and disease prevention, and the quality of care.

**516-3 Cultural Foundations and Theories of Education.** Seminar provides an examination of the historical, social, economic and psychological foundations of allied health education with emphasis given to the nature and role of education and training in preparing for the field of medical education. The objectives of this seminar will allow the student to explore the nature and theories of education, the behavioral aspects of education including the assumptions and practices which underlie education. Special approval needed from the instructor

**521-3 Advance Practice of Radiologic/Imaging Sciences I.** This course will include a review of the following topics: Radiation physics, radiation biology, anatomy, pharmacology, human diseases/pathology, advanced imaging methods, advanced imaging modalities, and patient care.

**526-3 Seminar in Radiologic/Imaging Sciences I.** (Same as RAD 525) This course consists of various seminar/literature reviews associated with radiologic/imaging sciences. Topics include imaging techniques, technological advances in the radiologic/imaging sciences, patient care trends, and the role of an imaging professional. This course is twenty weeks in length.

**531-3 Human Resources in Health Care.** Describes the key human resource functions that play a significant role in the healthcare environment and focuses specifically on how those functions support management initiatives and accreditation and/or regulatory compliance. Extensive review of how the failure to systematically apply effective human resource strategies can result in organizational demise is conducted. Conduct a human resource audit. Explores the dynamic legal and regulatory environment and carefully examines how legislative changes influence the healthcare organization overall focusing particularly on those functions that are linked to patient satisfaction and balanced scorecards and/or benchmarking of provider performance.

**536-3 Administration and Supervision in Allied Health.** This course provides students with an examination of the nature, function, and techniques of administration and supervision in medical departments. This is accomplished through case analyses and practice simulations of human problems in the healthcare organization and application of findings of behavioral science research to healthcare problems. Emphasis will be placed on the development of direction and leadership skills.

**541-3 Advance Practice of Radiologic/Imaging Sciences II.** This course will continue to cover the same topics that were reviewed in RAD 521 but to a greater level of understanding. Topics include: Radiation physics, radiation biology, anatomy, pharmacology, human disease/pathology, advanced imaging methods, advanced imaging modalities, and patient care. Prerequisite: A grade of "C" or better in RAD 521.

**546-3 Seminar in Radiologic/Imaging Sciences II.** (Same as RAD 545) This course consists of various seminar/literature reviews associated with radiologic/imaging sciences. Topics include imaging techniques, technological advances in the radiologic/imaging sciences, patient care trends, and the role of an imaging professional. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 526.

**551-3 Legal and Ethical Fundamentals of Health Care.** This course provides students with an analysis of the legal and ethical environment of the healthcare industry. Focused on the healthcare environment, the course examines the judicial process pertaining to torts, contracts, antitrust, corporate compliance, access to care, negligence, and professional liability. The nature of ethics in the multi-cultural healthcare environment is examined with an analysis of the moral issues in healthcare. Restricted to Medical Dosimetry students.

**556-3 Advanced Research Methods.** This course will introduce the student to various mechanisms by which graduate level scholarly and professional research are conducted. Utilizing available resources, the student will commence in the production of an original piece of scholarly research as a requirement for

this course.

**565-1 to 6 Independent Study.** Directed independent study in selected areas of medical dosimetry studies. Special approval needed from the Program Director.

**593-6 Individual Research.** A research course leading to the completion of a research paper that demonstrates the student's knowledge of research techniques. Research is based on the selection and investigation of a research topic culminating in a paper satisfying the research requirements for the Master of Science in Radiologic Sciences degree and is in accordance with the policies and guidelines as established by the Southern Illinois University Carbondale's (SIUC) Graduate School. Prerequisite: RAD 556. Restricted to RADS majors or consent of Program Director.

**595-6 Graduate Internship.** This course is designed to give real-world experience to future radiologic technology educators or managers by exposing the student to common issues which may arise in their area of specialization including: classroom management, instructional skills, instructional assessment, lesson planning and development, direct teaching experience, human resource management, budgeting, medical legal issues in radiology, ethics and law. One credit hour equals 40 contact hours. Special approval: Consent of Program Director and will be subject to the feasibility of meeting state licensure requirements.

**601-1 Continuing Enrollment.** This course is required to satisfy the Graduate School's requirement of continuous enrollment and is intended for those students who are enrolled in the program but cannot take a core academic course during a given semester. Prerequisite: Consent of Program Director.