

Vice Chancellor for Research and Graduate Dean www.siu.edu/~ovcr/ www.siuc.edu

September 25, 2008.

MEMO TO:

Thomas Britton, Chair

Graduate Council

FROM:

John A. Koropchak

Vice Chancellor for Research

and Graduate Dean

SUBJECT:

RME: Master of Science Degree in Medical Dosimetry Track 2

Attached is a copy of the Reasonable and Moderate Extension (RME) proposing Modification of the Concentration for the MS Degree in Medical Dosimetry to include Track 2 in addition to Track 1 that was approved by the Graduate Council on April 5, 2007, for consideration by the Graduate Council. Please forward to the New Programs Committee for review.

Thank you.

JAK/plp

Attachment

C: David Wilson

REASONABLE AND MODERATE EXTENSION (RME)

Radiologic Sciences

Master of Science Degree in Medical Dosimetry
Track 2

School of Allied Health
College of Applied Sciences and Arts
Southern Illinois University Carbondale
Carbondale, Illinois 62901

Unit

Degree

Spring 2008 REASONABLE AND MODERATE EXTENSION College of Applied Sciences and Arts Medical Dosimetry Certificate Program January 8, 2008

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Overview

I.	Program	Inventory
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Major

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Δ.	Current

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51.0907	Radiologic Sciences	Radiologic Sciences Medical Diagnostic Sonography Magnetic Resonance Imaging an Computed Tomography Radiation Therapy	B.S.	CASA
		Master of Science Medical Dosimetry (Track!)	M.S.	CASA
B. Proposed				
<u>CIP</u>	<u>Major</u>	Option	<u>Degree</u>	<u>Unit</u>
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	Radiologic Sciences	Radiologic Sciences Medical Diagnostic Sonography Magnetic Resonance Imaging an Computed Tomography Radiation Therapy		CAUA

II. Reasons for proposed action

The recently approved Master of Science in Medical Dosimetry is for individuals seeking a career in Medical Dosimetry who are not currently certified. Many practicing Certified Medical Dosimetrists (CMDs) have expressed an interest in completing a Masters degree. We propose to add a Track 2 option to the Master of Science in Medical Dosimetry for practicing CMDs. The Track 2 option will not include the clinical courses since CMDs have already passed the national dosimetry exam and perform these tasks daily.

General Description of a Medical Dosimetrist

The Certified Medical Dosimetrist (CMD) is a member of the radiation oncology (cancer treatment) team who has knowledge of the overall characteristics and clinical relevance of radiation oncology treatment machines and equipment, is cognizant of procedures commonly used in brachytherapy (treatment with radioactive sources at a close distance) and has the education and expertise necessary to generate radiation dose distributions and dose calculations in collaboration with the Medical Physicist and Radiation Oncologist.

Major Duties- (Track 2 will focus on numbers 11, 12, and 13).

- 1. Design a treatment plan by means of computer and/or manual computation that will deliver a prescribed radiation dose and field placement technique in accordance with the Radiation Oncologist's prescription to a defined tumor volume.
- 2. Consider dose-limiting structures in the design of treatment plans and document dose in accordance with the Radiation Oncologist's prescription.
- 3. Coordinate treatment simulations and tumor localization on dedicated devices, including Computerized Tomography (CT), Magnetic Resonance Imaging (MRI), and Positron Emission Tomography (PET) when indicated, for radiation oncology treatment planning.
- 4. Supervise, perform, or assist in the planning of the fabrication of compensation filters, custom shields, wedges, and other beam modifying devices.
- 5. Supervise, perform, or assist in the planning of the production of moulds, casts, and other immobilization devices.
- 6. Supervise the therapist's staff in the implementation of the treatment plan including: the correct use of immobilization devices, compensators, wedges, field arrangement, and other treatment variables.
- 7. Perform calculations for the accurate delivery of the Radiation Oncologist's prescribed dose, document all pertinent information in the patient record, and verify the mathematical accuracy of all calculations using a system established by the Medical Physicist.
- 8. Provide physics and technical support to the Medical Physicist, in radiation protection, qualitative machine calibrations, and quality assurance of the radiation oncology equipment.
- 9. Supervise, perform, or assist in the application of specific methods of dosimetry including ion chamber, TLD, or film measurement as directed by the Medical Physicist.

- 10. Assist in intracavitary and interstitial brachytherapy procedures and in the subsequent manual and/or computer calculation of the dose distributions of these treatments.
- 11. Teach applied aspects of medical dosimetry to students and residents, as assigned.
- 12. Participate in clinical research for the development and implementation of new techniques.
- 13. Participate in continuing education in the area of current treatment planning techniques, and advances in medical dosimetry.

Current Programs that are Joint Review Committee on Education in Radiologic Technology (JRCERT) Accredited.

Southern Illinois University Carbondale College of Applied Sciences and Arts Carbondale, IL 62901

University of North Carolina Hospitals 101 Manning Drive Chapel Hill, NC 27514-7512

University of Texas at M.D. Anderson Cancer Center 1515 Holcombe Blvd., Box 701 Houston, TX 77030

University of Wisconsin-LaCrosse 1725 State Street 4033 HSC LaCrosse, WI 54601

Need For Track 2 option/ Medical Dosimetry Profession

The need for the Track 2 option has come about from the interest that has been expressed since the approval of our current Master of Science in Medical Dosimetry program. Many practicing CMDs have expressed an interest in an MS completion program. The clinical courses that exist in the approved program (Track 1) are not applicable to these CMDs since they do these tasks daily and are already board certified.

Currently, there are approximately 2800 CMDs in the world. The majority have a baccalaureate degree or lower (approximately 90%).

The Master of Science Degree for practicing dosimetrists will build skills that will enable them to teach future dosimetrists and medical professionals; perform more in depth research in the field of radiation oncology; participate in continuing education in the area of current treatment planning techniques, and advances in medical dosimetry.

III. Anticipated budgetary effects

No additional resources will be requested to support the program. The medical dosimetry program will use the cost recovery model and be financially self supporting.

IV. Arrangements to be made for (a) affected faculty, staff and students; and (b) affected equipment and physical facilities

The extra courses required for Track 2 will be taught by existing faculty within the School of Allied Health. These individuals have backgrounds in management and education as it relates to health care.

The Medical Dosimetry Program Director has been in place since 2005.

V. Will other educational units, curricula, or degrees be affected by this action

No other educational units, curricula, or degrees will be affected by the addition of a Track 2 option in the Master of Science Degree in Medical Dosimetry program.

VI. Any other relevant information

Eligibility for the Master of Science Degree in Medical Dosimetry

Track 1 - Candidates must have completed a baccalaureate degree in the radiological or physical sciences. Enrollment for Track 1 begins in the Fall semester. Only full time registration is allowed.

Track 2 - Candidates must have completed a baccalaureate degree from an accredited university and have a current Certified Medical Dosimetrist (CMD) registration through the Medical Dosimetrist Certification Board (MDCB). Enrollment for Track 2 may start with any semester. Part time or full time registration is allowed.

Proposed Program- Track 1 was approved by SIUC and the Illinois Board of Higher Education through the NUI process in August, 2007. Track 1 will begin with the Fall 2008 semester. Track 2 is the proposed addition which will benefit currently practicing CMDs in the field. Below are curriculum requirements for the two tracks.

Track 1

Master of Science Degree Curriculum for Individuals Entering the Field of Medical Dosimetry (30 semester hours)

Fall Semester

RAD 510-2 Simulation and Cross Sectional Anatomy in Medical Dosimetry - This course covers the conventional and CT simulation techniques used in initiating radiation therapy for cancer patients. Identification of cross-sectional anatomy at different anatomical locations within the human body is also reviewed. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 515-4 Medical Dosimetry Clinical I - This is the first course of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements and QA. The length of these rotations varies from one to eleven weeks. During this course students will perform two to four of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 520-3 The Physics of Medical Dosimetry I- This course covers the following topics: Radiologic Physics, production of x-rays, radiation treatment and simulation machines, interactions of ionizing radiation, radiation measurements, dose calculations, computerized treatment planning, dose calculation algorithms, electron beam characteristics, and brachytherapy physics and procedures. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 525-3 Seminars in Medical Dosimetry I - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

Spring Semester

RAD 530-2 The Essentials of Medical Dosimetry - This course covers the various quality assurance procedures performed in a radiation oncology department. Also included are various statistics topics to educate the student in becoming a good consumer of medical dosimetry research literature. Professional development, billing/coding, HIPAA, and professional service are also addressed. This course is twenty weeks in

length. Prerequisite: A grade of "C" or better in RAD 510, RAD 515, RAD 520, and RAD 525.

RAD 535-4 Medical Dosimetry Clinical II - This is the second of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements, and QA. The length of these rotations varies from one to eleven weeks. During this course students will perform two to four of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 515.

RAD 540-3 The Physics of Medical Dosimetry II – This course covers the following topics: imaging for radiation oncology, IMRT, stereotactic radiosurgery, special procedures, particle therapy, hyperthermia, and radiation safety. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 520.

RAD 545-3 Seminar in Medical Dosimetry II - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. Prerequisite: This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 525.

Summer Semester

RAD 550-2 Medical Dosimetry Clinical III - This is the third course of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements, and QA. The length of these rotations varies from one to ten weeks. During this course students will perform one to two of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is ten weeks in length. Prerequisite: Prerequisite: A grade of "C" or better in RAD 535.

RAD 555-2 The Physics of Medical Dosimetry III – This course covers the following topics: Monitor Unit (MU) calculations, point dose calculations and radiation biology. This course is ten weeks in length. Prerequisite: A grade of "C" or better in RAD 540.

RAD 560-2 Seminar in Medical Dosimetry III - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer

treatment trends, and the role of a medical dosimetrist. This course is ten weeks in length. Prerequisite: A grade of "C" or better in RAD 545.

Independent Study

RAD 565-1 to 6 Independent Study - Directed independent study in select areas of medical dosimetry. Prerequisite: Consent of Program Director.

Track 2

Proposed Master of Science Degree Curriculum for Currently Practicing CMDs (30 Semester hours)

Fall Semester

RAD 511-3 Fundamentals of Health Care Systems - This course provides a multidisciplinary analysis and is designed to provide students with information pertaining to the issues surrounding access to care, medical technology, and the complex financial structure of the health care system. Students will extensively examine aspects of the complex health care system such as managed care, Medicare, Medicaid, pharmaceuticals, health promotion and disease prevention, and the quality of care. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 516-3 Cultural Foundations and Theories of Education - This seminar provides a multi-disciplinary examination of the historical, social, economic and psychological foundations of allied health education with particular emphasis given to the nature and role of education and training in preparing people for the field of medical education. The primary objectives of this seminar will be to allow the student to explore the nature and theories of education, the behavioral aspects of education including the assumptions and practices which underlie education, and to identify the strengths and weaknesses of various educational practices. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 520-3 The Physics of Medical Dosimetry I- This course covers the following topics: Radiologic Physics, production of x-rays, radiation treatment and simulation machines, interactions of ionizing radiation, radiation measurements, dose calculations, computerized treatment planning, dose calculation algorithms, electron beam characteristics, and brachytherapy physics and procedures. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

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treatment trends, and the role of a medical dosimetrist. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

Spring Semester

RAD 531-3 Human Resource Management in Health Care - This course carefully examines and describes how the key human resource functions play a significant role in the health care environment. It focuses heavily on how each particular human resource function supports management initiatives. With a strategic focus, this course methodically scrutinizes how human resource functions such as employee selection, development, motivation, and appraisal can impact a health care organization's ongoing business continuity. It also thoroughly examines how health care employees, managers, and administrators must operate within the dynamic legal environment of human resources. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 536-3 Introduction to Administration and Supervision in Allied Health - This course provides students with an in-depth examination of the nature, function, and techniques of administration and supervision in medical imaging departments. This is accomplished through a series of case analyses and practice simulations of human problems in the healthcare organization and application of findings of behavioral science research to healthcare problems. Particular emphasis will be placed on the development of direction and leadership skills. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 540-3 The Physics of Medical Dosimetry II – This course covers the following topics: imaging for radiation oncology, IMRT, stereotactic radiosurgery, special procedures, particle therapy, hyperthermia, and radiation safety. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 520.

RAD 545-3 Seminar in Medical Dosimetry II - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. Prerequisite: This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 525.

Summer Semester

RAD 551-3 Legal and Ethical Fundamentals of Health Care - This course provides students with an in-depth analysis of the legal and ethical environment of the health care industry. Comprehensive and focused on the health care environment, the course closely examines the judicial process specifically pertaining to torts, contracts, antitrust, corporate compliance, access to care, negligence, and professional liability. The nature of ethics in the multi-cultural health care environment is extensively examined with an analysis of the varying moral challenges and problems in the health care industry. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 556-3 Individual Research in Medical Dosimetry — This course requires students to complete a research project in the field of Medical Dosimetry. Each project will have a written paper as a final product and this paper will be submitted for publication in one of the professional journals within the field of Radiation Oncology. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 565-1 to 6 Independent Study - Directed independent study in select areas of medical dosimetry. Prerequisite: Consent of Program Director.

Number of Students

Track 1 will have approximately 8 -12 students due to the clinical hours required by accreditation. Currently, there are 10 clinical sites available for these students.

Track 2 will not have a limit on the number of students since there is no clinical requirement. Students will be allowed to register as full time or part time students.

Summary

With the addition of the Track 2 option, many currently practicing CMDs will have the benefit of earning a higher level academic degree. With over 2800 CMDs in the world and few at the MS level, there could be tremendous growth for this program. Overall, we believe this proposed program will fit well into the healthcare mission for SIUC.

VII. Catalog copy to be deleted or added

Corresponding Forms 90 and 90a for courses and catalog copy, respectively, are attached.

VIII. The requested effective date of implementation

The proposed Track 2 option is requested to start along with Track 1 when NCA approval is received.

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(Form 90-A)

Notice of Change of Academic Requirements Southern Illinois University 2008 bondale

This form should be used for requesting changes in requirements of a degree granting unit, major aminor, concentration, specialization, certificate program and miscellaneous changes of any academic program. (See instructions)

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Southern Illinois University Carbondale

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College of Applied Sciences and Arts

RADIOLOGIC SCIENCES PROGRAM

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- Physical Therapist
 Assistant
- Physician Assistant
- Radiologic Sciences

February 26, 2007

SIUC Graduate School Application Dosimetry Application/Information

PLEASE NOTE: Fall 2008 Admission is Closed!!

On September 1, 2008, Applications will be accepted for the Fall 2009 Class.

Master of Science Degree Program in Medical Dosimetry

Program Description and Mission

Mission The mission of the Medical Dosimetry Program offered by Southern Illinois University Carbondale (SIUC) 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.

Program Goal

- 1. Prepare the student to practice as an entry level professional Medical Dosimetrist by offering a comprehensive curriculum and quality didactic/clinical instruction.
- Provide didactic and clinical experiences that lead to research in educational, professional, or health care issues relating to medical dosimetry.
- Provide avenues to students for professional 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 medical dosimetry practice.
- Provide a clinical and didactic environment which leads to the development of clinical skills and competence appropriate to an entry level Medical Dosimetrist.

Program Description

The Medical Dosimetrist is a member of the Allied Health and Radiation Oncology Team.

Course material and practicum covers radiation physics, radiation protection, dose calculations, tumor localization, external beam treatment planning, brachytherapy, quality assurance, medical imaging/anatomy, clinical radiation oncology, and radiobiology. Clinical practicum includes external beam treatment planning, brachytherapy treatment, preparation and planning, chart reviews and dose calculations, record and verify system data entry, simulation (conventional and CT-simulation), treatment aid fabrication, treatment machine quality assurance, stereotactic treatment planning, gamma knife, IMRT planning and treatment. Special project assignments, conference attendance, written reports, chapter reviews, and labs are also part of the curriculum.

Accreditation:

The Medical Dosimetry Program is fully accredited through the Joint Review Committee on Education in Radiologic Technology (JRCERT). The program at SIUC was the third accredited program in the United States. www.jrcert.org

The program meets the formal education eligibility criteria for the national certification exam following graduation and six months of full-time employment, as required by the Medical Dosimetry Certification Board. www.mdcb.org

General Description of a Medical Dosimetrist

The Certified Medical Dosimetrist (CMD) is a member of the radiation oncology (cancer treatment) team who has knowledge of the overall characteristics and clinical relevance of radiation oncology treatment machines and equipment, is cognizant of procedures commonly used in brachytherapy (treatment with radioactive sources at a close distance) and has the education and expertise necessary to generate radiation dose distributions and dose calculations in collaboration with the Medical Physicist and Radiation Oncologist.

Major Duties

Design a treatment plan by means of computer and/or manual computation that will deliver a prescribed radiation dose and field placement technique in accordance with the Radiation Oncologist's prescription to a defined tumor volume.

Consider dose-limiting structures in the design of treatment plans and document dose in accordance with the Radiation Oncologist's prescription.

Coordinate treatment simulations and tumor localization on dedicated devices, including Computerized Tomography (CT), Magnetic Resonance Imaging (MRI), and Positron Emission Tomography (PET) when indicated, for radiation oncology treatment planning.

Supervise, perform, or assist in the planning of the fabrication of compensation filters, custom shields, wedges, and other beam modifying devices.

Supervise, perform, or assist in the planning of the production of moulds, casts, and other immobilization devices.

Supervise therapy staff in the implementation of the treatment plan including: the correct use of immobilization devices, compensators, wedges, field arrangement, and other treatment variables.

Perform calculations for the accurate delivery of the Radiation Oncologist's prescribed dose, document all pertinent information in the patient record, and verify the mathematical accuracy of all calculations using a system established by the Medical Physicist.

Provide physics and technical support to the Medical Physicist, in radiation protection, qualitative machine calibrations, and quality assurance of the radiation oncology equipment.

Supervise, perform, or assist in the application of specific methods of dosimetry including ion chamber, TLD, or film measurement as directed by the Medical Physicist.

Assist in intracavitary and interstitial brachytherapy procedures and in the subsequent manual and/or computer calculation of the dose distributions of these treatments.

Teach applied aspects of medical dosimetry to students and residents, as assigned.

Participate in clinical research for the development and implementation of new techniques.

Participate in continuing education in the area of current treatment planning techniques, and advances in medical dosimetry.

Source: www.medicaldosimetry.org

Eligibility for the Master of Science Program in Medical Dosimetry

Preferred candidates are individuals who have a baccalaureate degree and have been trained as a radiation therapist.

Consideration is given to applicants with a bachelor's degree in the physical or biological sciences without radiation therapy experience.

Insul Two

Number of Students

Due to clinical hour requirements and the number of clinical sites, a maximum of 5-7 students per year will be allowed at this time. There will be approximately 3-4 internship sites for these students. Distance Learning (DL) students will rotate through 1-2 clinical sites

Application

Applications should be received by February 1st of the year one plans to attend the program. Class selection will occur in February/March. Two separate applications are required: One for the program and one for the Graduate School.

Class Location

The main educational center is located within the Siteman Cancer Center in Barnes-Jewish Hospital. Other training facilities are located in cancer treatment centers in the St. Louis area. The program also offers education via DL for specific sites outside the St. Louis area. Live video conferencing equipment is used to allow students to interact with the instructors in real time.

Clinic Sites

Siteman Cancer Center Barnes-Jewish Hospital Mailstop 90-38-635, 4921 Parkview Place St. Louis, Missouri 63110

Cancer Treatment Center, Memorial & St. Elizabeth Health Care Services, LLP 4000 North Illinois Belleville, Illinois 62226

SSM De Paul Health Center 12303 DePaul Drive St. Louis, Missouri 63044-2588

Siteman Cancer Center 150 Entrance Way St. Peters, Missouri 63376

St. Lukes Hospital 232 South Woodsmill Road Chesterfield, Missouri 63017

Alexian Brothers Medical Center 820 Biesterfield Elk Grove, Illinois 60007

St. Alexius 1555 Barrington Road Hoffman Estates, IL 60169

St. Francis Hospital 6161 South Yale Tulsa, Oklahoma 74136

Expenses

Tuition: \$12,000 for the calendar year.
Textbooks and Lab Coat: Approximately \$350
Living Expenses: Students must find housing on their own. This can vary greatly.

A Computer, Scanner, and High Speed Internet will be required.

MEDICAL DOSIMETRY
MASTER OF SCIENCE PROGRAM
COLLEGE OF APPLIED SCIENCES AND ARTS

FASUT K1+2

Curriculum

The total curriculum consists of 30 semester hours. Program length is 52 weeks and the students attend classes/clinical for 40 hours per week.

Didactic component is approximately 300 - 350 hours. Clinical component is approximately 1650 - 1700 hours. The student will have approximately 2000 hours of education per year and have 80 hours of vacation.

Fall Semester

RAD 510-2 Simulation and Cross Sectional Anatomy in Medical Dosimetry - This course covers the conventional and CT simulation techniques used in initiating radiation therapy for cancer patients. Identification of cross-sectional anatomy at different anatomical locations within the human body is also reviewed. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 515-4 Medical Dosimetry Clinical I - This is the first course of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements and QA. The length of these rotations varies from one to eleven weeks. During this course students will perform two to four of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

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Spring Semester

RAD 530-2 The Essentials of Medical Dosimetry - This course covers the various quality assurance procedures performed in a radiation oncology department. Also included are various statistics topics to educate the student in becoming a good consumer of medical dosimetry research literature. Professional development, billing/coding, HIPAA, and professional service are also addressed. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 510, RAD 515, RAD 520, and RAD 525.

RAD 535-4 Medical Dosimetry Clinical II - This is the second of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements and QA. The length of these rotations varies from one to eleven weeks. During this course students will perform two to four of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 515.

RAD 540-3 The Physics of Medical Dosimetry II – This course covers the following topics: imaging for radiation oncology, IMRT, stereotactic radiosurgery, special procedures, particle therapy, hyperthermia, and radiation safety. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 520.

RAD 545-3 Seminar in Medical Dosimetry II - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. Prerequisite: This course is

twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 525.

Summer Semester

RAD 550-2 Medical Dosimetry Clinical III - This is the third course of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements and QA. The length of these rotations varies from one to ten weeks. During this course students will perform one to two of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is ten weeks in length. Prerequisite: Prerequisite: A grade of "C" or better in RAD 535.

RAD 555-2 The Physics of Medical Dosimetry III – This course covers the following topics: Monitor Unit (MU) calculations, point dose calculations and radiation biology. This course is ten weeks in length. Prerequisite: A grade of "C" or better in RAD 540.

RAD 560-2 Seminar in Medical Dosimetry III - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. This course is ten weeks in length. Prerequisite: A grade of "C" or better in RAD 545.

Independent Study

RAD 565-1 to 6 Independent Study - Directed independent study in select areas of medical dosimetry. Prerequisite: Consent of Program Director

Program Director Contact Information

Fax: 618-453-7020

Scott Collins, MS.Ed, R.T.(R)(T), CMD Medical Dosimetry Program Director School of Allied Health, MC 6615 College of Applied Sciences and Arts Southern Illinois University Carbondale Carbondale, Illinois 62901 Office: 618-453-8800

Disclaimer

Content of the program materials is subject to change without notice.

APPLICATION

Graduate School Application

Return to: CASA Home - SAH Home - SIUC Home

Southern Illinois University Carbondale - Mailing Address: Carbondale, IL 62901-6604 - Phone: (618) 536-6682 Comments: Webmaster - EOE Link - Privacy Policy - Last changed: 7/2/07

Eligibility for the Master of Science Degree in Medical Dosimetry

Track 1 - Candidates must have completed a baccalaureate degree in the radiological or physical sciences. Enrollment for Track 1 begins in the Fall semester. Only full time registration is allowed.

Track 2 - Candidates must have completed a baccalaureate degree from an accredited university and have a current Certified Medical Dosimetrist (CMD) registration through the Medical Dosimetrist Certification Board (MDCB). Enrollment for Track 2 may start with any semester. Part time or full time registration is allowed.

Track 1 Curriculum

Master of Science Degree Curriculum for Individuals Entering the Field of Medical Dosimetry (30 semester hours)

Fall Semester

RAD 510-2 Simulation and Cross Sectional Anatomy in Medical Dosimetry - This course covers the conventional and CT simulation techniques used in initiating radiation therapy for cancer patients. Identification of cross-sectional anatomy at different anatomical locations within the human body is also reviewed. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 515-4 Medical Dosimetry Clinical I - This is the first course of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements and QA. The length of these rotations varies from one to eleven weeks. During this course students will perform two to four of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 520-3 The Physics of Medical Dosimetry I- This course covers the following topics: Radiologic Physics, production of x-rays, radiation treatment and simulation machines, interactions of ionizing radiation, radiation measurements, dose calculations, computerized treatment planning, dose calculation algorithms, electron beam characteristics, and brachytherapy physics and procedures. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 525-3 Seminars in Medical Dosimetry I - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

Spring Semester

RAD 530-2 The Essentials of Medical Dosimetry - This course covers the various quality assurance procedures performed in a radiation oncology department. Also included are various statistics topics to educate the student in becoming a good consumer of medical dosimetry research literature. Professional development, billing/coding, HIPAA, and professional service are also addressed. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 510, RAD 515, RAD 520, and RAD 525.

RAD 535-4 Medical Dosimetry Clinical II - This is the second of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements, and QA. The length of these rotations varies from one to eleven weeks. During this course students will perform two to four of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 515.

RAD 540-3 The Physics of Medical Dosimetry II – This course covers the following topics: imaging for radiation oncology, IMRT, stereotactic radiosurgery, special procedures, particle therapy, hyperthermia, and radiation safety. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 520.

RAD 545-3 Seminar in Medical Dosimetry II - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. Prerequisite: This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 525.

Summer Semester

RAD 550-2 Medical Dosimetry Clinical III - This is the third course of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements, and QA. The length of these rotations varies from one to ten weeks. During this course students will perform one to two of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is ten weeks in length. Prerequisite: Prerequisite: A grade of "C" or better in RAD 535.

RAD 555-2 The Physics of Medical Dosimetry III – This course covers the following topics: Monitor Unit (MU) calculations, point dose calculations and radiation biology. This course is ten weeks in length. Prerequisite: A grade of "C" or better in RAD 540.

RAD 560-2 Seminar in Medical Dosimetry III - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. This course is ten weeks in length. Prerequisite: A grade of "C" or better in RAD 545.

Independent Study

RAD 565-1 to 6 Independent Study - Directed independent study in select areas of medical dosimetry. Prerequisite: Consent of Program Director.

Track 2 Curriculum

Proposed Master of Science Degree Curriculum for Currently Practicing CMDs (30 Semester hours)

Fall Semester

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 structure of the health care system. Students will extensively examine aspects of the complex health care system such as managed care, Medicare, Medicaid, pharmaceuticals, health promotion and disease prevention, and the quality of care. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 516-3 Cultural Foundations and Theories of Education - This seminar provides a multi-disciplinary examination of the historical, social, economic and psychological foundations of allied health education with particular emphasis given to the nature and role of education and training in preparing people for the field of medical education. The primary objectives of this seminar will be to allow the student to explore the nature and theories of education, the behavioral aspects of education including the assumptions and practices which underlie education, and to identify the strengths and weaknesses of various educational practices. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 520-3 The Physics of Medical Dosimetry I- This course covers the following topics: Radiologic Physics, production of x-rays, radiation treatment and simulation machines, interactions of ionizing radiation, radiation measurements, dose calculations, computerized treatment planning, dose calculation algorithms, electron beam characteristics, and brachytherapy physics and procedures. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 525-3 Seminars in Medical Dosimetry I - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

Spring Semester

RAD 531-3 Human Resource Management in Health Care - This course carefully examines and describes how the key human resource functions play a significant role in the health care environment. It focuses heavily on how each particular human resource function supports management initiatives. With a strategic focus, this course methodically scrutinizes how human resource functions such as employee selection, development, motivation, and appraisal can impact a health care organization's ongoing business continuity. It also thoroughly examines how health care employees, managers, and administrators must operate within the dynamic legal environment of human resources. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 536-3 Introduction to Administration and Supervision in Allied Health

- This course provides students with an in-depth examination of the nature, function, and techniques of administration and supervision in medical imaging departments. This is accomplished through a series of case analyses and practice simulations of human problems in the healthcare organization and application of findings of behavioral science research to healthcare problems. Particular emphasis will be placed on the development of direction and leadership skills. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 540-3 The Physics of Medical Dosimetry II — This course covers the following topics: imaging for radiation oncology, IMRT, stereotactic radiosurgery, special procedures, particle therapy, hyperthermia, and radiation safety. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 520.

RAD 545-3 Seminar in Medical Dosimetry II - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. Prerequisite: This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 525.

Summer Semester

RAD 551-3 Legal and Ethical Fundamentals of Health Care - This course provides students with an in-depth analysis of the legal and ethical environment of the health care industry. Comprehensive and focused on the health care environment, the course closely examines the judicial process specifically pertaining to torts, contracts, antitrust, corporate compliance, access to care, negligence, and professional liability. The nature of ethics in the multi-cultural health care environment is extensively examined with an analysis of the varying moral challenges and problems in the health care industry. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 556-3 Individual Research in Medical Dosimetry – This course requires students to complete a research project in the field of Medical Dosimetry. Each project will have a written paper as a final product and this paper will be submitted for publication in one of the professional journals within the field of Radiation Oncology. Prerequisite: Admission to the Medical Dosimetry Program.

RAD 565-1 to 6 Independent Study - Directed independent study in select areas of medical dosimetry. Prerequisite: Consent of Program Director.



Recorded: Academic Support Programs

(Form 90)

Request to Add, Drop or Modify a Course Southern Illinois University Carbondale

All Sections of This Form Pertinent to Your Request Must Be Completed (See page two for instructions). ADD 1. Action Requested (Add/Drop/Modify): (Complete only 2, 3c, 3f and 8 if drop) 2. Course (Subject Area, Number, Hours, Title): RAD 511-3 Fundamentals of Health Care Systems (a.) Enter the desired short title for class schedules and transcripts. (up to 24 characters) Fund Health Care System (b.) Catalog description and prerequisite as you wish it to appear in catalog (maximum 450 characters/approx. 75 words): This:course provides a multi-disciplinary analysis and is designed to provide students with information pertaining to the issues surrounding access to care imedical technology, and the complex financial structure of the health care system. Students will extensively examine aspects of the complex health care system such as managed care. Medicare, Medicard pharmaceuticals, health promotion and disease prevention, and the quality of care 3. Course Attributes (Complete only 3c and 3f if DROP): (a.) Prerequisite(s) for this course (same as in item 2b): Consent of instructor. (b.) Is this course repeatable? NO If yes, max hours per term: Max hours toward degree: (c.) Is this course crosslisted with any other course(s)? NO Please list: (d.) If course is 400-level and NOT FOR GRADUATE CREDIT, please check (e.) If course has special grading please indicate: Normal Grading (A)B(C)D(E)INC) (f.) Is course a new (or being dropped) requirement for any specialization or major in any dept? (If needed, process a FORM 90-A. Please notify all affected departments) (g.) Is the course a UCC course? If yes, please attach a syllabus for the course. 4. If MODIFICATION, itemize the change(s): Please check all that apply. Number; Prerequisite: Title; · Description; Crosslisting; Department Name Change; Grading; ee. (see instructions) List actual modification; i.e. number of new course, change in prerequisite, change in dept. name, etc: 5. Requests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet): Course for new Masters of Medical Dosimetry program 6. Following approval of the ADD or MODIFICATION, will the resulting course overlap an existing one in another department? If yes, identify the department and append a letter of concurrence from that department chair and approval from the dean of the appropriate college. Department: 7. Effective term will be the next published catalog.: (Academic Support Programs use only). Chair, UEPC Department Chair Date (If course is in University Core Curriculum) Curriculum Committee Chair Dean: Graduate School Date (If 400-600 level class) Date Appropriate Dear Associate Provost for Academic Affairs

Date



Request to Add, Drop or Marify a Course Southern Illinois University Carbondale

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(b.) Catalog description and prerequisite as you wish it to appear	in catalog (maximum 450 characters/approx. 75	words):
Seminar provides a examination of the historical, social; economic given to the nature, and role of education and training in prepairing allow the student to explore the nature and theories of education practices which underlies education.	rifor the field of medical education. The objectives	of this seminar will
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Request to Add, Drop or Modify a Course
Southern Illinois University Carbondale

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(b.) Catalog description and prerequisite as you wish it to appear in	catalog (maximum 450 characters/approx 75 words):	ENTERNALISMENT RELEVISED DESCRIPTION
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Course for new Masters of Medical Dosimetry program.	general general (MA) (MA) (MA) (MA) (MA) (MA) (MA) (MA)	
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Department Chair Date	Chair, UEPC	Date
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Date



Request to Add, Drop or Modify a Course
Southern Illinois University Carbondale

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(b.) Catalog description and prerequisite as you wish it to appear in	n catalog (maximum 450 characters/approx. 75 words)	lings of the second
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Department Chair Date	Chair, UEPC	Date
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Curriculum Committee Chair Date	Dean: Graduate School	Date
	(If 400-600 level class)	
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Appropriate Dean Date	Associate Provost for Academic Affairs	Date
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Recorded: Academic Support Programs		

Date



RECEIVEDRequest to Add, Drop or Modify a Course Southern Illinois University Carbondale

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Request to Add, Drop or Modify a Course Southern Illinois University Carbondale Man.

Action Requested (Add/Drop/Modify): Complete Only 2, 3c, 3f and 8 if drop) Course (Subject Area, Number, Hours, Title): RADSSE JAMM 188 Research (Medical District) Radio	All Sections of This Form Pertinent to Your Request Must Be Completed (S	See page two for instructions).	WA HIMMON
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3. Course Attributes (Complete only 3c and 3f if DROP): (a.) Prerequisite(s) for this course (same as in item 2b): Consectal instruction (b.) Is this course crosslisted with any other course(s)? Course in this course is 400-level and NOT FOR GRADUATE CREDIT, please check (c.) Is this course a new for being dropped requirement for any specialization or major in any dept? (f.) Is sourse a new for being dropped requirement for any specialization or major in any dept? (g.) Is the course a UCC course? If yes, please attach a syllabus for the course. (lf meeded, process a FORM 90-A. Please notify all affected departments) (g.) Is the course a UCC course? If yes, please attach a syllabus for the course. (lf mound out cation; i.e. number of new course, change in prerequisite, change in dept. name, etc.) Tritle; Description; Crosslisting; Department Name Change; Grading; Fee. (see instructions) List actual montification; i.e. number of new course, change in prerequisite, change in dept. name, etc. Sequests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet). Sequests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet). Sequests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet). Sequests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet). Sequests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet). Sequests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet). Sequests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet). Sequests for ADDS and MODIFICATIONS must include a statement of justification (List in space below or use additional sheet). Sequests for ADDS and M	(b.) Catalog description and prerequisite as you wish it to appear in	n catalog (maximum 450 characters/approx. 75 word	ds):
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