



UNIVERSITY *of* MARYLAND
MEDICAL CENTER

DEPARTMENT *of* RADIATION ONCOLOGY
SCHOOL *of* MEDICAL DOSIMETRY

School of Medical Dosimetry

A JRCERT Accredited Program

Program Handbook

2020-2021

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Note:

Due to the ongoing improvement of our program, any information is subject to change without notice.

The Profession

Medical dosimetry is the sub-specialty of Radiation Oncology that focuses on treatment planning, dose measurement, dose calculations, and quality assurance for radiotherapy treatments designed to treat cancer. The medical dosimetrist is an integral member of the “treatment team” which includes a radiation oncologist, a medical physicist, and radiotherapy technologists. Under the direction of the medical physicist and/or radiation oncologist, the dosimetrist determines the beam arrangements, beam shapes, beam weights, and beam energies that provide the most adequate treatment plan. The dosimetrist is also responsible for maintaining continuing quality assurance and for the construction of special treatment devices. In addition, the medical dosimetrist plays an important role in brachytherapy procedures providing technical assistance, inventory control of the radioisotopes, treatment planning and verification calculations.

Mission

“To provide world class education and training in medical dosimetry and provide competent dosimetrists to serve the needs of the community in the treatment of patients with radiation”

Objectives

- 1) Provide education and expertise in medical dosimetry through didactic and clinical instruction
- 2) Foster critical thinking, analytical skills, and problem solving in the rapidly changing world of science and technology
- 3) Promote a commitment to patient care and professional development.

Program Goals

- 1) Students will graduate as clinically competent dosimetrists.
- 2) Students will demonstrate the critical thinking skills required for medical dosimetry.
- 3) Students will effectively communicate within an interdisciplinary radiation oncology team.
- 4) Students will conduct themselves in a professional manner and practice the ideals of professional growth and lifelong learning.
- 5) Students will graduate as entry-level dosimetrists

Organization and Administration

Sponsoring Institution:

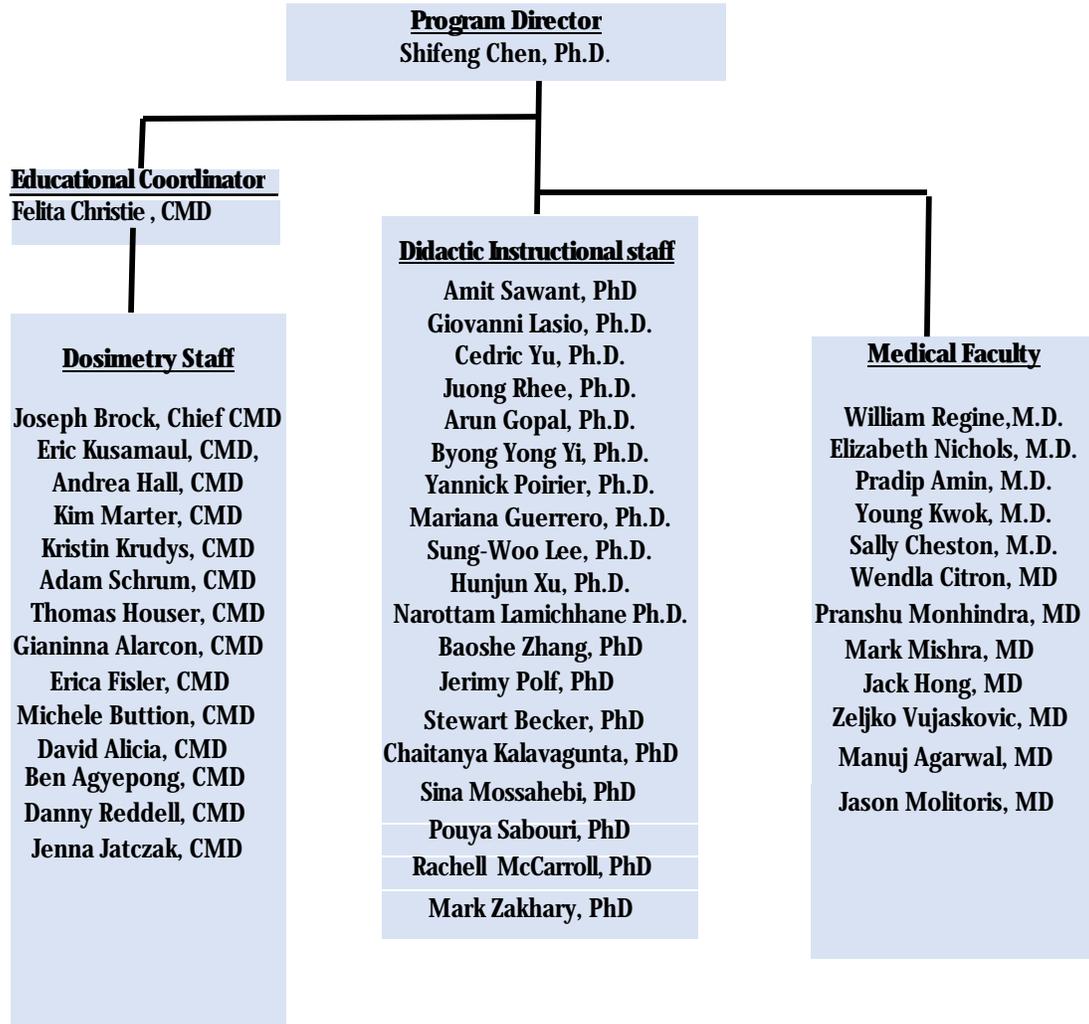
The program is a hospital-based program sponsored by the University of Maryland Medical Center, Department of Radiation Oncology, 22 South Greene Street, Baltimore, Maryland, 21201. The hospital is a JCAHO accredited facility and the department meets the Standards for Radiation Oncology as defined by the ACR (Res. 38-1995)

Chief Executive Officer:	Mohan Suntha, MD, MBA President and CEO
Department Chairman:	William Regine, M.D. FACR, FACRO
Department Administrators:	Erika Maynor, Executive Administrator for Dosimetry Training Program and Director of Clinical Operations Frank Young, Senior Administrator

Program Officials

Program Director:	Shifeng Chen, Ph.D.
Medical Advisor:	Pranshu Mohindra, MD, MBBS, DABR
Educational Coordinator:	Felita Christie, MS, CMD
Physics Advisors:	Amit Sawant, Ph.D. Director of Medical Physics

School of Medical Dosimetry Organizational Chart



Human Resources

Didactic Instructional Staff (Physics Faculty: UM School of Medicine):

Giovanni Lasio, Ph.D.

Cedric Yu, Ph.D.

Arun Gopal, Ph.D.

Byong Yong Yi, Ph.D.

Mariana Guerrero, Ph.D.

Sung-Woo Lee, Ph.D.

Hunjun Xu, Ph.D.

Jinghao Zhou, Ph.D

Baoshe Zhang, PhD

Jerimy Polf, PhD

Stewart Becker, PhD

Yannick Poirier, Ph.D.

Narottam Lamichhane PhD

Chaitanya Kalavagunta, PhD

Amit Sawant, PhD

Hao Zhang, PhD

Sina Mossahebi, PhD

Mark Zakhary, PhD

Rachel McCarroll PhD

Didactic Instruction Staff (Biology Faculty: UM School of Medicine)

Juong Rhee, Ph.D., Associate Professor

Clinical Dosimetry Instructors

Felita Christie, CMD

Kim Marter, CMD

Andrea Hall, CMD

Thomas Houser, CMD

Adam Schrum, CMD

Kristin Spaeth, CMD

Eric Kusamaul, CMD,

Gianinna Alarcon, CMD

Erica Fislser, CMD

Michele Buttion, CMD

David Alicia, CMD

Danny Reddell, CMD

Ben Agyepong, CMD

Jenna Jatczak, CMD

Clinical Faculty (Medical Instructors):

William Regine, MD
Elizabeth Nichols, MD
Pradip Amin, MD
Young Kwok, MD
Sally Cheston, MD
Wendla Citron, MD
Pranshu Monhindra, MD
Mark Mishra, MD
Jack Hong, MD
Zeljko Vujaskovic, MD
Manuj Agarwal, MD

Clinical Practice Settings:

Our program has one main campus and two clinical practice settings at off-site treatment facilities affiliated with the University of Maryland Medical System (UMMS):

University of Maryland Medical Center
Baltimore, Maryland
410-328-0777

Educational Coordinator: Felita Christie, CMD

Central Maryland Radiation Oncology Center
Columbia, Maryland
443-546-1330

Preceptor: Adam Schrum, CMD

Baltimore Washington Medical Center
Glen Burnie, MD
410-553-8100

Preceptor: Eric Kusmaul, CMD

Financial Resources

The University of Maryland Medical System will provide full financial support for the program.

- The value of the Program for each trainee is Thirty Seven Thousand One Hundred and Sixty Dollars (\$37,160). As part of the program value, the accepted trainee will receive an educational stipend of Seventeen Thousand One Hundred and Sixty Dollars (\$17,160.00). In consideration of the value of the program, including the Educational Stipend, the trainee agrees to full time employment with UMMC as a dosimetrist for a period of eighteen (24) months following graduation from the program, if a position is available. Trainees who are employed after graduation, by UMMC are paid a competitive salary during the twenty-four-month obligation to University of Maryland Medical Center. Notably, if a position is not available upon completion of the program, the trainee does not have to pay back any part of the (\$37,160.00) value of the program. If an applicant is accepted into the program and wishes not to enter the commitment to work for 24 months, a one time fee will be due of (\$37,160.00) to cover the value of the program. In such instance, the trainee will receive the stipend portion of that fee, back in the amount of (\$17,160.00) as a salary during their one year employment at UMMC. If a trainee should need or wish to breach the agreement to commit to employment after graduation or at any time during the 24 months employment after graduation, a one time fee of (\$37,160.00) shall be due. It should be noted that both the tuition and the contractual obligations are reviewed on an annual basis and are subject to change.
- A trainee will not serve as a substitute for full-time equivalent (FTE) or part-time employees.
- The program will not charge any fees to the trainee.
- The program's policies and procedures have been reviewed by the hospital's legal office.

Learning Resources

Clinical practice settings:

University of Maryland Medical Center (UMMC)
Central Maryland Radiation Oncology (CMRO)
Baltimore Washington Medical Center (BWMC)

UMMC employs five MDCB certified dosimetrists; CMRO employs two certified dosimetrists; BWMC employs three certified dosimetrists. The Faculty includes twenty-five physicists, seventeen clinicians, and six radiobiologists.

Trainees' achievement of required program competencies are evaluated via clinical dosimetry assignments based on the AAMD curriculum. The trainees rotate to the community practices as well as through each special procedure including brachytherapy, prostate implants and IMRT to complete the clinical experience.

Each trainee keeps a clinical log to record planned cases in both an assisted and an unassisted manner. This record ensures that all treatment sites are covered according to the AAMD curriculum, as well as required specialized treatments.

A treatment peer-review is held weekly in the Nicola Regine Conference room where all patients under treatment are reviewed. New patients are discussed in detail. Once each week, one of our radiation oncology residents provides a presentation. The trainees are encouraged to attend this conference at least once per week. A conference focusing on technology is scheduled once per month. The trainees are required to attend this conference.

Facilities

The Nicola Regine Conference Room:

The Radiation Oncology Department conference room is used for all lectures. This conference room is equipped with a projector for all PC based lectures, review of CT, MRI and PET studies from the department of Radiology and Nuclear Medicine. There is also a whiteboard available for more explanations that are detailed.

Resource Room:

Access to multiple treatment planning systems, as well as advanced imaging software and dosimetric measurement tools

University of Maryland Health Sciences Library:

This facility is located across the street from the cancer center. It allows the trainee quiet access to the Internet to do research as well as a space to study on their “study day”.

Clinical setting:

Trainees each have their own designated desk, in the Dosimetry room. Four “RayStation” planning computers are available at all times for practical assignments. They also have access to all the RayStation, Eclipse, and HDR-Onconcentra workstations. The dosimetry room has its own small collection of books and course related materials.

Internet access:

Trainees have access to four Internet stations.

Equipment

- ▣ **Linear Accelerators (4)**
 - VARIAN Clinac 21EX/S
 - VARIAN Trilogy with Stereotactic Capabilities, On Board Imaging and cone-beam CT
 - VARIAN TrueBeam Edge
 - VARIAN Truebeam
- ▣ **Simulators**
 - Philips Brilliance Big Bore Multislice CT/Simulator
 - Varian Acuity Fluoroscopic Simulator
- ▣ **Treatment Planning Systems**
 - Varian – Eclipse
 - RaySearch RayStation
 - Nucletron Oncentra (Brachytherapy HDR planning)
 - Varian – VariSeed (Brachytherapy LDR planning)
- ▣ **Immobilization**
 - Vac-Loc bags
 - MED-TEC Breast Boards
 - MED-TEC Aquaplast mask
 - Alpha – Cradles
 - Pituitary head holder & BOS frame systems
- ▣ **IGRT systems**
 - Varian kV on-board imager and Cone Beam CT (CBCT)
 - Varian RPM respiratory motion management system
 - Calypso 4D localization system
 - Vision RT® surface localization and tracking system.

In addition to the above equipment, Radiation Oncology Department has numerous radiation measurement devices including ionization chambers, survey meters, OSL detectors and film.

Admission Process

The selection of all trainees will be through the admissions board. The admissions board will consist of at least the following individuals:

- 1 Physician Representative
- 2 Program Director
- 3 Clinical/Educational Coordinator
- 4 Director or Associate Director of Medical Physics
- 5 Chief Medical Dosimetrist or his/her Designee
- 6 Staff Dosimetrist

Admission Requirements:

Trainees must hold a Bachelor of Science or Bachelor of Applied Science Degree, with minimum overall GPA of 3.0 (preferably with at least one year of physics coursework), **or** be a graduate of an accredited Radiation Therapy Program with a Bachelor's Degree. All applicants must have completed post-secondary instruction in the following areas:

- Basic mathematics including algebra, trigonometry, and introductory calculus
- Basic physics
- Oral and written communication
- Biology
- Medical terminology, anatomy and physiology
- Computer competency

Admission Policy:

It is the policy of the school and its sponsor to admit trainees without regard to race, sex, religion, national origin, or handicap, unless that handicap would prevent the trainee from fulfilling their clinical requirements.

Selection Process:

The selection of all trainees will be through the admissions board. Admission data will be kept on file for five years in the department of radiation oncology. All federal and state nondiscriminatory laws will be observed.

Equal Opportunity:

The University of Maryland Medical Center is actively committed to providing equal educational and employment opportunity in all of its programs. It is the goal of the institution to assure that women and minorities are equitably represented among the faculty, staff and administration of the institution, so that its work force reflects the diversity of Maryland's population.

All employment policies and activities of the University of Maryland Medical Center shall be consistent with federal and state laws, regulations and executive orders on nondiscrimination on the basis of race, color, religion, age, ancestry or national origin, sex, sexual orientation, handicap, marital status and veteran status. Sexual harassment, as a form of sex discrimination, is prohibited among the work force of the institution.

The University of Maryland Medical Center's full equal opportunity policy is available in the institution's policies and procedure manual which will be handed to the trainees at the time of new employee orientation. The human resource website can be accessed at: <http://www.umm.edu>.

Radiation Safety

The Radiation Oncology Department of the University of Maryland Medical Center (UMMC) including its regional clinical settings in accordance with the University of Maryland Baltimore (UMB) Radiation Safety Program (<http://www.ehs.umaryland.edu>) is committed to maintaining all employee radiation exposures and individual members of the public to the lowest possible levels achievable. To accomplish this goal, the radiation safety committee has adopted a formal ALARA Program designed to maintain employee radiation exposure to levels "As Low As Reasonably Achievable".

All trainees will receive radiation safety training conducted by the department's radiation safety officer and all trainees are issued radiation monitor badges when they start the program. The program includes didactic training in radiation safety including basics of radiation protection, applicable state and national rules and regulations, quality assurance in radiation oncology and the department's radiation safety policy. The trainees also participate in an annual radiation safety refresher course, taught by a medical physicist to all radiation workers in the department.

When performing procedures involving radiation, a qualified radiation worker will directly supervise each trainee. Monthly records of the personnel exposure (Film Badge Readings) shall be readily available for trainees review.

The declaration of pregnant worker status is voluntary, administered by the office of environmental health and safety, and must be submitted in writing. Declared pregnant trainees will be offered an alternative schedule to gain competency in brachytherapy procedures when sources are present.

CURRICULUM

DOSIMETRY PROGRAM COURSES-LEARNING MODULES 1ST SEMESTER (20 credits)

DOS21.100A-E Medical Dosimetry Introduction (2 credits)

Learning modules (5)

Healthcare Ethics and Professional Conduct

Medical Terminology and math Review

Computers and computer Networking/TPS

Imaging, simulation and Patient Data Acquisition

Cross Sectional Anatomy & Introduction to 2D & 3D treatment planning

DOS21.101 Fundamentals of Medical Management of Cancer I (2 credits)

Learning modules (3)

TPR/Morning Conferences Educational Lectures Local educational conferences

DOS21.102 Medical Treatment Planning Concepts I (lectures) (2 credits)

Learning modules (3)

MU Calculations for photon and electrons

ICRU Concepts & 2D Planning exercises

3DCRT, SBRT/ and Introduction IMRT planning concepts & comp. exam

DOS21.103 Medical Treatment Planning Lab I (5 credits)

(8) Learning modules (8) Competency sites

(3D planning, SBRT/IMRT planning techniques)

1. Brain-CNS

2. Lung-Thorax

3. Pelvis-Rectal/Anus

4. Pelvis-Prostate/Gyn

5. Esophagus-Abdomen

6. Pancreas-Liver

7. Breast-Chestwall

8. Head/Neck

DOS21.104 Clinical Practicum I (3 credits)

Learning modules (2)

Case presentations

Live case planning

DOS21.105 Radiobiology and Pathophysiology I (2 credits)

Radiobiology lectures and exam

DOS21.106 Radiation Physics I (3 credits)

Radiation Physics lectures and exams

DOS21.107 Dosimetry Research Project- Introduction (1 credit)

Journal Club

Topic proposals for Clinical Dosimetry Research Project

DOSIMETRY PROGRAM COURSES-LEARNING MODULES 2ND SEMESTER (20 credits)

DOS21.201 Fundamentals of Medical Management of Cancer II (2 credits)

(3) Learning modules

TPR/ morning conferences
Educational Lectures/ Professional meetings
Best of ASTRO conference

DOS21.202 Medical Treatment Planning Concepts II (2 credits)

Learning modules (2)

Brachytherapy lectures and lab classes
Intermediate and Advanced (IMRT /VMAT) planning concepts & comprehensive exam

DOS21.203 Medical Treatment Planning Lab II (5 credits)

(IMRT and VMAT planning techniques)

(10) Learning modules (8) competency sites

- | | | |
|---------------------------------------|----------------------|------------------------|
| 1. Brain-CNS | 2. Lung-Thorax | 3. Pelvis-Rectal/Anus |
| 4. Pelvis-Prostate/Gyn | 5. Esophagus-Abdomen | 6. Pancreas-Liver |
| 7. Breast-Chestwall | 8. Head/Neck | 9. Live Case Planning* |
| 10. Introduction to Proton Therapy ** | | |

DOS21.204 Clinical Practicum II (3 credits)

Learning modules (2)

Case presentations
Live case planning

DOS21.205 Radiobiology and Pathophysiology II (2 credits)

Radiobiology lectures and exam

DOS21.206 Radiation Physics II (3 credits)

Radiation Physics lectures and exams

DOS21.207 Dosimetry Research Project- FINAL (3 credits)

Journal club
Completion of supervised Clinical Research Project

*** For clinical live case planning students are also required to rotate for a 2-month period at two clinical sites: BWMC and CMRO as well as our Proton Center Campus MPTC. ****



APPENDIX I:

PROGRAM INFORMATION

Program

The University of Maryland Medical Center (UMMC) dosimetry program exists to provide training in the field of medical dosimetry. Upon completion of the program, graduates will be able to:

1. Perform entry-level dosimetry tasks.
2. Develop treatment plans for three-dimension conformal radiotherapy.
3. Develop treatment plans for intensity modulated radiation therapy.
4. Perform hand calculations to verify plan accuracy.
5. Develop brachytherapy treatment plans.
6. Understand the principles of IGRT in treatment planning and delivery
7. Communicate effectively orally and in writing.
8. Function in a professional manner as part of an interdisciplinary team.

Admission Requirements

Trainees must hold a Bachelor of Science or Bachelor of Applied Science Degree, with minimum overall GPA of 3.0 (preferably with at least one year of physics coursework), **or** have a Bachelor's Degree **AND** be a graduate of an accredited Radiation Therapy Program. All applicants must have completed post-secondary instruction in the following areas:

1. Basic mathematics including algebra, trigonometry, and introductory calculus
2. Basic physics
3. Oral and written communication
4. Biology
5. Medical terminology, anatomy and physiology
6. Computer competency

Application Process

It is the policy of the school and its sponsor to admit trainees without regard to race, sex, religion, national origin, or handicap, unless that handicap would prevent the trainee from fulfilling their clinical requirements.

Applications including all associated materials such as personal references and transcripts must be received by December 1st for admission the following July 1st. The selection of candidates will occur on or before March 1st.

Selection Process

The selection of all trainees will be through the admissions board. All federal and state nondiscriminatory laws will be observed.

Grading Policy and Graduation Requirements

The Trainees of the School of Medical Dosimetry at University of Maryland Medical Center are evaluated in an ongoing basis from the beginning to the end of the one-year program. The grading plan accumulates performance from clinical duties, in class performance, completion of coursework and homework, completion of trainee presentations and associated preparation, and attendance. The grading policies are disclosed herein, to trainees, prospective trainees, faculty and staff. This grading policy is under continuous development to meet changes in the program and to adapt to shortcomings in its design. The sample transcript below shows the course weighting, grading, and GPA calculation.

Program Grading Scale:

The absolute numerical grading system was discarded in favor of a normalized grading system starting September 2008. Due to a large number of faculty involved with teaching and relatively small number of dosimetry trainees, there is a large variation in the difficulty level of the various exams used for trainee assessment. The relative or normalized grading is introduced to make the assessment process fair to the trainees and reduce “fluctuations” from faculty to faculty and from one year to the next. The normalized grade is largely based on the mean and standard deviation. Usually, 1.25 standard deviation above the average score is an A, and the average is “defined” to be between, B- and a B depending on the course. This grading scheme subject to adjustment based on the discretion of the particular faculty member involved. The assigned grade must reflect the trainees ability compared to competent dosimetrists in our department as well as across the country. Medical dosimetry trainees, taught at the same level as Radiation oncology residents, also attend some courses, such as the biology and physics didactic lectures. To improve the statistics of the grading system, the scores of the residents are used in the calculation of the exam average and standard deviation. The following scale is used for GPA assignment.



GPA	Letter Grade
4.00	A
3.67	A-
3.33	B+
3.00	B
2.67	B-
2.33	C+
1.67	C
1.33	C-
1.00	D
0.00	F

Trainees must maintain a 3.0 GPA or higher, in order to avoid failing the program of the School of Medical Dosimetry. Graduates with a GPA of 3.0 and greater will successfully complete the program, and receive a certificate of completion from the School of Medical Dosimetry.

For grading policies of the individual courses, please refer to the syllabi for the individual courses.

Scheduled Reporting of Grades to Trainees

The trainees will receive the evaluations of the tests and exams in a timely manner so that they are aware of their overall standing at any given time. The trainees falling short of the B average will be required to spend extra time with the director and appropriate faculty to maintain the minimum standard.

Classroom Space

The departmental conference room will be utilized for classroom space. Computer-controlled audio-visual equipment is available. Independent study can occur at the UMMC Health Sciences Library. The Health Science Library also offers internet access.

Trainee to Instructor Ratio

Trainee to instructor ratio of 2:1

Tuition and Finances

The value of the Program for each trainee is Thirty Seven Thousand One Hundred and Sixty (\$37,160.00). As part of the program value, the accepted trainee will receive an educational stipend of Seventeen Thousand One Hundred and Sixty Dollars (\$17,160.00). In consideration of the value of the program, including the Educational Stipend, the trainee agrees to full time employment with UMMC as a dosimetrist for a period of eighteen (18) months following graduation from the program, if a position is available. Trainees who are employed after graduation, by UMMC are paid a competitive salary during the eighteen-month obligation to the University of Maryland Medical Center. Notably, if a position is not available upon completion of the program, the trainee does not have to pay back any part of the \$37,160.00 value of the program. If an applicant is accepted into the program and wishes not to enter the commitment to work for 24 months, a one-time fee will be due of \$37,160.00 to cover the value of the program. In such instance, the trainee will receive the stipend portion of that fee, back \$17,160.00 as a salary during their one-year employment at UMMC. If a trainee should need or wish to breach the agreement to commit to employment after graduation or at any time during the 18 months employment after graduation, a one-time fee of 37,160.00 shall be due. It should be noted that both the tuition and the contractual obligations are reviewed on an annual basis and are subject to change.

Transfer Credits

The UMMC Medical Dosimetry Training Program does not accept transfer credits.

Academic Calendar

This yearlong program commences the first week of July. Operational hours for trainees are in accordance with the normal clinic schedule, Monday - Friday, 8:00 a.m. - 4:30 p.m. Trainees are not required to work beyond normal hours or observed holidays honored by the University of Maryland Medical System. Trainees receive two weeks of vacation, and must submit a request for any vacation days to the Program Director. Additionally, trainees receive 6 holidays per year (when the radiation oncology department is closed): New Years, Martin Luther King Holiday, Memorial Day, July 4th, Labor Day, and Thanksgiving day and the Friday after.

The academic year has two semesters (fall and spring). The fall semester runs from July through December, the spring semester runs January through June. Transcripts will be given for both semesters..

Radiation Safety

All trainees will receive radiation safety training provided by the department's radiation safety officer and issued radiation-monitoring badges when they start the program. The training consists of basics of radiation protection and department's Radiation Safety Policy. All trainee activities involving radiation fall under the rules and regulations of the Department of Environmental Health and Safety at the University of Maryland, Baltimore. The radiation safety policies and procedures can be found in Exhibit F and are available at <http://www.ehs.umaryland.edu>.

Pregnancy Policy

The pregnancy policy will be maintained in accordance with the policies of the University of Maryland Medical Systems, which are discussed in the UMMC policy and procedure manual, procedure #409, leave of absence.

Declaration of Pregnant Worker (DPW) Status

The declaration of pregnant worker status is voluntary and is administered by the office of environmental health and safety. Declared pregnant trainees will be offered an alternative schedule to gain competency in brachytherapy procedures when sources are present. The pregnancy policy of our Department of Environmental Health and Safety is available through their website at:

http://www.ehs.umaryland.edu/Radiation%20Safety/Policies/docs/RSP_1_4%20April%201%202005.pdf. Additionally, this page includes a link where one can voluntarily disclose their status as a pregnant radiation worker.

Trainee Services

The University of Maryland Baltimore's Health Sciences and Human Services Library (HS/HSL) is located directly across the street from the Department of Radiation Oncology. Serving all schools on campus and the University of Maryland Medical Center, the HS/HSL contains more than 350,000 volumes, including more than 2,500 journal titles. The library has more than 900 seats, 40 study rooms, 3 microcomputer labs, a satellite conferencing center, and network connections throughout the building.

Additionally, our medical dosimetry trainees have access to our residents' library that contains scores of books on radiation therapy and most of the important scholarly journals in the field. We also maintain a library of dosimetry texts in our dosimetry room that the trainees can borrow.

Trainees can take advantage of The Counseling Center at the University of Maryland, Baltimore. It serves as the primary centrally administered service center providing short-term individual, couples, family and group counseling for dysfunctions that impinge on academic or work achievement. It also provides direct service to trainees, faculty and staff members with acute problems and acute exacerbations of chronic problems.

Health and Insurance

All trainees are required to have a complete physical exam before entering the program.

This exam must include:

1. History and physical
2. Blood pressure check
3. Immunizations: polio, tetanus, rubella, measles and hepatitis B
4. TB skin test
5. Chest x-ray, if TB test is positive
6. Free of any communicable diseases

Physicals will be accepted if conducted within the past six months. General health should be taken care of by a family physician.

Trainees who accept the stipend will be offered health coverage by UMMC.

Liability Insurance

All trainees accepted into the program will be covered by UMMC.

Transportation

All trainees will be responsible for providing their own transportation to and from the clinical sites of the Department of Radiation Oncology. Trainees will be responsible for paying their own parking costs.

Housing

All trainees will be responsible for providing their own housing. University and/or the Medical Center facilities will not be available.

Curriculum

The length of the program will be 12 months. It consists of 1700 hours of clinical training and 300 hours of formal classroom, laboratory exercises or modules. There will not be a difference in the length for any trainee with respect to their background.

Due Process Procedures

Trainees with a complaint should first present the complaint orally to the person(s) involved. If the complaint is not resolved in five business days, the trainee can present a formal written complaint to the program director. This formal written complaint should be filed within ten business days of the original oral presentation. A review of the appeal and rendering of a decision will be completed within five business days. If the trainee wishes to appeal beyond the program director, he or she can file a written appeal to the Human Resources Department.

The appeal process of the Human Resources Department is outlined in detail on our intranet at: <http://intra.umms.org/-/media/intranets/ummc/pdfs/policies/hr/hrm-501cs.pdf?upd=20150701205103>

A copy of this document will be provided to any trainee upon request.

Reporting Non-Compliance of JRCERT standards

The School adheres to the standards for medical dosimetry set by JRCERT (“Standards-MD”). The procedure for reporting non-compliance can be found the JRCERT website and will be given to each trainee in printed form at the start of the program. The form for filing complaints can be found at:

http://www.jrcert.org/pdfs/accreditation_process/forms_&_checklists/other_forms/allegations_reporting_form.pdf

Disciplinary Action

Any activities or behavior that violate the policy and procedures of the University of Maryland Medical System (the sponsoring organization of this program) as outlined in the policy and procedure manual of the University of Maryland Medical Center will be grounds for disciplinary action to include dismissal from the program. The final authority for all disciplinary action rests with the chairman, department of radiation oncology.

Confidentiality

Trainee records will be maintained in accordance with the Family Education Rights and Privacy Act (Buckley Amendment).



UNIVERSITY *of* MARYLAND
MEDICAL CENTER

DEPARTMENT *of* RADIATION ONCOLOGY

SCHOOL *of* MEDICAL DOSIMETRY

APPENDIX II:

ENROLLMENT POLICIES

Enrollment Policies: Acceptance, Initial UMMC Probationary Period, Completion, Probation and Dismissal

The Enrollment Policies of the School of Medical Dosimetry at University of Maryland Medical Center are instituted to provide a scholastic, professional and fair environment. This document focuses on the four major areas of enrollment; acceptance, program completion, probation and dismissal. All aspects are reviewed by a School of Medical Dosimetry Committee:

Acceptance:

Four positions are available each year and filled by individual applicants. The individual applicant accepted to fill one position must complete the application process, submitting all pertinent documentation of school records, recommendation letters and assurance that all information is honest and true.

The School of Medical Dosimetry Committee, composed of the Program Director, Clinical Coordinator, One clinical preceptor, one faculty physicist and one faculty clinician shall review all applications. An objective scoring system shall be used to review GPA, letters of recommendation, letter of intent of the applicant and past professional experience. The closest match of interest of the applicant, experience, GPA and referral by a referee are considered to be the source of information in matching the candidate to the position.

Interviews are conducted in person, at UMMC. Candidates are responsible for covering transportation, lodging and ancillary expenses to arrive at the interview. Each year, the program invites 4 or more candidates to interview for entry into the program. Should the applicants not meet the requirements to fill all positions, or reject an offer to interview; the next group of 4 applicants, ranked from the application review process shall be invited for interview.

All Applications are due on Dec. 1 of the year prior of starting the program. Interviews are conducted no later than March of the year the trainee would start the program.

Acceptance may be denied based on the candidate being under-ranked relative to other applicants in GPA, recommendation, statement of interest, professional experience and overall performance in the interview process. Acceptance may also be revoked if a candidate is found to have submitted untrue information, or misled the program into believing any information submitted in the application that may be related to another person. Applications are reviewed objectively. In the application process, age, sex, and race are omitted.

Ultimately, the application process is aiming towards an objective, Performance-based evaluation to find the best candidate to perform the trainee role in the program.

Initial UMMC Employee Probationary Period

Trainees of the School of Medical Dosimetry become University of Maryland Medical Center employees when they join the program. The UMMC rules and laws institute a 6 month probationary period on all full-time hospital employees. During this period, termination, dismissal and trainee review is subject to administrative review by the hospital at any time.

Trainees will not have access to the appeal process during initial review, as this is not available to employees of UMMC, until after they complete their initial 6 month probationary period. This does not mean the trainee starts the program in bad standing, rather this signifies that UMMC reserves the right to oversee employee conduct, professional ability and commitment to patient care through direct approach from administration if that is necessary. Such circumstances would become active if a trainee was to display disciplinary misconduct, failure to show up for work, or evident inability to conduct basic tasks assigned during the initial 6 months of employment. The trainees are advised to review the UMMC guidelines on the UMMC intranet website. A copy of the appeal process is also available to prospective trainees on request. The intranet link for all policies and procedures is <http://intra.umms.org/ummc/policies/human-resources>

Completion of the Program

Completion of the one-year program will yield a Certificate of Completion and its associated benefits, as the trainee may expect to support application for other employment. Completion is important to our program. We encourage each trainee to advance and to complete the program to the best of their ability. However, it is important that all competencies be completed. Delays in completion are addressed in the monthly discussion meetings and if necessary by meeting with the clinical director and Educational Coordinator, as this may be required. If a trainee falls outside of the bounds of reasonable time to complete a competency requirement, displays undue behavior, disrespect of faculty and staff, or deliberately decides not to conduct certain competencies, the trainee will default to a probationary period.

At completion of the program the school goals shall be met:

- 1) Demonstrate a clear understanding of medical dosimetry of radiation oncology so that the trainees can easily adapt to every changing technology.
- 2) Design treatment plans for three-dimensional conformal radiotherapy.
- 3) Design treatment plans for intensity modulated radiation therapy (IMRT).
- 4) Design treatment plans for brachytherapy treatments.
- 5) Perform hand calculations to verify plan accuracy.
- 6) Understand the emerging technology of image-guided radiation therapy (IGRT) it applies to radiation treatment planning and delivery
- 7) Effectively communicate with an interdisciplinary radiation oncology team.
- 8) Pursue a career that embraces professional development.

The School of Medical Dosimetry believes deeply in these goals and will guide each trainee to reach these goals recognizing that trainees may fall behind at times or need additional support. Unkind, inhumane, disrespectful or belligerent behavior will not be fostered and trainees exhibiting such trends will be held accountable in a probationary period.

School of Medical Dosimetry Probationary Period.

Trainees are hospital employees and are subject to rules and regulations within hospital grounds. Hospital employees are sanctioned, and possibly dismissed due to smoking on hospital grounds, inappropriate behavior, tardiness, activities that place patient care at risk, or unwillingness to conduct assigned work. Within the program of the School of Medical Dosimetry, focus is placed on trainee achievement in learning, and clinical duties. The trainee shall enter a period of probation within the school of medical dosimetry that will span from 1 to 3 months. For example, if a trainee fails more than one of the courses during a single month's time, the trainee will be advised of this. The School of Medical Dosimetry Committee will assign the program director, or clinical director to discuss the trainee's performance with the trainee. In such discussion the source of the failure in that competency shall be reviewed with the trainee, and a written statement will be delivered to the trainee and signed of awareness by the trainee. The trainee will be allowed to explain the reasons for such performance and a solution will be proposed by the clinical or program director. Review of progress will occur in one month. If the trainee has recovered to a passing performance in all areas, the trainee will be released of the probationary period, with due note in writing. If the trainee does not correct the performance in all areas to be at passing or better, the trainee will have a committee meeting. At the committee meeting the trainee will be allowed to explain if extraordinary circumstances are preventing the trainee from performing at an acceptable level in the program, in any one of the areas where the trainee is failing. The status will be summarized by the committee in writing. The trainee will also be asked to return to the committee in one month where performance shall be reviewed. If the trainee returns to normal levels of performance, the probationary period shall be stopped, and the trainee will be expected to continue to perform at an acceptable level, with a letter to the trainee from the committee of the resolution of probation.

Should a trainee show some improvement in performance after the second month of probation, but continue to fail in one or more areas, the trainee will be granted one final month of probation before the hospital is advised to consider dismissal at the administrative level. Also, at this point the trainee will be clearly informed in person and in writing of these circumstances and a permanent record will be placed in the trainee file. At the completion of this third month the trainee will have to demonstrate passing level in all areas and will be held in close observation. Misconduct, failure in any competency, tardiness, or incomplete assignments will be due cause to initiate termination without further notice.

Should a trainee continue to fail in any area at the completion of the third month of probation a written statement will be issued to the hospital administration to pursue termination of the trainee's contract with UMMC.

The trainee has access to the hospital appeal process if the trainee finds that any probationary period assigned by the School of Medical Dosimetry is not due, is unfair, or simply wishes to challenge the probationary period instituted by the program. Trainees are advised on how to use the appeal process from the hospital intranet and from the appeal documents provided to each new employee.

Dismissal

A trainee may be dismissed from the program due to extraordinary circumstances such as unusual behavior that may threaten co-workers, staff, faculty, trainees, or patients. Any trainee, who reaches three months of school probation, will also be forwarded for dismissal to the UMMC administration. Dismissal due to trainees violating any aspect of the employee regulations not expressed herein, are at the discretion of the UMMC administration. Such regulations include sexual harassment, threatening intimidation, dangerous behavior, smoking on hospital grounds after disciplinary actions have been taken, or extended absence from work. Trainees are alerted to review the hospital employee handbook from the UMMC intranet at their earliest enrollment in the program.



UNIVERSITY *of* MARYLAND
MEDICAL CENTER

DEPARTMENT *of* RADIATION ONCOLOGY

SCHOOL *of* MEDICAL DOSIMETRY

APPENDIX III: **JRCERT STANDARDS**

Standards for an Accredited Educational Program in Medical Dosimetry

EFFECTIVE JANUARY 1, 2014

Adopted by:
**The Joint Review Committee on Education
in Radiologic Technology - October 2013**



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The Joint Review Committee on Education in Radiologic Technology (JRCERT) is dedicated to excellence in education and to the quality and safety of patient care through the accreditation of educational programs in the radiologic sciences.

The JRCERT is the only agency recognized by the United States Department of Education (USDE) and the Council on Higher Education Accreditation (CHEA) for the accreditation of traditional and distance delivery educational programs in radiography, radiation therapy, magnetic resonance, and medical dosimetry. The JRCERT awards accreditation to programs demonstrating substantial compliance with these **STANDARDS**.

Introductory Statement

The Joint Review Committee on Education in Radiologic Technology (JRCERT) **Standards for an Accredited Educational Program in Medical Dosimetry** are designed to promote academic excellence, patient safety, and quality healthcare. The **STANDARDS** require a program to articulate its purposes; to demonstrate that it has adequate human, physical, and financial resources effectively organized for the accomplishment of its purposes; to document its effectiveness in accomplishing these purposes; and to provide assurance that it can continue to meet accreditation standards.

The JRCERT accreditation process offers a means of providing assurance to the public that a program meets specific quality standards. The process helps to maintain program quality and stimulates program improvement through program assessment.

There are six (6) standards. Each standard is titled and includes a narrative statement supported by specific objectives. Each objective, in turn, includes the following clarifying elements:

- **Explanation** - provides clarification on the intent and key details of the objective.
- **Required Program Response** - requires the program to provide a brief narrative and/or documentation that demonstrates compliance with the objective.
- **Possible Site Visitor Evaluation Methods** - identifies additional materials that may be examined and personnel who may be interviewed by the site visitors at the time of the on-site evaluation to help determine if the program has met the particular objective. Review of additional materials and/or interviews with listed personnel is at the discretion of the site visit team.

Following each standard, the program must provide a **Summary** that includes the following:

- Major strengths related to the standard
- Major concerns related to the standard
- The program's plan for addressing each concern identified
- Describe any progress already achieved in addressing each concern
- Describe any constraints in implementing improvements

The submitted narrative response and/or documentation, together with the results of the on-site evaluation conducted by the site visit team, will be used by the JRCERT Board of Directors in determining the program's compliance with the STANDARDS.

Standards for an Accredited Educational Program in Medical Dosimetry

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Standard One
Integrity

- Standard One:** **The program demonstrates integrity in the following:**
- **Representations to communities of interest and the public,**
 - **Pursuit of fair and equitable academic practices, and**
 - **Treatment of, and respect for, students, faculty, and staff.**

Objectives:

In support of **Standard One**, the program:

- 1.1 Adheres to high ethical standards in relation to students, faculty, and staff.
- 1.2 Provides equitable learning opportunities for all students.
- 1.3 Provides timely, appropriate, and educationally valid clinical experiences for each admitted student.
- 1.4 Limits required clinical assignments for students to not more than 10 hours per day and the total didactic and clinical involvement to not more than 40 hours per week.
- 1.5 Assures the security and confidentiality of student records, instructional materials, and other appropriate program materials.
- 1.6 Has a grievance procedure that is readily accessible, fair, and equitably applied.
- 1.7 Assures that students are made aware of the **JRCERT Standards for an Accredited Educational Program in Medical Dosimetry** and the avenue to pursue allegations of non-compliance with the **STANDARDS**.
- 1.8 Has publications that accurately reflect the program's policies, procedures, and offerings.
- 1.9 Makes available to students, faculty, and the general public accurate information about admission policies, tuition and fees, refund policies, academic calendars, clinical obligations, grading system, graduation requirements, and the criteria for transfer credit.
- 1.10 Makes the program's mission statement, goals, and student learning outcomes readily available to students, faculty, administrators, and the general public.
- 1.11 Documents that the program engages the communities of interest for the purpose of continuous program improvement.

- 1.12 Has student recruitment and admission practices that are non-discriminatory with respect to any legally protected status such as race, color, religion, gender, age, disability, national origin, and any other protected class.
- 1.13 Has student recruitment and admission practices that are consistent with published policies of the sponsoring institution and the program.
- 1.14 Has program faculty recruitment and employment practices that are non-discriminatory with respect to any legally protected status such as race, color, religion, gender, age, disability, national origin, and any other protected class.
- 1.15 Has procedures for maintaining the integrity of distance education courses.

Standard Two:
Resources

Standard Two: The program has sufficient resources to support the quality and effectiveness of the educational process.

Objectives:

In support of **Standard Two**, the program:

Administrative Structure

- 2.1 Has an appropriate organizational structure and sufficient administrative support to achieve the program's mission.
- 2.2 Provides an adequate number of faculty to meet all educational, program, administrative, and accreditation requirements.
- 2.3 Provides faculty with opportunities for continued professional development.
- 2.4 Provides clerical support services, as needed, to meet all educational, program, and administrative requirements.

Learning Resources/Services

- 2.5 Assures JRCERT recognition of all clinical practice settings.
- 2.6 Provides classrooms, laboratories, and administrative and faculty offices to facilitate the achievement of the program's mission.
- 2.7 Reviews and maintains program learning resources to assure the achievement of student learning.
- 2.8 Provides access to student services in support of student learning.

Fiscal Support

- 2.9 Has sufficient ongoing financial resources to support the program's mission.
- 2.10 For those institutions and programs for which the JRCERT serves as a gatekeeper for Title IV financial aid, maintains compliance with United States Department of Education (USDE) policies and procedures.

Standard Three
Curriculum and Academic Practices

Standard Three: **The program's curriculum and academic practices prepare students for professional practice.**

Objectives:

In support of **Standard Three**, the program:

- 3.1 Has a program mission statement that defines its purpose and scope and is periodically reevaluated.
- 3.2 Provides a well-structured, competency-based curriculum that prepares students to practice in the professional discipline.
- 3.3 Provides learning opportunities in current and developing medical dosimetry activities
- 3.4 Assures an appropriate relationship between program length and the subject matter taught for the terminal award offered.
- 3.5 Measures the length of all didactic and clinical courses in clock hours or credit hours.
- 3.6 Maintains a master plan of education.
- 3.7 Provides timely and supportive academic, behavioral, and clinical advisement to students enrolled in the program.
- 3.8 Documents that the responsibilities of faculty and clinical staff are delineated and performed.
- 3.9 Evaluates program faculty and clinical preceptor performance and shares evaluation results regularly to assure instructional responsibilities are performed.

Standard Four
Health and Safety

Standard Four: The program's policies and procedures promote the health, safety, and optimal use of radiation for students, patients, and the general public.

Objectives:

In support of **Standard Four**, the program:

- 4.1 Assures the radiation safety of students through the implementation of published policies and procedures that are in compliance with Nuclear Regulatory Commission regulations and state laws as applicable.
- 4.2 Has a published pregnancy policy that is consistent with applicable federal regulations and state laws, made known to accepted and enrolled female students, and contains the following elements:
 - Written notice of voluntary declaration,
 - Option for student continuance in the program without modification, and
 - Option for written withdrawal of declaration.
- 4.3 Assures that students employ proper radiation safety practices.
- 4.4 Assures that all medical dosimetry calculations and treatment plans are approved by a credentialed practitioner prior to implementation.
- 4.5 Assures that direct patient contact procedures (e.g., simulation, fabrication of immobilization devices, etc.) are performed under the direct supervision of a credentialed practitioner.
- 4.6 Assures sponsoring institution's policies safeguard the health and safety of students.
- 4.7 Assures that students are oriented to clinical practice setting policies and procedures in regard to health and safety.

Standard Five
Assessment

Standard Five: **The program develops and implements a system of planning and evaluation of student learning and program effectiveness outcomes in support of its mission.**

Objectives:

In support of **Standard Five**, the program:

Student Learning

5.1 Develops an assessment plan that, at a minimum, measures the program's student learning outcomes in relation to the following goals: clinical competence, critical thinking, professionalism, and communication skills.

Program Effectiveness

- 5.2 Documents the following program effectiveness data:
- Five-year average credentialing examination pass rate of not less than 75 percent at first attempt within twelve months of graduation,
 - Five-year average job placement rate of not less than 75 percent within twelve months of graduation,
 - Program completion rate,
 - Graduate satisfaction, and
 - Employer satisfaction.
- 5.3 Makes available to the general public program effectiveness data (credentialing examination pass rate, job placement rate, and program completion rate) on an annual basis.

Analysis and Actions

- 5.4 Analyzes and shares student learning outcome data and program effectiveness data to foster continuous program improvement.
- 5.5 Periodically evaluates its assessment plan to assure continuous program improvement.

Standard Six
Institutional/Programmatic Data

Standard Six: **The program complies with JRCERT policies, procedures and STANDARDS to achieve and maintain specialized accreditation.**

Objectives:

In support of **Standard Six**, the program:

Sponsoring Institution

6.1 Documents the continuing institutional accreditation of the sponsoring institution.

Personnel

6.2 Documents that all faculty and staff possess academic and professional qualifications appropriate for their assignments.

Clinical Settings

6.3 Establishes and maintains affiliation agreements with clinical settings.

6.4 Documents that clinical settings are in compliance with applicable state and/or federal radiation safety laws.

Program Sponsorship, Substantive Changes, and Notification of Program Officials

6.5 Complies with requirements to achieve and maintain JRCERT accreditation.

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Curriculum: American Association of Medical Dosimetrists
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Certification: Medical Dosimetrist Certification Board
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