Radiological Technologies University VT

STUDENT HANDBOOK

Volume 4, Effective May 13, 2013
2013/2014

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A Word from the President

Medical physics and medical dosimetry are not only very rewarding professions for someone interested in science and medicine, it is currently also a rapidly expanding profession. Students with a solid background in undergraduate physics and mathematics who decide upon a career in medical physics will find their studies of medical physics interesting and enjoyable, and their employment prospects, after completion of studies, excellent.

Medical physics is a branch of physics concerned with the application of physics to medicine, particularly in the diagnosis and treatment of human disease. The main areas of interest at present are in the treatment of cancer by ionizing radiation (radiation oncology), in diagnostic imaging with x-rays, ultrasound and nuclear magnetic resonance (diagnostic radiology), in diagnostic imaging with radionuclides (nuclear medicine) and in the study of radiation hazards and radiation protection (health physics). If people look to you for leadership, if you aspire to take the lead, or if you are responsible for leadership within your organization, we can help you to size up the challenges facing you. We can help you become a better leader.

Medical Dosimetry is designed to prepare students for the technical and theoretical aspects of a career in this field. Students acquire the professional skills of dose calculation, treatment design, and quality assurance through intensive classroom and clinical education under the supervision of educated, experienced Medical Dosimetrists, Physicists, and Radiation Oncologists.

Radiological Technologies University invites you into an educational partnership that will empower you to reach your maximum professional capabilities.

With passion,

Brent Murphy, MS, DABR
President

Mission Statement

Radiological Technologies University strives to help students develop skills and competencies to enhance their career through personal involvement of students with faculty and staff toward achieving technical expertise for success.

GUIDING OBJECTIVES

- ✓ Providing Students with higher educational and training opportunities that are flexible and accessible.
- ✓ Providing higher educational and training opportunities that are current with technology and career demands.
- ✓ Providing faculty members that have demonstrated expertise in their respective domain, both professionally and academically.
- ✓ Delivering educational support services that meet student life demands and schedules.
- ✓ Building within students a value for life-long learning and education.
- ✓ Teaching students how to evaluate, to analyze, and to synthesize information to become more skillful at creating solutions in a career environment.
- ✓ Providing educational resources in a manner that effectively uses current technology.
- ✓ Offering our programs at times and at places that are accessible to students--on campus, off campus, and at those sites best served by state of the art technologies.

Indiana Code Requirement Statement

This institution is authorized by:

The Indiana Commission for Higher Education/
The Indiana Board for Proprietary Education
101 West Ohio Street, Suite 670
Indianapolis, IN 46204-1984
317.464.4400 Ext. 138
317.464.4400 Ext. 141

Accrediting Council for Independent Colleges and Schools

Accredited by the Accrediting Council for Independent Colleges and Schools to award master's degrees. The Accrediting Council for Independent Colleges and Schools is listed as a nationally recognized accrediting agency by the United States Department of Education and is recognized by the Council for Higher Education Accreditation.

UNDERGRADUATE PROGRAM STUDENT HANDBOOK

2013 – 2014 Academic Calendar

Spring 2013 Semester

Application Due Date	December 14, 2012
Semester Start	January 7, 2013
Boot Camp Week	March 18-24 2013
Spring Break	March 25-29 2013
Semester End	April 19, 2013

Summer 2013

Application Due Date	May 10, 2013
Term Start	June 3, 2013
Boot Camp Week	July 24-28, 2013
Term End	August 16, 2013

Fall 2013 Semester

Application Due Date	August 16, 2013
Semester Start	September 2, 2013
Boot Camp Week	November 11-17 2013
Fall Break	November 18-22 2013
Semester End	December 18, 2013

Spring 2014 Semester

Application Due Date	December 17, 2013
Semester Start	January 6, 2014
Boot Camp Week	March 17-23, 2014
Spring Break	March 24-28, 2014
Semester End	April 18, 2014

Summer 2014

Application Due Date	April 14, 2014
Term Start	May12, 2014
Boot Camp	July 21-27, 2014
Summer Break	July 28-August 1, 2014
Term End	August 22, 2014

Fall 2014 Semester

Application Due Date	August 15, 2014
Semester Start	September 8, 2014
Boot Camp Week	November 17-23, 2014
Fall Break	November 24-28, 2014
Semester End	December 19, 2014

Teaching Methodology

The programs for RTU are designed to be completed in four semesters, which can run between 16 or 24 months depending on the students preference. Students who wish to pursue a more traditional route will generally enroll for fall and spring semester, which begin in September and January respectively. Students who wish to pursue an accelerated path may enroll in all three (fall, spring and summer) 15 week semesters and complete the program in roughly 16 to 18 months.

All programs require a Clinical Internship. The Clinical Internship is designed to be completed through a host site arranged by the student and university. Specific clinical internship requirements vary by program, but in all cases involve competencies that students must complete/observe as well as writing assignments based on their experiences.

Information on required textbooks and course material will be provided prior to the start of the course. Students are responsible for securing their required course materials unless otherwise stated. The syllabus for each course will be provided no later than the first day of the course.

Whether the student chooses the residential or hybrid learning environment option, the course management system is used to manage communication and distribute all course material. The system allows students to communicate with other students, instructors, teacher's aides, and administrative personnel. During the semester, students are able to retrieve resources for classes, course material, weekly schedules and tasks, lecture videos and supplemental lecture material through the system.

Homework assignments and assessments can also be completed online through file upload features and interactive tests and quizzes. Progress reports and comments on assignments from instructors and teacher's aides are also available through the course management system. Students are required to attend weekly conferences via teleconference, webcast, or video chat with the instructor or instructor's assistant to aide them on course material, homework assignments, and weekly topics. Choice of delivery system is at the full discretion of the instructor.

Each semester, there is a schedule of offered courses along with the day and time required for each course. Students who choose to utilize the hybrid learning environment go by the day the course is scheduled. For example, if a course is scheduled on Thursday, this means that new material for that course will be available Thursday of each week. In addition, homework assignments and assessments will typically be scheduled for Thursdays. The syllabus for each course notes that these weekly schedules are subject to change.

To help students manage their personal and professional lives along with their course work, homework can usually be submitted until 11:59pm on the day the assignment is due. Assessments are scheduled ahead of time so the students can make allowances with their schedules. If the times allotted are an issue for a student that cannot be overcome, the student may address this with their instructor or the RTU administrator ahead of time so alternatives may be arranged.

It is the student's sole responsibility to make sure they are checking messages and announcements to ensure they are reviewing and completing all that is required of them. Administrative personnel, instructors, and teacher's aides make sure information is as visible and clear as possible. Open communication between the student and RTU is promoted to make sure there is no ambiguity.

Boot camp weeks scheduled during the fall, spring and summer semesters are designed to allow students to meet and work together in a classroom setting both with each other and the instructors.

Boot camp weeks include events such as: exams, lectures, student project presentations, tours, lab sessions for some courses, visiting lecturers, study sessions, and review sessions. Attending boot camp is mandatory.

RTU awards credit based on attendance, homework project submissions, and assessments. Graduate program courses require a minimum grade of 80% (B) in order to receive credit.

Hardware and Software Required by the Student

- ✓ A computer with a minimum of a Pentium processor
- ✓ Highspeed internet access
- ✓ Ability to stream flash videos
- ✓ Ability to read and create pdf files
- ✓ A minimum of Microsoft® Office 2003 or equivalent
- ✓ Email account
- ✓ Access to a scanner
- ✓ Access to a fax machine
- ✓ Access to a copier
- ✓ Access to a printer

Non-Discrimination Policy

Radiological Technologies University is non-sectarian and does not discriminate with regard to race, creed, color, national origin, age, sex, disability or marital status in any of its academic course activities, employment practices, or admissions policies.

Degree Programs Offered

UNDERGRADUATE PROGRAMS

Bachelor of Science in Medical Dosimetry (BSMD)	60 credits

Average Class Size

Average class size at Radiological Technologies University is 15-20 which keep the classes small and intensive.

ADMISSION POLICIES

A person's academic ability and potential for success at Radiological Technologies University are the most important factors in the school's admission decision. Full consideration is given to the applicant's academic achievement and aptitude, personal experiences, and motivation. The School does not discriminate on the basis of such factors as national or ethnic origin, race, color, age, gender, sexual orientation, marital status, religion, disability or veteran status.

Students that have submitted an application will receive full acceptance, no acceptance, or conditional acceptance. Conditional acceptance suggests the applicant will receive full acceptance once pre-requisites and/or graduate record examination scores are submitted. Students that have received conditional acceptance to the Medical Physics Program may receive full acceptance to the Medical Dosimetry Program.

The accepted applicant for Masters level programs must possess a Bachelor's Degree from an accredited or approved institution or equivalent. Bachelor's Degree equivalency may be recognized if the student can show acceptable undergraduate college work through transcripts and extensive professional level, work experience, or more than four years of acceptable undergraduate college work.

International students (and U.S. students with international transcripts) must have a course by course evaluation of international transcripts by an approved private company, such as World Education Services, or other National Association of Credential Evaluation Services (NACES) to determine the equivalency.

Applicants whose first language is not English or language of the instruction- must submit a minimum TOEFL (Test of English as a Foreign Language) score of 650 (paper-based) or 213 (computer-based) or 79 (internet-based).

Admission Procedure for Undergraduate Programs
Radiological Technologies University provides an application through their website. Applications can also be provided via email or fax upon request.

1) After the application and all required materials are received, the applicant will be notified within 7-10 days. Required Materials include:

   - ✓ Letters of reference
   - ✓ Official transcripts from all higher education institutions
   - ✓ Personal statement letter
   - ✓ Copies of TOEFL if applicable
   - ✓ On line application

2) After the applicant is notified, an interview will be scheduled with the Chief Executive Officer or Vice President of Academic Affairs via phone conference.

3) Course selection, registration, and financing will take place during advising and registration sessions.

Admission Requirements and Recommendations
UNDERGRADUATE PROGRAMS

Medical Dosimetry Associates to Bachelors Program

Program Application Requirements

- ✓ Letters of reference
- ✓ Official transcripts from all higher education institutions
- ✓ Personal statement letter
- ✓ Copies of TOEFL if applicable
- ✓ On line application and $35.00 application fee

Program Admission Requirements

- ✓ Associate of Science Degree, or equivalent credit hours in general education may be considered.
- ✓ A GPA of 2.0 (on a 4.0 scale) for the last degree earned. A 3.0 or higher (on a 4.0 scale) is preferred.
- ✓ TOEFL minimum of 650 if applicant's first language is not English or course is not taught in primary language.
- ✓ Interview with RTU representative
- ✓ Personal statement
- ✓ Letters of References

Program Recommendations

- ✓ Human Anatomy and Physiology I & II

Program recommendations are not a requirement for admissions and can be taken during the program.

Application Requirements

- ✓ Application
- ✓ Official transcripts from all institutions of higher learning
- ✓ Curriculum Vitae/Résumé
- ✓ Three letters of reference that attest to academic and professional achievements
- ✓ TOEFL scores (if your first language is not English)
- ✓ Application fee of $35.00

Program requirements are part of the application process and must be completed prior to the start of the program. Recommendations are required in order to complete the program. They are not required prior to acceptance or program study.

Credit for Experiential Learning

Radiological Technologies University does not grant any credit for prior experiential learning.

Transfer of Credit

Radiological Technologies University may accept any course work successfully completed at other approved colleges and universities, if it comparably meets Radiological Technologies University course work requirements. A student may not transfer more than 25% of program classes. Classes must have a "C" or higher to be transferred. Graduate level classes below a "B" are not eligible for transfer to an RTU graduate program. RTU reserves the right to refuse credit transfers.

Should a student wish to transfer credit from Radiological Technologies University to another college or university, the student is advised to first contact the academic institution to which the transfer of credit is sought. All colleges and universities have their own policy regarding acceptances of transfer of credit.

Process for transfer of credit
Students can find the transfer of credit form on-line or through administrative services. Students will need to provide RTU with a copy of the catalog description and support for evaluation. Once the student provides all need documentation the University President or the Vice President of Academic affairs will review the request for approval. Administrative services will contact the student with the acceptance or rejection of the transfer. **Transfer credits are not included in the cumulative GPA or cumulative program GPA calculation.**

All students applying for the Master degree program must arrange to have original transcripts sent to Radiological Technologies University. These arrangements are to be made at the time of the student's application. Upon receipt of these transcripts of college level course/degree completions, the Chief Executive Officer/Academic Dean will review the documents and make the assessment of the transferability of each course appearing on the transcripts. Students desiring to transfer credits must fill out a Transfer of credit request and provide the supporting documentation. The Academic Dean will review the request and notify student of decision within 30 days. As part of that assessment, the Academic Dean will assure that the student's GPA meets or exceeds the minimum required.

Should the transcripts be from overseas, those documents will be photocopied. The copies will be retained by this institution. The originals will be forwarded, by mail, to an independent Transcript Evaluation Service. Upon return of the documents, the CEO/Academic Dean will review the correspondence received from the Transcript Evaluation Service and return all received documents to the student's official file. At that time, the Administrator will respond, in writing, to the applicant and document either: the acceptance of the credit or will document the specific courses which are transferable, which are not, and what further action will be required of the student in order to meet the published academic entrance requirements for the selected degree program. Each document will be examined to assure that the work accepted is clearly indicated, by the issuing institution, to be degree appropriate coursework. Questions of the equivalency of credit from overseas institutions will be submitted to the Independent Transcript Evaluation Service. If evaluation is necessary by a third party the student will be responsible for payment of service.

Grading System for undergraduate courses
Grade and Credit Point System
The following grades are considered in computing semester or cumulative grade averages. Course hours with a grade of "F" are counted when computing grade point averages but do not count toward the earned hours required for degrees.

A	(4.0 Pts)	Excellent
B	(3.0 Pts)	Good
C	(2.0 Pts)	Satisfactory
D	(0 Pts)	Unsatisfactory
F	(0 Pts)	Failing
P	(4.0 Pts)	Passed (Pass/Fail Option)
WF	(0 Pts)	Withdrawn – Failing

Repeated Courses
Repeated courses are counted in the Radiological Technologies University grade point average and may also be counted in the student's primary program GPA (Student Program GPA), depending on the

policies of the student's program. Repeated courses do not count toward the earned hours required for degrees unless the course is defined as repeatable for credit.

The following grades are not considered in computing semester or cumulative grade point averages:

AU Audit - No Credit
I Incomplete/Pending
T Denotes credits transferred from another Institution
W Withdrawn

Abbreviations and Symbols
EHRS Credit hours earned
QPts Quality Points Earned
GPA Grade point average (computed by dividing QPts by EHRS)

Credit Types
Regular Credit – All Radiological Technologies University credit is reported in terms of semester hours, whether earned during a 16-week semester or a summer session.

ACADEMIC POLICIES

Student Academic Progress
Details regarding the academic progress of each student are documented by the institution. All students must maintain satisfactory academic progress as measured by the student's cumulative grade point average. The minimum acceptable GPA (grade point average) is 3.0. Should an individual student's grade point average fall below 3.0, the student will be placed on academic probation. During the ensuing enrollment sessions the student will receive remedial guidance from the Chief Academic Officer or his/her designee, and additional assignments or projects may be required to assure that the student is benefiting from the instruction. The early identification of those students who are experiencing academic difficulty will assist the institution in providing the additional guidance that may provide a remedy.

Satisfactory Academic Progress Policy and Procedures

Radiological Technologies University has the following Satisfactory Academic Progress Policy for all students. These standards require that a student make progress toward an undergraduate or graduate degree during all periods of enrollment, including periods when a student did not receive financial aid.

Minimum Satisfactory Academic Progress Standards

- ✓ Maintain required cumulative Grade Point Average(GPA) based on matrix below, or higher (a qualitative measure)

Undergraduate Students:

Total Number of Credits Attempted	Minimum Cumulative GPA
1-44	1.50
45-59	1.70
60 or more	2.0

- ✓ Successfully complete at least 67% of the cumulative attempted credit hours(a quantitative measure) and

- ✓ Make positive progress toward a program of study within 150 percent of the average published program length.

Statuses of Academic Progress

1) Satisfactory – Student is meeting the minimum academic standards or has no academic history. Fully Eligible for financial aid.

2) Warning – Student did not meet minimum standards for cumulative GPA and/or 67% completion rate in the previous evaluation period. Student must reach all minimum standards by the end of the next evaluation period. This is also referred to as academic probation.

3) Unsatisfactory Progress – Student has had two consecutive evaluation periods below minimum standards for cumulative GPA and/or 67% completion rate. Student is Ineligible for financial aid, and may face academic probation or dismissal. Two consecutive periods below minimum will require a meeting with the Vice President of Academic affairs or other designated person with possible dismissal from the program.

4) Timeframe – Student has attempted at least 180 credit hours toward a Bachelor's Degree. Graduate students must earn their degree within the timelines set by the Graduate School per their graduate program. If a student exceeds these credit hour limits, they are not making progress toward a degree within the 150% federal requirement. Student is Ineligible for financial aid, and maybe dismissed from the program.

When is Academic Progress Evaluated? A student's satisfactory academic progress will be evaluated at the end of each academic semester (i.e., fall, spring, and summer semesters).

Successful completion of an undergraduate class is defined as earning a grade of A, B, C, or Pass. Unsuccessful grades are D, F, W, Fail, or Incomplete.
Successful completion of a graduate class is defined as earning a grade of A, B, or Pass. Unsuccessful grades are C, D, F, W, Fail, or Incomplete.

Transfer Students and Transfer credit hours: Students transferring to RTU are required to have all prior college transcripts evaluated for transfer credits. All credit hours accepted by RTU will be used to determine 67% completion rate and maximum timeframe of 150%.

Remedial/Repeat Courses: All remedial and repeat courses will be used in determining completion rate and timeframe. Actual letter grades are not included in the cumulative GPA.
Audited Credit Hours: Courses taken on an audit basis are not counted when determining the completion percentage or for purposes of determining your cumulative GPA.

In order to calculate your total ATTEMPTED hours IF you have courses on your transcript with a grade of "W" (Withdrawal), "F" (Fail), "FA" (Failure to Attend) or "I" (Incomplete) you will need to account for those credits in your total attempted hours per federal regulation. A minimum of 3 (three) credit hours should be counted for EACH class that was withdrawn, failed, failure to attend, or

incomplete and ADD the total number to “Total Earned Credits” on your transcript in order to determine total attempted hours.

For example, student has 2 grades of "W" (6 credit hours), 1 grade of "F" (3 credit hours), 3 grades of "I" (9 credit hours), and one grade of "I" (3 credit hours) and the bottom of the transcript shows "Total Earned Credits" of 80. To calculate total attempted credits, add (6+3+9+3)+80=101 total attempted credit hours.

To calculate completion rate, take total EARNED credit hours and divide by total ATTEMPTED hours. For example: 80/101=79%.

"Cumulative GPA" (must meet SAP minimum GPA requirements).

If you are unable to determine your SAP status, visit or call Administrative services at 574-232-2408 for assistance.

How to Re-establish Eligibility?
A student must bring his/her GPA and completion rate up to the minimum standards of the required cumulative GPA, per matrix, and 67% completion rate.

Appeal process for SAP

Mitigating Circumstances: If a student has experienced mitigating circumstances (illness, job related, family illness, change of major) during the most recent evaluation period, they may submit an Appeal. Appeal forms are available on the website. The student must also submit supporting documentation with the appeal form. If the request is granted, the student will be placed on one of two Statuses:

5) Probation – The student is expected to improve to minimum standards by the end of the next evaluation period. The student must meet minimum standards by the next evaluation period. A student cannot be on probation for two consecutive semesters.

6) Academic Success Plan – The student cannot be expected to improve to minimum standards by the next evaluation period. The student and RTU have agreed to a success plan to allow the student to meet minimum standards within a fixed number of evaluation periods. If at any time the student stops following the success plan and they are not meeting minimum standards they will become Ineligible for program completion. If a student meets minimum standards at any time while on a success plan their Status will be updated to Eligible.

If the request is not granted, the student will remain Ineligible until they meet all minimum standards.

Timeframe Mitigating Circumstances: If a student has not completed their program of study within the 150% timeframe and there are mitigating circumstances (illness, job related, family illness, change of major), they may submit an Appeal to reinstate financial aid eligibility. If this application is granted, the student will be placed on the following Academic Eligibility Status:

Timeframe Academic Success Plan – The student and RTU have agreed to a success plan. The student is fully eligible, as long as they are strictly following the success plan. If at any time the student stops following the success plan, they will become Permanently Ineligible.

If the request is not granted, the student will be Ineligible. All students are limited to one Timeframe Academic Success Plan.

Probation and dismissal actions are processed uniformly without regard to race, color, sex, religion, age, disability and national origin, as defined by law. In the event a student disagrees with the application of these satisfactory academic progress standards, a written appeal may be filed with the Vice President of Academic Affairs.

NOTICE TO APPLICANTS

Student Financial Assistance Programs Disclosure of Social Security Account Number

Section 7(a) of the Privacy Act of 1974 (5U.S.C.552a) requires that when any federal, state, or local government agency requests an individual to disclose his or her Social Security Account Number, that individual must also be advised whether that disclosure is mandatory or voluntary, by what statutory or other authority the number is solicited, and what use will be made of it. Accordingly, applicants are advised that disclosure of the applicant's Social Security Account Number (SSAN) is required as a condition for participation in student financial assistance programs sponsored by the federal government, state, or the local government, in view of the practical administrative difficulties that would be encountered in maintaining adequate program records without the continued use of the SSAN. The SSAN will be used to verify the identity of the applicant and as an account number (identifier) throughout the life of the loan or other type of assistance in order to report necessary data accurately. As an identifier, the SSAN is used in such program activities as determining program eligibility, certifying school attendance and student status, determining eligibility for deferment or repayment of student loans, and for tracing and collecting in cases of defaulted loans. Authority for requiring the disclosure of an applicant's SSAN is grounded on Section 7(a)(2) of the Privacy Act, which provides that an agency may continue to require disclosure of an individual's SSAN as a condition for the granting of a right, benefit, or privilege provided by law where the agency required this disclosure under statute or regulation prior to Jan. 1, 1975, in order to verify the identity of an individual.

Program Completion

The institution's policy on program completion is developed to ensure student progress through the program in a timely manner. Students must complete the program of study within 150% of the normal program length, as defined by the institution and must meet the program objectives. Program students will meet at least yearly with an RTU staff member/faculty member during boot camp to review their progress in the program. For students that require additional undergraduate courses for program completion, the program time will be adjusted based on number of credit hours needed.

Change of Program

Students desiring to change programs of study must meet with the President or Academic Dean to complete the appropriate documentation. The new program will have different Standards of Satisfactory Academic Progress and will be discussed during this meeting.
A maximum of three program changes may be made during a student's attendance at Radiological Technologies University-VT. Program competition time may be extended due to scheduling conflicts or the additional credit hours require for the new program

Multiple Majors
Students often decide to pursue more than one major because many courses are applicable to more than one program. Additional time is required to complete the required courses for a multiple major, and additional costs are incurred. Students wishing to take advantage of this opportunity must meet with the Program Director or Administrator to complete the appropriate forms. Students who choose to pursue multiple majors may utilize the courses requirements in one major to fulfill the elective requirements in another.

Counseling
Academic: Students are encouraged to seek academic counsel from the faculty members, and Administrator - not only during registration periods but also during the academic year when problems and questions arise.

Admissions: Prospective students of the college are interviewed by an Admissions Representative to make sure their career objectives can be served by the college's academic resources. Those persons whose objectives cannot be served by the programs of the college are advised to seek other educational institutions that offer programs more aligned to their fields of interest.

Employment: All students, as they approach completion of their programs, attend a Career Development workshop and meet with Administrative Services, who helps them determine their employment goals. The Career Services Office provides assistance to all qualified students in finding the jobs for which they are best qualified.

Financial Assistance: Students may seek counseling from Administrative Services to manage financial arrangements.

Personal: Students are encouraged to seek assistance from any member of the staff or faculty when problems or a personal nature are having a negative effect on their ability to do their best work at Radiological Technologies University-VT. When appropriate, students are referred to outside agencies or professionals for support or assistance. Through our on line program student are given access to counseling services through www.student lifetools.com. This web site provides information, tools and support to address barriers to their success. Comprehensive student services are based on an individualized service. Students have access 24/7 to telephone counseling for students in crisis, assessment and students

Student Resource Services
All students also have access to the SRS website (www.studentlifetools.com) for information, tools, and support to address barriers to their success. Comprehensive student services are based on an individualized service plan and include:

- ✓ Unlimited 24-7 telephone counseling response to any covered students in crisis, assessment and students needing additional support or identifying new needs/requests;

- ✓ Telephone counseling/life coaching (1-5 telephone counseling hours) from a licensed mental health professional;

- ✓ Individualized resource searches for all covered students, focused on issues that impede student success, including special adjustment needs by specific populations such as returning veterans;

- ✓ Telephone consultations for all covered students with an attorney or financial expert;

- ✓ Follow-up and outreach with the student until all issues are resolved sufficiently that the student can be successful in personal and school goals;

- ✓ Staff/faculty formal referral of students with intensive needs;

- ✓ Faculty consultation on any student concerns that would impede that student from being successful.

Attendance
This institution's policy on attendance is based on the premise that regular communication between the teacher and the student and, also, among students themselves, has significant value in the learning process. Our programs are structured to maximize your interaction with your instructor and peers while maintaining autonomy over your academic schedule. Therefore, each student is afforded the freedom to establish his or her schedule, but regular contact with the instructor/ teaching assistant and other enrolled students is a requirement that must be met. Such contact will help guide and maintain your steady progress towards the completion of assignments and courses. Such contact better assures we may more readily assist you in resolving any problematic aspects of your program. Instructors are authorized to factor the frequency and adequacy of your communications into the assignment of a grade for any given course.

Attendance at semester boot camp is mandatory for all program students. Students will be issued an incomplete if the student fails to attend boot camp.

Absences
Allowances for interruptions in "attendance" due to illness or personal emergency should be handled on a case-by-case basis between the student and instructor. Arrangements to make up work missed and return to an agreed schedule should be initiated by the student and established with the instructor. Absences may be granted for good reasons at the discretion of the University. Students are required to submit a written request for any extended leave of absence.

Frequent absences during a course could be grounds for dismissal. Students will be contacted and counseled before significant measures are taken. Plans will be made for make-up work should it be warranted. RTU's course management system tracks the student's activities. This student activity log is used to verify class attendance.

Academic Integrity Policy
RTU has a zero tolerance policy. Integrity is a foundational concept of professional behavior and RTU takes such matters very seriously. In general, if you have to ask if behavior would violate the integrity policy, it probably does.
RTU is committed to educate, implement, support, and enforce sound academic and professional integrity.

Collaboration Defined

- ✓ Working together on assignments and projects
- ✓ Citing literature

Cheating Defined

- ✓ Not doing the work
- ✓ Not doing the work and directly copying
- ✓ When it seems like a fine line

If academic dishonesty is suspected, the information will be documented and brought before the President for review. The student or students will be notified that there is a suspicion of academic dishonesty and an investigation will follow. Information retrieved during the investigation process will be evaluated and the student or students involved will be informed of the result.

In the event that academic dishonesty is validated during the investigation process, the individual or individuals involved will be notified of any action RTU chooses to take.

Typically, a first offense will result in the individual or individuals receiving probationary status or dismissal.

Grievance Policy

First Step-Anyone with a grievance or complaint may request an individual conference with the instructor or staff member to discuss the matter.

Second Step-If a satisfactory resolution to the problem is not reached, the aggrieved party should seek guidance from the Director.

Third Step-If the grievance is not resolved within 5 days of the incident, the aggrieved party must present to the Director, in writing, all facts of the grievance.
Within 48 hours, upon receipt of the written information, the Director will schedule a Grievance Committee hearing. The time of the meeting will be communicated in writing to all parties. The committee will consist of the Director, the Academic Dean, and one staff or faculty member not involved with the incident in question.

All Persons or their representatives involved with the incident must be present via teleconference at the time of the hearing. All parties involved will be given the opportunity to discuss the grievance. The Grievance Committee will excuse all parties involved in the grievance and immediately review and conclude the case. The decision of the committee will be communicated to those involved in the incident within 48 hours. The committee decision will be final.

The accrediting Council for Independent Colleges and Schools (ACICS) provides complaint procedures for the filing of complaints against accredited institutions. ACICS requires that the complainant have exhausted all complaint and grievance procedures provided under the institutional policy. Should such a complaint be filed, ACICS will review the matter to determine whether there may have been any violation of its criteria and standards, and can take action only if it determines there to have been such a violation. ACICS can be contacted at 750 First Street, NE, Suite 980, Washington, DC 20002, (202) 336-6780.

Anti-Hazing Policy
RTU is dedicated to promoting a safe and healthy campus environment for its students, faculty, staff and visitors. In addition, RTU is committed to promoting an environment that fosters respect for the dignity and rights of all its community members. As such, the University will not tolerate hazing activities by any individuals, groups, or recognized student organizations.

Hazing poses substantial risks to the safety and well-being of individual students and the University community. As such, violations of this policy will result in referral to the Office of Administration and possible disciplinary action which may include, but not be limited to, any or all of the following: suspension or expulsion from the University, loss of University recognition and privileges, referral to law enforcement, inability to participate in educational programs, and other educational or remedial action appropriate to the circumstances.

Pregnancy Policy
Students should understand that a pregnancy during the medical Dosimetry program may have an impact on their education and possibly upon the timing of graduation. Two important factors are involved.

1. Courses are only offered at select times each year and time missed for pregnancy and/or delivery will likely necessitate make up work or perhaps delay of up to a year to maintain the proper sequence of courses, depending on the timing and amount of time missed.
2. There are potential risks to an embryo or fetus secondary to radiation exposure that may require counseling and alteration of the clinical education experience.

The following policy has been developed to guide the program and its students in the event of a student pregnancy.

A. Female students are asked to read The U. S. Nuclear Regulatory Commission Regulatory Guide 8.13 regarding "Possible Health Risks to Children of Women Who are Exposed to Radiation During Pregnancy"as well as the pregnancy policy and complete and return the associated form. This document can be found at: http://pbadupws.nrc.gov/docs/ML0037/ML003739505.pdf.
B. All students will be made aware of risks and hazards of prenatal radiation exposure during coursework at RTU and upon orientation to the clinical internship.
C. A student who is pregnant, or suspects that she may be, has the option to voluntarily declare that condition to program officials.
    a. If the student decides to declare the pregnancy it shall be done in writing to the Program Director and/or the Clinical Supervisor of her internship site. The notification shall also include the expected date of delivery.
    b. A student may "undeclared" her pregnancy at any time.
    c. The program will comply with student confidentiality requests as much as possible.
D. If a student chooses to declare a pregnancy, a counseling session will be set up with the radiation safety officer at the student's clinical internship site to review radiation exposure risks and any additional monitoring practices which may be initiated.
E. A declared pregnant student may choose one of the options below (or may choose to change to a different option at a later time if desired, with written notice):
    a. Take a leave of absence from the program. (See policy for leave of absence.) Should the declared pregnant student decide to leave the program during pregnancy and delivery, tuition will be refunded according to the Tuition Refund Policy. In this

circumstance the student would be readmitted to the program at the first available opening after delivery.

b. Stay in the program, but make modifications in her clinical rotation schedules to reduce the chance of exposure to the fetus.
    i. For example, she will not participate in site specific rotations as recommended by the Radiation Safety Officer during the time of the pregnancy.

   Competency and experience in all required areas will be made up following delivery. This could delay graduation beyond the originally expected date.

c. Stay in the program and/or internship during pregnancy and continue the program without modification of learning activities or clinical rotations. If she decides to do this, she does so in full knowledge of the potential hazard of embryo/fetal radiation exposure.
    i. It is recommended that the student consult their personal physician should they choose this option. The student must also indicate, in writing her intention to continue the program without modification. A copy of this document will be kept in the student's file.

Should delivery occur during clinical internship, all course work and clinical time must be completed before the student is eligible for graduation.

Dismissal
Radiological Technologies University reserves the right to dismiss any student from the program for any of the following reasons:

- ✓ Non-compliance of the rules and regulations of Radiological Technologies University
- ✓ Engagement in any illegal or criminal act
- ✓ Any conduct that brings discredit or embarrassment to Radiological Technologies University
- ✓ Failure to make satisfactory academic progress
- ✓ Failure to meet ones financial obligations to Radiological Technologies University

Student Records
All documentation and records pertaining to students are held in strict confidence as accorded by law. It is also an ethical standard of Radiological Technology University to do so. Student records will be retained indefinitely (and safely) by this institution.

Student records are available for release to third parties upon the student's written request, a court order, or an oversight agency's requirement.

Family Educational Rights and Privacy Act
All students enrolled at Radiological Technologies University-VT shall have the right to inspect and review their educational records, to request corrections and deletions, and to limit disclosure with the Family Educational Rights and Privacy Act of 1974. The procedure for exercising these rights is available to students upon request at the office of the Executive Director.

Student records are kept on file in an appropriate and secure location. They are confidential and are available for approved purposes only by authorized employees. In accordance with the Family Educational Rights and Privacy Act of 1974, the college will not release educational records to unauthorized persons without the prior written consent of the student or parent/legal guardian if the student is less than 18 years of age.

The Family Educational Rights and Privacy Act of 1974 was designed to protect the privacy of educational records, establish the right of students to inspect and review their educational records, and provide guidelines for correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act (FERPA) Office concerning alleged failures by the school to comply with the Act.

NOTICE: Radiological Technologies University-VT will generally release certain directory information pertaining to its students to the public. This information may include student's name, address(es), phone number, program, dates of attendance, photographs, post- graduation employer and job title, participation in activities and recognition record, and the secondary and postsecondary educational institution attended by the student. If students prefer that any of this information may not be released by Radiological Technologies University-VT, they may make that request in writing, and Radiological Technology University – VT will honor it.

Drop/ Add Period
Courses dropped during the first week of the semester will not appear on the student's transcript and students will not be charged tuition for those courses. Courses dropped during the second through seventh week of any semester will appear on the student's transcript with a grade of "W". Any course dropped after the seventh week of the semester will appear on the student's transcript with a grade of "WF". Tuition refunds will follow the stated refund policy of RTU.

Students may choose to add a subject to their schedule only during the first week of the semester. The addition of one or more courses may affect the tuition due.

Withdrawals
We hope it will not be necessary for you to withdraw; but if circumstances cause you to consider doing so, please discuss any problems with us before making that decision. We are often able to provide assistance that enables students to remain in college.
If you must withdraw, an exit interview with the Administrator or Administrative services is required. During this meeting, you will discuss tuition due, refunds or outstanding debts. Students who withdraw from class will receive an appropriate grade as outlines in the section entitled Drop/Add Period. Upon returning, students will be required to repeat the class and will be responsible for any additional expenses.

Transcripts
Upon written request by the student, Radiological Technologies University will prepare and forward a transcript of the student's record. All requests must include the student's full name, a statement requesting a transcript be issued, the address to which the student would like the transcript sent, and a release signature. Official transcripts will only be released if the student is in good standing with the academic office. Transcripts are sent free of charge within two weeks of the date the request was received.

Tuition and Fees
Radiological Technologies University charges a fixed rate for each degree program. The program amount is based on the rate per credit. The cost of textbooks and study materials are not included in the tuition.

Bachelors in Medical Dosimetry (BSMD)	$25,000.00	$416.67 per credit hour
Application Fee	$35.00	(Non Refundable)
IT Service Fee	$30.00	per semester
Library Fee	$20.00	per semester
Textbooks	The student is responsible for securing all required textbooks unless otherwise stated	
Boot Camp weeks	The student is responsible for any travel, meals, and accommodation expenses that are incurred by attending boot camps.	
Auditing a course prior to completion for credit	$1,100.00	

If a student wants to audit a course that they need to complete for credit at a later time, the flat rate for access is $1,100.00 and the student has access to lectures and homework assignments only.

Students in the following programs are expected to maintain student memberships with the following organizations:

AS to BS Medical Dosimetry Program

American Association of Medical Dosimetrists	$60.00 per year (directly to AAMD)

FINANCIAL POLICIES

The primary responsibility for financing a college education rests with the student. Students with unpaid balances may lose current enrollment and will not be allowed to register for any subsequent terms. Transcripts and diplomas are withheld from those who have not settled their financial obligations, which may include collection fees, attorney's fees, and court costs. Students are not fully registered, nor will they have the privilege of class attendance, participation in activities, or use of facilities until their charges are paid. Eservice charge of 1.5 percent, not to exceed $45.00, may be added to any balance in the student account that is more than two (2) weeks past due.
Radiological Technologies University VT is not a participant in Federal or State financial aid programs.

Payment
Students assume the responsibility for payment of the tuition costs in full, either through direct payment or through a financial aid plan for those who qualify. All financial arrangements must be made before the beginning of classes. Full tuition or the first payment of a payment plan must be received no later than one week prior to the start of classes. The school will contact students who are

delinquent in paying tuition and fees. They will then be counseled and encouraged to make specific arrangements with the school in order to remove their delinquency and remain in good financial standing. The school reserves the right to change tuition and fees, make curricular changes when necessary, and make substitutions in books and supplies as required without prior notice. Any changes in tuition or fees will not affect a student already in attendance or enrolled.

Tuition Payment Methods

Radiological Technologies University accepts payment for tuition, course materials, equipment and other fees through cash payment, all major credit/debit cards, cashier's check, personal check, or company check. Upon availability, Radiological Technologies University will also assist students in applying for student financial assistance in order to defray the cost of their education. At the school's discretion, installment payments may also be arranged for those who qualify. Radiological Technologies University does not participate in government student aid programs. All outstanding student account balances are billed directly to the student upon graduation or termination. Failure to satisfy delinquent accounts within a reasonable time period will result in the account being submitted to a collection agency for processing and the student will not be allowed to graduate.

Refunds

The University shall pay a refund to the student in the amount calculated under the refund policy specified in this section. The University must make the proper refund no later than thirty-one (31) days of the student's request for cancellation or withdrawal.

The following refund policy applies:

1) A student is entitled to a full refund if one (1) or more of the following criteria are met:
   A. The student cancels the enrollment agreement or enrollment application within six (6) business days after signing.
   B. The student does not meet the postsecondary proprietary educational institution's minimum admission requirements.
   C. The student's enrollment was procured as a result of a misrepresentation in the written materials utilized by the postsecondary proprietary educational institution.
   D. If the student has not visited the postsecondary educational institution prior to enrollment and, upon touring the institution or attending the regularly scheduled orientation/classes, the student withdrew from the program within three (3) days.

2) A student withdrawing from an instructional program, after starting the instructional program at a postsecondary proprietary institution and attending one (1) week or less, is entitled to a refund of ninety percent (90%) of the cost of the financial obligation, less an application/enrollment fee of ten percent (10%) of the total tuition, not to exceed one hundred dollars ($100).

3) A student withdrawing from an instructional program, after attending more than one (1) week but equal to or less than twenty-five percent (25%) of the duration of the instructional program, is entitled to a refund of seventy-five percent (75%) of the cost of the financial obligation, less an application/enrollment fee of ten percent (10%) of the total tuition, not to exceed one hundred dollars ($100).

4) A student withdrawing from an instructional program, after attending more than twenty-five percent (25%) but equal to or less than fifty percent (50%) of the duration of the instructional

program, is entitled to a refund of fifty percent (50%) of the cost of the financial obligation, less an application/enrollment fee of ten percent (10%) of the total tuition, not to exceed one hundred dollars ($100).

5) A student withdrawing from an instructional program, after attending more than fifty percent (50%) but equal to or less than sixty percent (60%) of the duration of the instructional program, is entitled to a refund of forty percent (40%) of the cost of the financial obligation, less an application/enrollment fee of ten percent (10%) of the total tuition, not to exceed one hundred dollars ($100).

6) A student withdrawing from an institutional program, after attending more than sixty percent (60%) of the duration of the instructional program, is not entitled to a refund.

Federal VA Policy:
Title 38 US Code CFR 21.4255 Refund Policy; Non-Accredited Courses for IHL/NCD

A refund of the unused portion of the tuition, fees and other charges will be made to the veteran or eligible person who fails to enter or fails to complete the course as required by Veteran Administration regulation. The refund will be within 10% (percent) of an exact pro rata refund. No more than $10.00 of the established registration fee will be retained if a veteran or eligible person fails to enter and complete the course.

The code states that the exact proration will be determined on the ratio of the number of days of instruction completed by the student to the total number of instructional days in the course.

This policy will change upon accreditation of the school by an accrediting body recognized by the U.S Department of Education. The State Approving Agency will be notified accordingly.

STUDENT SERVICES

Faculty and staff work along with the individual student (as much as possible) to aid in making the duration of the program comfortable. All resources that are available to us are utilized to the fullest to assist the student in attaining his/her career goal.

Placement Services
Both on line and personnel placement services are available to all graduates of Radiological Technologies University VT. These services include resume review services and job placement boards. Radiological Technologies University VT does not guarantee employment after graduation.

Orientation
A new student will receive online orientation including computer hardware and software requirements, resources available for successful completion of program requirements, as well as policies and procedures prior to the start of a program. Completion of administrative matters are also taken care of at this time. Each student will receive a written course outline no later than the first day of class.

Books and Supplies
Course material and resources will be provided to the students online. Required textbooks are to be obtained by the student. Students will be informed of what materials are required and where they may purchase them.

Hours of Operation

Administrative Offices	Monday – Friday	9:00 am – 5:00pm EST

Contact Information
100 E. Wayne Street, Suite 140
South Bend, IN 46601
Phone: 574.232.2408
Toll Free 877.411.7238
Fax: 574.232.2200

PROGRAM DESCRIPTIONS

Course numbering system descriptions

MD	Medical Dosimetry core and elective courses
BIOL	Biology courses
PHY	Physics courses

100-299	Associate level
300-499	Bachelor level
500-600	Graduate level

UNDERGRADUATE LEVEL PROGRAMS

Associates to Bachelors in Medical Dosimetry

The program will prepare clinically competent, patient focused, entry-level medical dosimetrists who are able to make a positive contribution to the healthcare community.

Goal: Students will be clinically prepared and competent.
Student Learning Outcomes:
- ✓ Students will create multiple treatment plans in both simulated and actual clinical settings.
- ✓ Students will take an active role in their clinical rotation.

Goal: Students will develop critical thinking and problem solving skills.
Student Learning Outcomes:
- ✓ Students will discuss and evaluate various case studies related to the field.
- ✓ Students will practice quality assurance by detecting and correcting plan errors.

Goal: Students will demonstrate communication skills.
Student Learning Outcomes:
- ✓ Students will engage in oral presentations.
- ✓ Students will demonstrate clear and concise written communication skills.

Goal: Students will be team oriented and exemplify professional behavior.
Student Learning Outcomes:
- ✓ Students will demonstrate the ability to work and communicate in a group setting.
- ✓ Students will model professional and courteous behavior with faculty, staff, and peers.

Goal: Students will demonstrate professional planning practices
Student Learning Outcomes:
- ✓ Students will demonstrate knowledge of common toxicities by body site.
- ✓ Students will demonstrate a clear understanding of the effects of radiation on the human body.
- ✓ Students will evaluate plan parameters to ensure optimal patient care.

Program Application Requirements
- ✓ Letters of reference
- ✓ Official transcripts from all higher education institutions
- ✓ Personal statement letter
- ✓ Copies of TOEFL if applicable
- ✓ On line application and $35.00 application fee

Program Admission Requirements
- ✓ Associate of Science Degree, or equivalent credit hours in general education may be considered.
- ✓ A GPA of 2.0 (on a 4.0 scale) for the last degree earned. A 3.0 or higher (on a 4.0 scale) is preferred.
- ✓ TOEFL minimum of 650 if applicant's first language is not English or course is not taught in primary language.
- ✓ Interview with RTU representative
- ✓ Personal statement
- ✓ Letters of References

Program Recommendations
- ✓ Human Anatomy and Physiology I & II

Program recommendations are not a requirement for admissions and can be taken during the program.

Clinical Obligations
Some Clinics may require different student clinical obligations such as drug screening, immunization records, and background checks. Clinics that prefer to do their own testing and verification may do so directly with the student. RTU may be asked to perform these services and provide the results to the clinic upon their request.
Due to availability of clinical sites and student schedules, travel may be necessary in order to secure an appropriate clinical site. RTU resolves to make every effort to place student in a location that is within a reasonable distance from their place of residence.

Should students wish to propose a clinical site closer to their place of residence than is currently available, they must do so at least 6 months prior to their clinical start date. In addition, students are expected to serve as a liaison between the university and the clinical setting.

Should a proposed site prove unsuitable, the student may propose another site or choose from sites currently available.

Evening/weekend clinical assignments are not required or encouraged. If measures must be taken in order to ensure adequate clinical time, proposals will be considered and must be agreeable to the student, University and clinical site.

Program Objectives:
Prepare clinically competent graduates
Demonstrate communication skills
Develop critical thinking skills
Model professionalism

Program Details
Required Credit hours: 60
Program Duration: Two years
Program Tuition: 25,000 (12,500) per year
$416.67 per credit undergraduate level courses

Curriculum
Core Courses (54 credits required)

MD301	Radiation Dosimetry	(3 credits)
MD303	Introduction to Imaging	(3 credits)
MD302	Radiation Biology	(3 credits)
MD305	Radiation Therapy I	(3 credits)
MD306	Radiation Therapy II	(3 credits)
MHP308	Health Physics & Radiation Safety	(3 credits)
MD304	Brachytherapy	(3 credits)
MP390	Medical & Professional Ethics	(1 credit)
MD310	Treatment Planning I	(3 credits)
MD311	Treatment Planning II	(3 credits)
MD410	Treatment Planning III	(3 credits)
MD411	Treatment Planning IV	(3 credits)
MD320	Clinical Rotation I	(4 credits)
MD321	Clinical Rotation II	(4 credits)
MD420	Clinical Rotation III	(4 credits)
MD421	Clinical Rotation IV	(4 credits)
MD499	Clinical Internship	(4 credits)

Elective Courses (6 credits required)

BIOL301	Human Anatomy & Physiology	(4 credits)
MD351	Introduction to Medical Physics	(3 credits)

MD352	Imaging Anatomy	(3 credits)
MATH201	Calculus I	(3 credits)
MD205	Introduction to Radiation Therapy Planning[A]	(3 credits)
MD403	Advanced Imaging	(3 credits)
MD405	Alternative Modalities-Proton Therapy	(3 credits)
MHP510	Health Physics/Radiation Safety[B]	(3 credits)

[A]Mandatory course for students entering the program without a Radiation Therapy background
[B]May be taken in lieu of MHP308

UNIVERSITY STRUCTURE

Radiological Technologies University owns RTU-VT Indiana, LLC and RTU-VT Florida, LLC.

Radiological Technologies University
100 E. Wayne Street, Suite 140
South Bend, IN 46601
574-232-2408

All administrative information goes through the campus in South Bend, Indiana.

Board of Directors

Brent D. Murphy, MS, DABR	Founder and Chairman of the Board, President/CEO
Melody Murphy, RN	Director of Development
Scott Dube, MS, DABR	

Administrative Control

Brent D. Murphy, MS, DABR	President/CEO
Renat Letfullin Ph.D.	Vice President of Academic Affairs and Academic Dean
Elizabeth Datema	Director of Administrative Services
Melody Murphy, RN	Director of Development

Program Leadership

Brent D. Murphy, MS, DABR	Medical Physics Program Director
Manuel Arreola, Ph.D., DABR	Dean of Medical Physics Imaging
Lisa Stout, MBA, CMD	Medical Dosimetry Program Director

RTU-VTCOURSE CATALOG

PROGRAM DESCRIPTIONS

Course numbering system descriptions

MD	Medical Dosimetry core and elective courses
BIOL	Biology courses
MATH	Mathematics courses
PHY	Physics courses

100-299	Associate level
300-499	Bachelor level
500-600	Graduate level

Credit hour definition

One semester credit hour equals, at a minimum, 15 classroom hours of lecture and 30 hours of laboratory or 45 hours of practicum. The formula for calculating the number of semester credit hours for each course is: (hours of lecture/15) + (hours of lab/30) + (hours of practicum/45).

UNDERGRADUATE COURSES DESCRIPTIONS

Core and Elective Courses

MD301 RADIATION DOSIMETRY 3 CREDITS
This course focuses on introducing radiation terminology used in radiation dosimetry. Fundamental dose calculation theories are reviewed and an emphasis is placed on clinical and radiation safety related dosimetry techniques.

MD302 RADIATION BIOLOGY 3 CREDITS
This course focuses on introducing fundamental radiation biology concepts. Emphasis is placed on radiation interactions, cell damage, cell survival curves, cell sensitivity and response, factors affecting cell response, tissue kinetics, effects on the fetus, biological models, and radiobiological risk assessment.

MD303 INTRODUCTION TO IMAGING 3 CREDITS
This course focuses on introducing fundamental physics in the medical imaging profession. Fundamental concepts are applied to the system design of each imaging component presented. A special emphasis is placed on the implementation and application of each diagnostic imaging modality.

MD304 BRACHYTHERAPY 3 CREDITS
This course focuses on introducing fundamental radiation physics and safety of brachytherapy. Special emphasis is placed on both LDR and HDR brachytherapy.

MD305 RADIATION THERAPY I 3 CREDITS
This course focuses on applying the fundamental radiation oncology physics concepts to external beam radiation therapy. An emphasis is placed on understanding basic radiation physics to include: atomic structure, nuclear transformations, x-ray production and interactions with ionizing radiation. Additional concepts include dose calculation parameters, instrumentation and the measurement of absorbed dose.

MD306 RADIATION THERAPY II 3 CREDITS
This course builds upon the fundamental ideas developed in Radiation Oncology I. A wide range of specialized topics are covered including: Intensity Modulated Radiation Therapy (IMRT), Stereotactic Radiosurgery, Rotational Therapy and Image Guided Radiation Therapy (IGRT). The intent is to familiarize the student with a broad swath of special procedures encountered in radiation oncology, and to provide in-depth understanding of the most common of these special procedures. The course also covers the process of machine acceptance and commissioning, the use of this data by the operator of the treatment planning system, and how the system then uses that data to calculate doses from therapy devices. Emphasis throughout this course is placed on quality control and quality assurance. Prerequisite: Radiation Therapy I (MD305)

MP390 MEDICAL AND PROFESSIONAL ETHICS 1 CREDIT
This course focuses areas that require an understanding of medical ethics. Emphasis will be placed on Patient Data, Patient Records, Publications, Presentations, General Professional Conduct, Medical Malpractice, and Research.

MHP308 HEALTH PHYSICS AND RADIATION SAFETY 3 CREDITS
This course focuses on introducing physical principles of radioisotopes and imaging systems used in medicine and biology. Imaging systems are discussed at length with a focus on applying universal imaging concepts such as contrast and resolution to the Anger camera, PET and SPECT scanners. Radiochemical therapy and other radiopharmaceuticals are discussed. Health physics and quality control issues pertinent to nuclear medicine physics are addressed.

MD310 TREATMENT PLANNING I 3 CREDITS
This course focuses on the didactic component and clinical component of treatment planning preparation and isodose distribution. The concepts and factors affecting preparation and planning are reviewed and evaluated. Monitor unit treatment calculations, imaging modalities and clinical trials are also introduced.
Prerequisite: Anatomy one semester

MD311 TREATMENT PLANNING II 3 CREDITS
This course focuses on 2D / 3D treatment planning with focus on the following body sites: Lung, Prostate, Breast, and Head/Neck. Emphasis is placed on: Patient Positioning & Immobilization, Imaging, 3D Geometry Definition, Treatment Planning System Functionality, Treatment Planning, Dose Verification, Plan Verification, and Terminology.
Prerequisite: Treatment Planning I (MD310)

MD410 TREATMENT PLANNING III 3 CREDITS
This course focuses on 3D treatment planning for the following treatment modalities: IMRT, SRS, and SRT. Emphasis is placed on: Patient Positioning & Immobilization, Imaging, 3D Geometry Definition, Treatment Planning System Functionality, Treatment Planning, Dose Verification, Plan Verification, and Terminology. Special procedures such as: Total Body Irradiation (TBI), Total Skin Electron Therapy (TSET), and Intra-operative Radiation Therapy (IORT) will be introduced. This class will also focus on the operation and networking of oncology computer systems.
Prerequisite: Treatment Planning II (MD311)

MD411 TREATMENT PLANNING IV 3 CREDITS
This course focuses on 3D / IMRT / VMAT treatment planning for the following treatment modalities: Tomotherapy, CyberKnife and linear accelerator based IMRT/VMAT. Special procedures such as Stereotactic Radiosurgery (SRS), Stereotactic Body Radiation Therapy (SBRT) and Proton Therapy will also be included. Image Guided Radiation Therapy (IGRT) procedures and On-Board Imaging (OBI) systems will be addressed in addition to Quality Assurance (QA).
Prerequisite: Treatment Planning III (MD410)

MD320 CLINICAL ROTATION I 4 CREDITS

This is a clinically oriented course with a focus on simulation, treatment planning techniques, and plan evaluation. Students will be provided access to a radiation treatment planning computer and begin identifying normal tissues and critical structures in addition to malignant tumors and clinical routes of disease spread. Several radiation treatment planning labs will be assigned covering multiple body / cancer sites. Students will be expected delineate structures of importance and evaluate various imaging studies. These classes will progress in increasing complexity from I-IV.

MD321 CLINICAL ROTATION II 4 CREDITS

This is a clinically oriented course with a focus on simulation, treatment planning techniques, and plan evaluation. Students will be provided access to a radiation treatment planning computer and begin planning 2D and 3D radiation treatments covering a multiple body / cancer sites. Students will evaluate treatment plans making necessary adjustments in order to achieve a curative dose while decreasing complication to critical structures. These classes will progress in increasing complexity from I-IV.

Prerequisite: Clinical Rotation I (MD320)

MD420 CLINICAL ROTATION III 4 CREDITS

This is a clinically oriented course with a focus on simulation, treatment planning techniques, and plan evaluation. Students will be provided access to a radiation treatment planning computer and begin planning 3D and IMRT radiation treatments covering a multiple body / cancer sites. Students will evaluate treatment plans making necessary adjustments in order to achieve a curative dose while decreasing complication to critical structures. 3D/IMRT plan comparisons will be evaluated to reinforce the fundamentals of treatment planning. These classes will progress in increasing complexity from I-IV.

Prerequisite: Clinical Rotation II (MD321)

MD421 CLINICAL ROTATION IV 4 CREDITS

This is a clinically oriented course with a focus on simulation, treatment planning techniques, and plan evaluation. Students will be provided access to a radiation treatment planning computer and begin planning IMRT and Volume Modulated Arc Therapy (VMAT) radiation treatments covering a multiple body / cancer sites. Students will evaluate treatment plans making necessary adjustments in order to achieve a curative dose while decreasing complication to critical structures. IMRT / VMAT comparison plans will be evaluated to determine superior plan quality. Special procedures will be discussed including Brachytherapy and current radiation treatment trends and clinical trials. These classes will progress in increasing complexity from I-IV.

Prerequisite: Clinical Rotation III (MD420)

MD499 CLINICAL INTERNSHIP 4 CREDITS

The student participates in a six week clinical internship. The internship is designed to give the student laboratory/clinical instruction in specific areas of medical physics or dosimetry practice. The student keeps a daily journal of their progress on each of the course competencies, to include not only assigned calculations and discussions but also relevant notes and observations on clinical practice.

MD351 INTRODUCTION TO MEDICAL PHYSICS 3 CREDITS

This course will focus on physical principles and experimental techniques applied to medicine and biology; applications of x-rays and gamma rays in medical diagnosis and therapy; physical principles of lasers, ultrasound, and magnetic fields in mapping structures; and physical techniques for the diagnosis and therapy of the human body. This course is intended to provide students in Medical Dosimetry a basic understanding of Medical Physics.

MD352 IMAGING ANATOMY 3 CREDITS

This course is designed to provide the student with anatomy as identifiable in sections. The units will include instruction of transverse, sagittal and coronal views of the central nervous system, thorax, abdomen, pelvis and musculoskeletal system. Anatomical structures will be correlated with CT and MRI images.

Prerequisite: Anatomy one semester

MD205 INTRODUCTION TO RADIATION THERAPY PLANNING 3 CREDITS

This course will focus on basic treatment planning and dose calculations utilizing different types of treatment modalities as well as different field arrangements. This course provides a historical introduction an cover several fundamental concepts such as: isodose curves, dose volume histograms, various imaging modalities, critical structure avoidance, clinical applications of IMRT / IGRT and analyzing patient factors that influence dose distribution.

MD403 ADVANCED IMAGING 3 CREDITS

This course will provide students with the basic knowledge of advanced imaging technologies such as Computed Tomography (CT), Ultrasound, Magnetic Resonance Imaging (MRI), and Positron Emission Tomography (PET).

MD405 ALTERNATIVE MODALITIES-PROTON THERAPY 3 CREDITS

This course gives the student a background in the fundamental science underlying proton and heavy ion therapy. The radiological physics of these particles is treated first to give the student background necessary for the remainder of the course. The remainder of the course emphasizes the unique challenges faced with treatment planning for the various body sites to include: immobilization, simulation, contouring, planning, plan review, patient QA, IGRT, and proton treatment delivery.

PHY201 GENERAL PHYSICS I 3 CREDITS

This is an introductory course designed specifically for the student who has not taken a calculus-based general physics course, but is preparing for a career in medical physics. The combination of General Physics I and II will be adequate preparation for later upper-level physics courses. The course is designed to develop the ability to think as a physicist, rather than to survey physical science. To this end, the course will deal with the mechanics of particles and rigid bodies, the mechanics of fluids, and thermodynamics. These topics represent an increasing complexity.

PHY202 GENERAL PHYSICS II 3 CREDITS

This is the sequel to General Physics I. A student prepared in the calculus and vector analysis can take this course before General Physics I, but both courses must be taken. The course includes a historical introduction to electromagnetic fields following a detailed treatment of the concepts and laws. Gauss', Oersted's, and Ampere's Laws, and Maxwell's displacement current are central. Energy of the fields and storage elements in circuit theory and practical circuit analysis are treated. Electromagnetic (radio and light) waves are introduced.
Prerequisite: General Physics I (PHY201)

PHY301 MODERN PHYSICS 3 CREDITS

This course serves as a transition from the general, historical physics principles covered in a general physics course and the more modern concepts of quantum mechanics, solid state physics, and relativity that are pertinent to the study of modern-day physics. A range of topics are covered in an introductory fashion so that students are familiarized with the background material they will need to succeed in upper-level physics courses.
Prerequisite: General Physics II (PHY202)

PHY401 ELECTRICITY AND MAGNETISM 3 CREDITS

This is an advanced treatment of the material in General Physics II. There is a mathematical introduction to the vector calculus and the solution of differential equations. The student, however, should be familiar with the calculus and vector analysis. The course is designed to develop first Maxwell's electromagnetic field equations from the classic experiments that led to them. The motion of charges, waves, and wave energies and momenta are then developed. Einstein's special theory of relativity ties fields and particle motion together.
Prerequisite: Modern Physics (PHY301) concurrent or completed

PHY403 FUNDAMENTALS OF NUCLEAR PHYSICS 3 CREDITS

A strong foundation in nuclear physics is a fundamental component of any physicist's tool chest. This is especially true of the medical physicist whose bread and butter is radiation science. In this course, the student is introduced to a broad swath of topics in nuclear physics. First, quantum mechanics are treated briefly to the depth necessary for the rest of the material. Nuclear properties essential to understanding the rest of the course are covered. General principles of radioactive decay are discussed, followed by in-depth discussions of alpha, beta, and gamma decays. The last planned topic is neutron physics, although the chapter on nuclear reactions will be covered if there is time.
Prerequisite: Modern Physics (PHY301) concurrent or completed

PHY405 THERMODYNAMICS 3 CREDITS

This course introduces the student to the basic concepts and laws of thermodynamics. A mathematical introduction is included in the course, although the student must be familiar with the calculus. With the aim of making the approach as simple as possible the thermodynamic potentials (internal energy, enthalpy, Helmholtz energy, and Gibbs energy) are introduced as soon as possible and the remainder of the course built upon them. The molecular picture of matter, statistical mechanics, irreversibility, entropy production, chemical thermodynamics, reaction kinetics, and transition state theory are treated. The course ends with a treatment of phase transitions.

Prerequisite: Modern Physics (PHY301) concurrent or completed

PHY407 QUANTUM MACHANICS 3 CREDITS
This is an introduction to quantum mechanics and the language of the Dirac vectors, on which modern treatments are based. The course begins with an introduction to Dirac vectors and transformations based on the requirements of what experiment tells us. Familiarity will develop as we encounter momentum, angular momentum, and atoms. The course ends with a treatment of atoms and spectra.
Prerequisite: Modern Physics (PHY301) concurrent or completed

PHY409 ANALYTICAL MECHANICS 3 CREDITS
This is an introduction to modern mechanical treatment of the motion of particles and rigid bodies. The course is based on Lagrange and Hamiltonian mechanics the basic principles of which are developed at the beginning of the course. The student should have an understanding of the calculus. The course is designed for learning by application. Each topic is introduced as briefly as possible and then the student will engage the application.
Prerequisite: Modern Physics (PHY301) concurrent or completed

BIOL301 HUMAN ANATOMY AND PHYSIOLOGY 4 CREDITS
This course is intended to provide the student with an overview of human anatomy and physiology in the framework of organ systems. The course is aimed at an audience of non-physician medical professionals, and as part of that end the anatomical component of the course emphasizes cross-sectional anatomy as seen on planar and cross-sectional medical imaging such as CT, PET, and MRI images.

MATH201 CALCULUS I 3 CREDITS
This course is the first in a series of two designed to familiarize the student with the calculus. This particular course covers the fundamentals of calculus: the derivative and integral. It also covers a selection of topics to prepare the student for the second course in the series.

MATH202 CALCULUS II 3 CREDITS
This course is the second in a series of two designed to familiarize the student with the calculus. Satisfactory completion of Calculus I is required prior to taking Calculus II. This course starts with a brief introduction of the concepts of vectors, in order to build a discussion of vector-valued functions. This discussion contributes to the development of concepts of three-space necessary to the rest of the course. Partial derivatives, multiple integrals, and line and surface integrals make up the remainder of the course. The latter part of this course is especially applicable to the understanding of physics concepts, and it is the ultimate object of this course to prepare students to use those concepts in their further work in physics.
Prerequisite: Calculus I (MATH201)

PHY420 PHYSICS OF RADIATION DOSIMETRY 3 CREDITS

This course focuses on introducing radiation terminology used in radiation dosimetry. Fundamental dose calculation theories are reviewed and an emphasis is placed on clinical and radiation safety related dosimetry techniques.

PHY425 PHYSICS OF RADIATION BIOLOGY 3 CREDITS

This course focuses on introducing fundamental radiation biology concepts. Emphasis is placed on radiation interactions, cell damage, cell survival curves, cell sensitivity and response, factors affecting cell response, tissue kinetics, effects on the fetus, biological models, and radiobiological risk assessment.

PHY203 PHYSICS III 3 CREDITS

Essential Topics: Magnetic Field and Magnetic Forces: Bar Magnets, Monopole and Dipole, Geomagnetism; Sources of Magnetic Field; Magnetic Field Lines and vectors; Biot-Savart Law; Oersted's Experiment; Ampere's Experiment; Magnetic Force and Right Hand Rule; Magnetic Field of Current; Magnetic Dipole; Ampere's Law and Applications; Magnetic Field of Solenoids; Lorentz Force; Motion of the Charge in both Uniform Magnetic and Electric Fields combined; The Earth's Van Allen Belt; The Hall Effect; The Magnetic Force on a Current Carrying Wire; Force Between Parallel wires; Forces and Torque on a Current Loop; An Electric Motor; Atomic Magnets; Ferromagnetism; Magnetic Flux; Faraday's Law of Electromagnetic Induction; Motional EMF; Lenz Law; Induced Currents and Applications; Inductors; Mutual Inductance; Potential Across an Inductor; Energy in Inductors and Magnetic Field; LR Circuits; LC Circuits;

Concept of Oscillations and Waves: Simple Harmonic Motion; Kinematics and Dynamics of Mechanical Oscillations; Simple and Physical Pendulum; Concept of Waves; Traveling Waves; Concept of Interference; Standing Waves;

Concept of Electromagnetic Waves: Maxwell's Equations; Wave Equation; Energy and Momentum in Electromagnetic Waves; Power and Intensity; Polarization; Interference of Light Waves; Young's Double Slit Interference; Concept of Diffraction; Single-Slit Diffraction; Circular Aperture Diffraction; Resolution of Optical Instruments; Multiple Slit Diffraction;

Concept of Geometrical Optics: Reflection and Refraction; Image Formation by Spherical Mirrors (Concave and Convex); Mirror's Equation; Magnification of the Mirror; Index of Refraction; Snell's Law; Total Internal Refraction; Optical Fibers; Brewster's Angle; Dispersion Phenomenon; Image Formation by Refraction; Thin Spherical Lenses (Concave and Convex); Lens Equation; Lens Magnification; Image Formation by Multiple Lenses and mirrors.

Additional Topics (On Instructor's Choice): may include Introduction to Relativity: Postulates of Relativity, The Relativity of Simultaneity, Time Dilation, Twins Paradox, Length Contraction; and other topics.
Prerequisite: General Physics II (PHY202)

PHY201L PHYSICS LAB I 2 CREDITS

This is a complimentary part to the Physics I course of lectures. The specific content of experiments depends on availability of equipment and on choice of Instructor.

PHY202L PHYSICS LAB II 2 CREDITS

This is a complimentary part to the Physics I course of lectures. The specific content of experiments

depends on availability of equipment and on choice of Instructor.
Prerequisite: Physics Lab I (PHY201L)

PHY203L PHYSICS LAB II 2 CREDITS
This is a complimentary part to the Physics I course of lectures. The specific content of experiments depends on availability of equipment and on choice of Instructor.
Prerequisite: Physics Lab II (PHY202L)

PHY430 SEMINAR I 1 CREDIT
The content of Seminar I course is open for Instructor's choice.

PHY431 SEMINAR II 1 CREDIT
The topics to be covered may vary and the textbook choice is determined by Instructor. Proposed topics may include but not limited:

- New Science and Technological Frontiers in 21st Century
- Main Components of the Research Process
- Research Project: Interaction of the Laser Radiation with Bone Tissue.
- Developing a Theoretical Model and Setting Up Limitations
- Real Life Research Example
- Developing computer software.
- Writing a Research Report/Paper
- Example of the Research Paper
- Examples of Fundamental Research Projects. **Part 1**: Super High Energy Lasers Based on a PBCR; Wave Optics and Applications; Quantum Optics
- Nanomedicine Overview I: Definitions; A brief history; Nanodreams; Nanohorrors; Applications of Nanomedicine
- Nanomedicine Overview II: Applications of Nanomedicine; Properties of Medical Nanodevices: Shape and Size, Biocompatibility, Powering, Communication, Navigation, Summary
- Examples of Fundamental Research Projects. **Part 2**: New Dynamic Modes in Selective Nano-Photothermolysis of Cancer Cells: Cluster Aggregation Mode, Bubbles Overlapping Mode, Thermal Explosion Mode

MATH303 INTRODUCTION TO DIFFERENTIAL EQUATIONS 3 CREDITS
The topics to be covered may vary and the textbook choice is determined by Instructor. Taking this course the student will demonstrate following competencies in:

- Verify that an indicated function is a solution of given differential equations.
- Find a differential equation describing certain situations.
- Find a solution to initial value problems.
- Use various techniques for solving differential equations.
- Identify linear second-order differential equations as to being homogeneous or nonhomogeneous
- Find the general solution of homogeneous and nonhomogeneous linear second-order differential equations.

- Use matrices to obtain the general solution to a homogeneous system of linear differential equations.
- Obtain an approximate numerical value solution of an initial value problem

Prerequisite: Calculus II (MATH202)

PHY460 COMPUTATIONAL PHYSICS 3 CREDITS

The topics to be covered may vary and the textbook choice is determined by Instructor. Proposed topics may include but not limited:

- The computer simulations of the optical, electrical and mechanical properties of individual nanoparticles; the concept of surface plasmons on metal nanoparticles; spectral control of the plasmon resonance by tuning shape, size, and dielectric environment.
- The computer simulations of the nanoparticle's thermodynamics and heat diffusion into surrounding medium.
- The computer simulations of the arrays of interacting metal nanoparticles – nanoclusters.
- The computer simulations of laser heating and evaporation of the nanoparticles/nanoclusters in nano-, pico- and femto-second modes.
- Synthesis of nanoparticles.
- Fundamental problems of nucleation rate, evolution of size and size-distribution of nanoparticles will be presented.

PHY461 COMPUTATION NANOMEDICINE 3 CREDITS

The topics to be covered may vary and the textbook choice is determined by Instructor. Proposed topics may include but not limited:

- Nanomedicine: Introduction, Applications of Nanomedicine, Properties of Medical Nanodevices, Summary.
- Selective Nano-Photothermolysis of Cancer Cells.
- Nano-Optics: Mie diffraction theory.
- Simulation of the Absorption and Scattering Spectrum of nanoparticles. Demonstration of the plasmon-resonance absorption effect.
- Cancer cell structure and properties.
- Optics of the cellular natural absorbers.
- Laser heating of intracellular nanostructures: Time dynamic model.
- Computer simulation of the time dynamics of the nanoparticle's temperature heated by single pulse.
- Computer simulation of the time dynamics of the nanoparticle's temperature heated by the multipulse laser radiation.
- Laser heating of the natural intracellular absorbers.
- Space distribution of the temperature field around the single nanoparticle in cell volume.
- Temperature distribution of temperature inside/outside the single nanoparticle in bio-media.
- Space distribution of the temperature around the natural intracellular absorbers.
- Nano-cluster aggregation mode of the selective nano-photothermolysis of the cell
- Numerical solution of the heat transfer equation with many heat sources.
- Micro-bubble generation around the intracellular nanostructures.
- Computer simulation of micro-bubble dynamics.

- Computer simulation of the cell ablation.
- New approaches. Nano-bombs: explosive evaporation, shock wave generation, and optical plasma formation.

PHY440 INTRO TO NANOTECHNOLOGY I 3 CREDITS

The topics to be covered may vary and the textbook choice is determined by Instructor. Proposed topics may include but not limited:

- Introduction and Overview: Definition of Nanotechnology; Brief History of Nanotechnology; Present State of Nanotechnology; Categories of Nanotechnology; Tools of Nanotechnology; Nanotechnology Products and Applications; Current Market in Nanotechnology
- Scaling Laws: Scaling in Mechanics; Scaling in Electricity and Magnetism
- Scaling Laws (continue): Scaling in Optics; Scaling in Heat Transfer; Scaling in Fluids; Scaling in Biology; Accuracy of the scaling Laws
- Intro to Nanoscale Physics: Introduction to Quantum Mechanics; Atomic Orbitals; Electromagnetic Waves; Quantization of Energy; Atomic Spectra and Discreteness
- Intro to Nanoscale Physics (continue): The Photoelectric Effect; Wave-Particle Duality
- Intro to Nanoscale Physics (continue): Heisenberg's Uncertainty Principle
- Intro to Nanoscale Physics (continue): Standing Waves; Particle in the Potential Well; Summary
- Nanomaterials and Fabrication: Atomic Bonding; Ionic Bonding; Covalent Bonding; Metallic Bonding; Van der Waals Forces: The Dispersion Force, Repulsive Force; Examples
- Nanomaterials and Fabrication: Crystal Structure; Nanostructures; Nanoparticles; Properties of Nanoparticles; Synthesis of Nanoparticles; Application of Nanoparticles in Medicine
- Nanostructures: Nanowires; Nanofilms; Nanopores; Small-Grained Materials; Carbon Fullerenes; **C**arbon nanotubes; Summary

PHY441 INTRO TO NANOTECHNOLOGY II 3 CREDITS

The topics to be covered may vary and the textbook choice is determined by Instructor. Proposed topics may include but not limited:

- Nanomechanics: Introduction to Nanomechanics; Brief Review of Kinematics; Brief Review of Dynamics
- Nanomechenical Oscilations: Definition and examples of Oscillations; Introduction to Simple Harmonic Motion; Kinematics of Simple Harmonic Motion; Horizontal spring & mass; Vertical spring & mass; The energy approach; Dynamics of SHM; Sinusoidal Nature of SHM
- Nanomechanical Oscillations (continue…): Sinusoidal Nature of SHM; The simple pendulum; The rod pendulum
- Nanomechanical Oscillations (continue…): Forced Oscillation; Oscillating Atoms: Classical Mechanics; Quantum Mechanics of Oscillating Atoms; Quantum Harmonic Oscillator; The Corresponding Principle
- Nanomechanical Oscillations (continue…): Phonons; Nanomechanical Oscillator Applications: NM Memory Element, NM Mass Sensor: Detecting Low Concentrations; Scanning Probe Microscopes: Scanning Tunneling Microscope, Atomic Force Microscope, Applications of AFM; Summary of Nanomechanics

- Nanoelectronics: Introduction to Nanoelectronics; Electron Energy Bands; Electrons in Solids: Conductors, Insulators, and Semiconductors; Fermi Energy; The Density Of States for Solids
- Nanoelectronics (continue): Electron Density in a Conductor; Electron Energies in Nanomaterials; Quantum Confinement; Quantum Structures; Uses for Quantum Structures; How Small Is Small Enough for Confinement? Conductors: The Metal-to-Insulator ; Transition; Semiconductors: Confining Excitons; The Band Gap of Nanomaterials
- Nanoelectronics (continue): Tunneling; The Scanning Tunneling Microscope; Single Electron Phenomena; Two Rules for Keeping the Quantum in Quantum Dots; Rule 1: The Coulomb Blockade; Rule 2: Overcoming Uncertainty; The Single-Electron Transistor; Molecular Electronics; Summary
- Nanoscale Heat Transfer: Conduction; Convection; Radiation; Laser Heating of Nanoparticles

Nanophotonics: Photonic Properties of Nanomaterials; Plasmon Resonance Effect; Near-Field Light; Optical Tweezers; Photonic Crystals
Prerequisite: Intro to Nanotechnology I (PHY440)

PHY450 BIOMEDICAL OPTICS 3 CREDITS

The topics to be covered may vary and the textbook choice is determined by Instructor. Proposed topics may include but not limited:

- Interaction of the Radiation with Biological Media
- Photoelectric Effect, Compton Effect, Pair Production
- Radiation Generation
- Laser Fundamental, Types and Properties of Radiation
- Introduction to the Imaging Modalities
- Laser Ablation of Biological Tissues and Laser Surgery
- Introduction to the Imaging Modalities (Continue)
- Fiber Optics and Fiber Optics Biosensors

PHY427 PHYSICS OF NUCLEAR MEDICINE 3 CREDITS

The topics to be covered may vary and the textbook choice is determined by Instructor. Proposed topics may include but not limited:

- Introduction to MIRD
- MIRD Calculations
- Microsphere Treatment
- PET Imaging
- I-131 Dosimetry
- Radioimmuno Detection and Therapy
- Future of Nuclear Medicine

PHY432 DIRECTED RESEARCH 4 CREDITS

The content of Directed Research projects is open for Instructor choice.

PHY433 SUMMER INTERNSHIP 4 CREDITS
The content of Directed Research projects is open for Instructor choice.
(May replace Directed Research (PHY432) in the Nanomedicine concentration)

FACULTY AND STAFF ADDENDUM – Volume 3 (January 4, 2013)

Faculty and Staff
Faculty members are selected on the basis of professional experience, expertise in teaching theoretical and applied subjects, research and case study supervision capabilities, involvement in community and professional affairs, and leadership and role model capabilities essential to student advancement and professional growth.

Faculty Listing

Name	
Brent Murphy, MS, DABR	MS Medical Physics from the University of Wisconsin Area of specialization-Medical Physics Program Chair-Medical Physics, Medical Dosimetry
Scott Dube, MS, DABR	MS Radiological Sciences from the University of Colorado Area of specialization –Medical Physics
Steve Goetsch, Ph.D.	Ph.D. University of Wisconsin Area of specialization-Medical Physics
Carl Helrich, Ph.D.	Ph.D. Northwestern University Area of specialization-Physics
Michael Stabin, Ph.D., CHP	Ph.D. University of Tennessee Area of specialization-Nuclear Engineering
Scott Mitchell, MS	MS Auburn University Area of specialization-Mathematics
Wanpeng Tan, Ph.D.	Ph.D. Michigan State University Area of specialization-Physics
Liliana Braescu, Ph.D.	Ph.D. West University of Timisoara Area of specialization-Mathematics
David Phebus, MS, CMD	MS Radiological Technologies University Area of specialization-Medical Dosimetry
Manuel Arreola, Ph.D., DABR	Ph.D. University of Florida Area of specialization-Diagnostic Medical Physics
Renat Letfullin, Ph.D.	Ph.D. Saratov State

Area of specialization-Optical Physics

Staff Listing

Elizabeth Datema	Director of Administrative Services
Melody Murphy	Director of Development

Professional Services

Accounting:	Steven A. Goldberg, CPA
Legal:	Barnes & Thornburg

Legal control of the organization is through the primary membership of the limited liability corporation which is controlled by Brent D. Murphy. Brent Murphy is the sole member.

GRADUATE PROGRAMSTUDENT HANDBOOK

2013 – 2014 Academic Calendar

Spring 2013 Semester

Application Due Date	December 14, 2012
Semester Start	January 7, 2013
Boot Camp Week	March 18-24 2013
Spring Break	March 25-29 2013
Semester End	April 19, 2013

Summer 2013

Application Due Date	May 10, 2013
Term Start	June 3, 2013
Boot Camp Week	July 24-28, 2013
Term End	August 16, 2013

Fall 2013 Semester

Application Due Date	August 16, 2013
Semester Start	September 2, 2013
Boot Camp Week	November 11-17 2013
Fall Break	November 18-22 2013
Semester End	December 18, 2013

Spring 2014 Semester

Application Due Date	December 17, 2013
Semester Start	January 6, 2014
Boot Camp Week	March 17-23, 2014
Spring Break	March 24-28, 2014
Semester End	April 18, 2014

Summer 2014

Application Due Date	April 14, 2014
Term Start	May12, 2014
Boot Camp	July 21-27, 2014
Summer Break	July 28-August 1, 2014
Term End	August 22, 2014

Fall 2014 Semester

Application Due Date	August 15, 2014
Semester Start	September 8, 2014
Boot Camp Week	November 17-23, 2014
Fall Break	November 24-28, 2014
Semester End	December 19, 2014

Teaching Methodology

The programs for RTU are designed to be completed in four semesters, which can run between 16 or 24 months depending on the student's preference. Students who wish to pursue a more traditional route will generally enroll for fall and spring semester, which begin in September and January respectively.
Students who wish to pursue an accelerated path may enroll in all three (fall, spring and summer) 15 week semesters and complete the program in roughly 16 to 18 months.

All programs require a Clinical Internship. The Clinical Internship is designed to be completed through a host site arranged by the student and university. Specific clinical internship requirements vary by program, but in all cases involve competencies that students must complete/observe as well as writing assignments based on their experiences.

Information on required textbooks and course material will be provided prior to the start of the course. Students are responsible for securing their required course materials unless otherwise stated. The syllabus for each course will be provided no later than the first day of the course.

Whether the student chooses the residential or hybrid learning environment option, the course management system is used to manage communication and distribute all course material. The system allows students to communicate with other students, instructors, teacher's aides, and administrative personnel. During the semester, students are able to retrieve resources for classes, course material, weekly schedules and tasks, lecture videos and supplemental lecture material through the system.

Homework assignments and assessments can also be completed online through file upload features and interactive tests and quizzes. Progress reports and comments on assignments from instructors and teacher's aides are also available through the course management system. Students are required to attend weekly conferences via teleconference, webcast, or video chat with the instructor or instructor's assistant to aide them on course material, homework assignments, and weekly topics. Choice of delivery system is at the full discretion of the instructor.

Each semester, there is a schedule of offered courses along with the day and time required for each course. Students who choose to utilize the hybrid learning environment go by the day the course is scheduled. For example, if a course is scheduled on Thursday, this means that new material for that course will be available Thursday of each week. In addition, homework assignments and assessments will typically be scheduled for Thursdays. The syllabus for each course notes that these weekly schedules are subject to change.

To help students manage their personal and professional lives along with their course work, homework can usually be submitted until 11:59pm on the day the assignment is due. Assessments are scheduled ahead of time so the students can make allowances with their schedules. If the times allotted are an issue for a student that cannot be overcome, the student may address this with their instructor or the RTU administrator ahead of time so alternatives may be arranged.

It is the student's sole responsibility to make sure they are checking messages and announcements to ensure they are reviewing and completing all that is required of them. Administrative personnel, instructors, and teacher's aides make sure information is as visible and clear as possible. Open communication between the student and RTU is promoted to make sure there is no ambiguity.

Boot camp weeks scheduled during the fall, spring and summer semesters are designed to allow students to meet and work together in a classroom setting both with each other and the instructors. Boot camp weeks include events such as: exams, lectures, student project presentations, tours, lab sessions for some courses, visiting lecturers, study sessions, and review sessions. Attending boot camp is mandatory.

RTU awards credit based on attendance, homework project submissions, and assessments. Graduate program courses require a minimum grade of 80% (B) in order to receive credit.

Hardware and Software Required by the Student

- ✓ A computer with a minimum of a Pentium processor
- ✓ High speed internet access
- ✓ Ability to stream flash videos
- ✓ Ability to read and create pdf files
- ✓ A minimum of Microsoft® Office 2003 or equivalent
- ✓ Email account
- ✓ Access to a scanner
- ✓ Access to a fax machine
- ✓ Access to a copier
- ✓ Access to a printer

Non-Discrimination Policy

Radiological Technologies University is non-sectarian and does not discriminate with regard to race, creed, color, national origin, age, sex, disability or marital status in any of its academic course activities, employment practices, or admissions policies.

Degree Programs Offered

MASTER PROGRAMS

Master of Science in Medical Physics (MSMP)	49credits
Master of Science in Medical Dosimetry (MSMD)	47credits
Master of Science in Medical Health Physics (MSMHP)	52 credits
Master of Science in Nanomedicine (MSNM)	41 credits

Average Class Size

Average class size at Radiological Technologies University is 15-20 which keep the classes small and intensive.

ADMISSION POLICIES

A person's academic ability and potential for success at Radiological Technologies University are the most important factors in the school's admission decision. Full consideration is given to the applicant's academic achievement and aptitude, personal experiences, and motivation. The School

does not discriminate on the basis of such factors as national or ethnic origin, race, color, age, gender, sexual orientation, marital status, religion, disability or veteran status.

Students that have submitted an application will receive full acceptance, no acceptance, or conditional acceptance. Conditional acceptance suggests the applicant will receive full acceptance once pre-requisites and/or graduate record examination scores are submitted. Students that have received conditional acceptance to the Medical Physics Program may receive full acceptance to the Medical Dosimetry Program.

The accepted applicant for Masters level programs must possess a Bachelor's Degree from an accredited or approved institution or equivalent. Bachelor's Degree equivalency may be recognized if the student can show acceptable undergraduate college work through transcripts and extensive professional level, work experience, or more than four years of acceptable undergraduate college work.

International students (and U.S. students with international transcripts) must have a course by course evaluation of international transcripts by an approved private company, such as World Education Services, or other National Association of Credential Evaluation Services (NACES) to determine the equivalency.

Applicants whose first language is not English or language of the instruction- must submit a minimum TOEFL (Test of English as a Foreign Language) score of 650 (paper-based) or 213 (computer-based) or 79 (internet-based).

Admission Procedure for Graduate Programs
Radiological Technologies University provides an application through their website. Applications can also be provided via email or fax upon request.

1) After the application and all required materials are received, the applicant will be notified within 7-10 days. Required Materials include:

   - ✓ Letters of reference
   - ✓ Official transcripts from all higher education institutions
   - ✓ Personal statement letter
   - ✓ Copies of GRE if applicable to program
   - ✓ Copies of TOEFL if applicable
   - ✓ On line application

2) After the applicant is notified, an interview will be scheduled with the Chief Executive Officer or Vice President of Academic Affairs via phone conference.

3) Course selection, registration, and financing will take place during advising and registration sessions.

Admission Requirements and Recommendations
GRADUATE PROGRAMS

Medical Physics, Medical Health Physics, and Nanomedicine Masters Programs

Application Requirements:

- ✓ Letters of reference
- ✓ Official transcripts from all higher education institutions
- ✓ Personal statement letter
- ✓ Copies of GRE if applicable to program
- ✓ Copies of TOEFL if applicable
- ✓ On line application and fee of $35.00

Program Admission Requirements

- ✓ Bachelor of Science Degree or equivalent
- ✓ A GPA of 2.5 (on a 4.0 scale) for the last degree earned. A 3.0 or higher (on a 4.0 scale) is preferred.
- ✓ TOEFL minimum of 650 if applicant's first language is not English or course is not taught in primary language.
- ✓ Interview with RTU representative
- ✓ Personal statement
- ✓ Letters of References

Admission requirements will be used to evaluate the acceptance of an applicant into the program.

Program Recommendations

- ✓ Statistics (upper level)
- ✓ Human Anatomy and Physiology I & II
- ✓ GRE test scores (advised but not required)
- ✓ Calculus – 2 semesters
- ✓ Minor in Physics(required for Medical Physics)
- ✓ General Physics (calculus based) – 2 semesters
- ✓ Modern Physics – 1 semester
- ✓ Three additional upper level physics courses such as Quantum Mechanics, Electricity and Magnetism, Nuclear Physics, or Thermodynamics

*Program recommendations are not a requirement for admissions and can be taken during the program.

Medical Dosimetry Master's Program

Program Application Requirements

- ✓ Letters of references
- ✓ Official transcripts from all higher education institutions
- ✓ Personal statement letter
- ✓ Copies of TOEFL if applicable
- ✓ On line application and $35.00 application fee

Program Admission Requirements

- ✓ Bachelor of Science Degree or equivalent
- ✓ A GPA of 2.0 (on a 4.0 scale) for the last degree earned. A 3.0 or higher (on a 4.0 scale) is preferred.
- ✓ TOEFL minimum of 650 if applicant's first language is not English or course is not taught in primary language.
- ✓ Interview with RTU representative
- ✓ Personal statement
- ✓ Letters of References

Program Recommendations

- ✓ Human Anatomy and Physiology I & II
- ✓ GRE is advised but not required
- ✓ Program recommendations are not a requirement for admissions but must be taken prior to program completion.

Grading System For Graduate level courses

Grade and Credit Point System

The following grades are considered in computing semester or cumulative grade averages. Course hours with a grade of "F" are counted when computing grade point averages but do not count toward the earned hours required for degrees.

A	(4.0 Pts)	Excellent
B	(3.0 Pts)	Good
C	(2.0 Pts)	Unsatisfactory
D	(0 Pts)	Failing
F	(0 Pts)	Failing
P	(4.0 Pts)	Passed (Pass/Fail Option)
WF	(0 Pts)	Withdrawn – Failing

Repeated Courses

Repeated courses are counted in the Radiological Technologies University grade point average and may also be counted in the student's primary program GPA (Student Program GPA), depending on the policies of the student's program. Repeated courses do not count toward the earned hours required for degrees unless the course is defined as repeatable for credit.

The following grades are not considered in computing semester or cumulative grade point averages:

AU	Audit - No Credit
I	Incomplete/Pending
T	Denotes credits transferred from another Institution
W	Withdrawn

Abbreviations and Symbols

EHRS Credit hours earned

QPts Quality Points Earned
GPA Grade point average (computed by dividing QPts by EHRS)

Credit Types
Regular Credit – All Radiological Technologies University credit is reported in terms of semester hours, whether earned during a 16-week semester or a summer session.

Graduate Students: A 3.0 cumulative GPA is required at all times.

Program requirements are part of the application process and must be completed prior to the start of the program. Recommendations are required in order to complete the program. They are not required prior to acceptance or program study.

Credit for Experiential Learning
Radiological Technologies University does not grant any credit for prior experiential learning.

Transfer of Credit
Radiological Technologies University may accept any course work successfully completed at other approved colleges and universities, if it comparably meets Radiological Technologies University course work requirements. A student may not transfer more than 25% of program classes. Classes must have a "C" or higher to be transferred. Graduate level class below a "B" are not eligible for transfer to an RTU graduate program. RTU reserves the right to refuse credit transfers.

Should a student wish to transfer credit from Radiological Technologies University to another college or university, the student is advised to first contact the academic institution to which the transfer of credit is sought. All colleges and universities have their own policy regarding acceptances of transfer of credit.

Process for transfer of credit
Students can find the transfer of credit form on-line or through administrative services. Students will need to provide RTU with a copy of the catalog description and support for evaluation. Once the student provides all need documentation the University President or the Vice President of Academic affairs will review the request for approval. Administrative services will contact the student with the acceptance or rejection of the transfer. **Transfer credits are not included in the cumulative GPA or cumulative program GPA calculation.**

All students applying for the Master degree program must arrange to have original transcripts sent to Radiological Technologies University. These arrangements are to be made at the time of the student's application. Upon receipt of these transcripts of college level course/degree completions, the Chief Executive Officer/Academic Dean will review the documents and make the assessment of the transferability of each course appearing on the transcripts. Students desiring to transfer credits must fill out a Transfer of credit request and provide the supporting documentation. The Academic Dean will review the request and notify student of decision within 30 days. As part of that assessment, the Academic Dean will assure that the student's GPA meets or exceeds the minimum required.

Should the transcripts be from overseas, those documents will be photocopied. The copies will be retained by this institution. The originals will be forwarded, by mail, to an independent Transcript Evaluation Service. Upon return of the documents, the CEO/Academic Dean will review the correspondence received from the Transcript Evaluation Service and return all received documents to

the student's official file. At that time, the Administrator will respond, in writing, to the applicant and document either: the acceptance of the credit or will document the specific courses which are transferable, which are not, and what further action will be required of the student in order to meet the published academic entrance requirements for the selected degree program. Each document will be examined to assure that the work accepted is clearly indicated, by the issuing institution, to be degree appropriate coursework. Questions of the equivalency of credit from overseas institutions will be submitted to the Independent Transcript Evaluation Service. If evaluation is necessary by a third party the student will be responsible for payment of service.

ACADEMIC POLICIES

Student Academic Progress
Details regarding the academic progress of each student are documented by the institution. All students must maintain satisfactory academic progress as measured by the student's cumulative grade point average. The minimum acceptable GPA (grade point average) is 3.0. Should an individual student's grade point average fall below 3.0, the student will be placed on academic probation. During the ensuing enrollment sessions the student will receive remedial guidance from the Chief Academic Officer or his/her designee, and additional assignments or projects may be required to assure that the student is benefiting from the instruction. The early identification of those students who are experiencing academic difficulty will assist the institution in providing the additional guidance that may provide a remedy.

Satisfactory Academic Progress Policy and Procedures
Radiological Technologies University has the following Satisfactory Academic Progress Policy for all students. These standards require that a student make progress toward an undergraduate or graduate degree during all periods of enrollment, including periods when a student did not receive financial aid.

Minimum Satisfactory Academic Progress Standards

- ✓ Maintain required cumulative Grade Point Average(GPA) based on matrix below, or higher (a qualitative measure)

  Graduate Students:
  A minimum program GPA of 3.0 must be maintained at all times.

- ✓ Successfully complete at least 67% of the cumulative attempted credit hours(a quantitative measure) and

- ✓ Make positive progress toward a program of study within 150 percent of the average published program length.

Statuses of Academic Progress

1) Satisfactory – Student is meeting the minimum academic standards or has no academic history. Fully Eligible for financial aid.

2) Warning – Student did not meet minimum standards for cumulative GPA and/or 67% completion rate in the previous evaluation period. Student must reach all minimum standards by the end of the next evaluation period. This is also referred to as academic probation.

3) Unsatisfactory Progress – Student has had two consecutive evaluation periods below minimum standards for cumulative GPA and/or 67% completion rate. Student is Ineligible for financial aid, and may face academic probation or dismissal. Two consecutive periods below minimum will require a meeting with the Vice President of Academic affairs or other designated person with possible dismissal from the program.

4) Timeframe – Student has attempted at least 180 credit hours toward a Bachelor's Degree. Graduate students must earn their degree within the timelines set by the Graduate School per their graduate program. If a student exceeds these credit hour limits, they are not making progress toward a degree within the 150% federal requirement. Student is Ineligible for financial aid, and maybe dismissed from the program.

When is Academic Progress Evaluated? A student's satisfactory academic progress will be evaluated at the end of each academic semester (i.e., fall, spring, and summer semesters).

Successful completion of an undergraduate class is defined as earning a grade of A, B, C, or Pass. Unsuccessful grades are D, F, W, Fail, or Incomplete.
Successful completion of a graduate class is defined as earning a grade of A, B, or Pass. Unsuccessful grades are C, D, F, W, Fail, or Incomplete.

Transfer Students and Transfer credit hours: Students transferring to RTU are required to have all prior college transcripts evaluated for transfer credits. All credit hours accepted by RTU will be used to determine 67% completion rate and maximum timeframe of 150%.

Remedial/Repeat Courses: All remedial and repeat courses will be used in determining completion rate and timeframe. Actual letter grades are not included in the cumulative GPA.
Audited Credit Hours: Courses taken on an audit basis are not counted when determining the completion percentage or for purposes of determining your cumulative GPA.

In order to calculate your total ATTEMPTED hours IF you have courses on your transcript with a grade of "W" (Withdrawal), "F" (Fail), "FA" (Failure to Attend) or "I" (Incomplete) you will need to account for those credits in your total attempted hours per federal regulation. A minimum of 3 (three) credit hours should be counted for EACH class that was withdrawn, failed, failure to attend, or incomplete and ADD the total number to "Total Earned Credits" on your transcript in order to determine total attempted hours.

For example, student has 2 grades of "W" (6 credit hours), 1 grade of "F" (3 credit hours), 3 grades of "I" (9 credit hours), and one grade of "I" (3 credit hours) and the bottom of the transcript shows "Total Earned Credits" of 80. To calculate total attempted credits, add (6+3+9+3)+80=101 total attempted credit hours.

To calculate completion rate, take total EARNED credit hours and divide by total ATTEMPTED hours. For example: 80/101=79%.

"Cumulative GPA" (must meet SAP minimum GPA requirements).

If you are unable to determine your SAP status, visit or call Administrative services at 574-232-2408 for assistance.

How to Re-establish Eligibility?
A student must bring his/her GPA and completion rate up to the minimum standards of the required cumulative GPA, per matrix, and 67% completion rate.

Appeal process for SAP

Mitigating Circumstances: If a student has experienced mitigating circumstances (illness, job related, family illness, change of major) during the most recent evaluation period, they may submit an Appeal. Appeal forms are available on the website. The student must also submit supporting documentation with the appeal form. If the request is granted, the student will be placed on one of two statuses:

1) Probation – The student is expected to improve to minimum standards by the end of the next evaluation period. The student must meet minimum standards by the next evaluation period. A student cannot be on probation for two consecutive semesters.

2) Academic Success Plan – The student cannot be expected to improve to minimum standards by the next evaluation period. The student and RTU have agreed to a success plan to allow the student to meet minimum standards within a fixed number of evaluation periods. If at any time the student stops following the success plan and they are not meeting minimum standards they will become Ineligible for program completion. If a student meets minimum standards at any time while on a success plan their Status will be updated to Eligible.

If the request is not granted, the student will remain Ineligible until they meet all minimum standards.

Timeframe Mitigating Circumstances: If a student has not completed their program of study within the 150% timeframe and there are mitigating circumstances (illness, job related, family illness, change of major), they may submit an Appeal to reinstate financial aid eligibility. If this application is granted, the student will be placed on the following Academic Eligibility Status:

Timeframe Academic Success Plan – The student and RTU have agreed to a success plan. The student is fully eligible, as long as they are strictly following the success plan. If at any time the student stops following the success plan, they will become permanently ineligible.

If the request is not granted, the student will be Ineligible. All students are limited to one Timeframe Academic Success Plan.

Probation and dismissal actions are processed uniformly without regard to race, color, sex, religion, age, disability and national origin, as defined by law. In the event a student disagrees with the application of these satisfactory academic progress standards, a written appeal may be filed with the Vice President of Academic Affairs.

NOTICE TO APPLICANTS

Student Financial Assistance Programs Disclosure of Social Security Account Number

Section 7(a) of the Privacy Act of 1974 (5U.S.C.552a) requires that when any federal, state, or local government agency requests an individual to disclose his or her Social Security Account Number, that individual must also be advised whether that disclosure is mandatory or voluntary, by what statutory

or other authority the number is solicited, and what use will be made of it. Accordingly, applicants are advised that disclosure of the applicant's Social Security Account Number (SSAN) is required as a condition for participation in student financial assistance programs sponsored by the federal government, state, or the local government, in view of the practical administrative difficulties that would be encountered in maintaining adequate program records without the continued use of the SSAN. The SSAN will be used to verify the identity of the applicant and as an account number (identifier) throughout the life of the loan or other type of assistance in order to report necessary data accurately. As an identifier, the SSAN is used in such program activities as determining program eligibility, certifying school attendance and student status, determining eligibility for deferment or repayment of student loans, and for tracing and collecting in cases of defaulted loans. Authority for requiring the disclosure of an applicant's SSAN is grounded on Section 7(a)(2) of the Privacy Act, which provides that an agency may continue to require disclosure of an individual's SSAN as a condition for the granting of a right, benefit, or privilege provided by law where the agency required this disclosure under statute or regulation prior to Jan. 1, 1975, in order to verify the identity of an individual.

Program Completion
The institution's policy on program completion is developed to ensure student progress through the program in a timely manner. Students must complete the program of study within 150% of the normal program length, as defined by the institution and must meet the program objectives. Program students will meet at least yearly with an RTU staff member/faculty member during boot camp to review their progress in the program. For students that require additional undergraduate courses for program completion, the program time will be adjusted based on number of credit hours needed.

Change of Program
Students desiring to change programs of study must meet with the President or Academic Dean to complete the appropriate documentation. The new program will have different Standards of Satisfactory Academic Progress and will be discussed during this meeting.
A maximum of three program changes may be made during a student's attendance at Radiological Technologies University-VT. Program competition time may be extended due to scheduling conflicts or the additional credit hours require for the new program

Multiple Majors
Students often decide to pursue more than one major because many courses are applicable to more than one program. Additional time is required to complete the required courses for a multiple major, and additional costs are incurred. Students wishing to take advantage of this opportunity must meet with the Program Director or Administrator to complete the appropriate forms. Students who choose to pursue multiple majors may utilize the courses requirements in one major to fulfill the elective requirements in another.

Counseling
Academic: Students are encouraged to seek academic counsel from the faculty members, and Administrator - not only during registration periods but also during the academic year when problems and questions arise.

Admissions: Prospective students of the college are interviewed by an Admissions Representative to make sure their career objectives can be served by the college's academic resources. Those persons whose objectives cannot be served by the programs of the college are advised to seek other educational institutions that offer programs more aligned to their fields of interest.

Employment: All students, as they approach completion of their programs, attend a Career Development workshop and meet with Administrative Services, who helps them determine their employment goals. The Career Services Office provides assistance to all qualified students in finding the jobs for which they are best qualified.

Financial Assistance: Students may seek counseling from Administrative Services to manage financial arrangements.

Personal: Students are encouraged to seek assistance from any member of the staff or faculty when problems or a personal nature are having a negative effect on their ability to do their best work at Radiological Technologies University-VT. When appropriate, students are referred to outside agencies or professionals for support or assistance. Through our on line program student are given access to counseling services through www.student lifetools.com. This web site provides information, tools and support to address barriers to their success. Comprehensive student services are based on an individualized service. Students have access 24/7 to telephone counseling for students in crisis, assessment and students

Student Resource Services
All students also have access to the SRS website (www.studentlifetools.com) for information, tools, and support to address barriers to their success. Comprehensive student services are based on an individualized service plan and include:

- ✓ Unlimited 24-7 telephone counseling response to any covered students in crisis, assessment and students needing additional support or identifying new needs/requests;

- ✓ Telephone counseling/life coaching (1-5 telephone counseling hours) from a licensed mental health professional;

- ✓ Individualized resource searches for all covered students, focused on issues that impede student success, including special adjustment needs by specific populations such as returning veterans;

- ✓ Telephone consultations for all covered students with an attorney or financial expert;

- ✓ Follow-up and outreach with the student until all issues are resolved sufficiently that the student can be successful in personal and school goals;

- ✓ Staff/faculty formal referral of students with intensive needs;

- ✓ Faculty consultation on any student concerns that would impede that student from being successful.

Attendance
This institution's policy on attendance is based on the premise that regular communication between the teacher and the student and, also, among students themselves, has significant value in the learning process. Our programs are structured to maximize your interaction with your instructor and peers while maintaining autonomy over your academic schedule. Therefore, each student is afforded the freedom to establish his or her schedule, but regular contact with the instructor/ teaching assistant and

other enrolled students is a requirement that must be met. Such contact will help guide and maintain your steady progress towards the completion of assignments and courses. Such contact better assures we may more readily assist you in resolving any problematic aspects of your program. Instructors are authorized to factor the frequency and adequacy of your communications into the assignment of a grade for any given course.

Attendance at semester boot camp is mandatory for all program students. Students will be issued an incomplete if the student fails to attend boot camp.

Absences
Allowances for interruptions in "attendance" due to illness or personal emergency should be handled on a case-by-case basis between the student and instructor. Arrangements to make up work missed and return to an agreed schedule should be initiated by the student and established with the instructor. Absences may be granted for good reasons at the discretion of the University. Students are required to submit a written request for any extended leave of absence.

Frequent absences during a course could be grounds for dismissal. Students will be contacted and counseled before significant measures are taken. Plans will be made for make-up work should it be warranted. RTU's course management system tracks the student's activities. This student activity log is used to verify class attendance.

Academic Integrity Policy
RTU has a zero tolerance policy. Integrity is a foundational concept of professional behavior and RTU takes such matters very seriously. In general, if you have to ask if behavior would violate the integrity policy, it probably does.
RTU is committed to educate, implement, support, and enforce sound academic and professional integrity.

Collaboration Defined
- ✓ Working together on assignments and projects
- ✓ Citing literature

Cheating Defined
- ✓ Not doing the work
- ✓ Not doing the work and directly copying
- ✓ When it seems like a fine line

If academic dishonesty is suspected, the information will be documented and brought before the President for review. The student or students will be notified that there is a suspicion of academic dishonesty and an investigation will follow. Information retrieved during the investigation process will be evaluated and the student or students involved will be informed of the result.

In the event that academic dishonesty is validated during the investigation process, the individual or individuals involved will be notified of any action RTU chooses to take.

Typically, a first offense will result in the individual or individuals receiving probationary status or dismissal.

Grievance Policy
First Step-Anyone with a grievance or complaint may request an individual conference with the instructor or staff member to discuss the matter.

Second Step-If a satisfactory resolution to the problem is not reached, the aggrieved party should seek guidance from the Director.

Third Step-If the grievance is not resolved within 5 days of the incident, the aggrieved party must present to the Director, in writing, all facts of the grievance.
Within 48 hours, upon receipt of the written information, the Director will schedule a Grievance Committee hearing. The time of the meeting will be communicated in writing to all parties. The committee will consist of the Director, the Academic Dean, and one staff or faculty member not involved with the incident in question.

All Persons or their representatives involved with the incident must be present via teleconference at the time of the hearing. All parties involved will be given the opportunity to discuss the grievance. The Grievance Committee will excuse all parties involved in the grievance and immediately review and conclude the case. The decision of the committee will be communicated to those involved in the incident within 48 hours. The committee decision will be final.

The accrediting Council for Independent Colleges and Schools (ACICS) provides complaint procedures for the filing of complaints against accredited institutions. ACICS requires that the complainant have exhausted all complaint and grievance procedures provided under the institutional policy. Should such a complaint be filed, ACICS will review the matter to determine whether there may have been any violation of its criteria and standards, and can take action only if it determines there to have been such a violation. ACICS can be contacted at 750 First Street, NE, Suite 980, Washington, DC 20002, (202) 336-6780.

Anti-Hazing Policy
RTU is dedicated to promoting a safe and healthy campus environment for its students, faculty, staff and visitors. In addition, RTU is committed to promoting an environment that fosters respect for the dignity and rights of all its community members. As such, the University will not tolerate hazing activities by any individuals, groups, or recognized student organizations.

Hazing poses substantial risks to the safety and well-being of individual students and the University community. As such, violations of this policy will result in referral to the Office of Administration and possible disciplinary action which may include, but not be limited to, any or all of the following: suspension or expulsion from the University, loss of University recognition and privileges, referral to law enforcement, inability to participate in educational programs, and other educational or remedial action appropriate to the circumstances.

Pregnancy Policy
Students should understand that a pregnancy during the medical dosimetry program may have an impact on their education and possibly upon the timing of graduation. Two important factors are involved.

1. Courses are only offered at select times each year and time missed for pregnancy and/or delivery will likely necessitate make up work or perhaps delay of up to a year to maintain the proper sequence of courses, depending on the timing and amount of time missed.

2. There are potential risks to an embryo or fetus secondary to radiation exposure that may require counseling and alteration of the clinical education experience.

The following policy has been developed to guide the program and its students in the event of a student pregnancy.

A. Female students are asked to read The U. S. Nuclear Regulatory Commission Regulatory Guide 8.13 regarding "Possible Health Risks to Children of Women Who are Exposed to Radiation During Pregnancy"as well as the pregnancy policy and complete and return the associated form. This document can be found at: http://pbadupws.nrc.gov/docs/ML0037/ML003739505.pdf.
B. All students will be made aware of risks and hazards of prenatal radiation exposure during coursework at RTU and upon orientation to the clinical internship.
C. A student who is pregnant, or suspects that she may be, has the option to voluntarily declare that condition to program officials.
    a. If the student decides to declare the pregnancy it shall be done in writing to the Program Director and/or the Clinical Supervisor of her internship site. The notification shall also include the expected date of delivery.
    b. A student may "undeclare" her pregnancy at any time.
    c. The program will comply with student confidentiality requests as much as possible.
D. If a student chooses to declare a pregnancy, a counseling session will be set up with the radiation safety officer at the student's clinical internship site to review radiation exposure risks and any additional monitoring practices which may be initiated.
E. A declared pregnant student may choose one of the options below (or may choose to change to a different option at a later time if desired, with written notice):
    a. Take a leave of absence from the program. (See policy for leave of absence.) Should the declared pregnant student decide to leave the program during pregnancy and delivery, tuition will be refunded according to the Tuition Refund Policy. In this circumstance the student would be readmitted to the program at the first available opening after delivery.
    b. Stay in the program, but make modifications in her clinical rotation schedules to reduce the chance of exposure to the fetus.
        i. For example, she will not participate in site specific rotations as recommended by the Radiation Safety Officer during the time of the pregnancy.

    Competency and experience in all required areas will be made up following delivery. This could delay graduation beyond the originally expected date.
    c. Stay in the program and/or internship during pregnancy and continue the program without modification of learning activities or clinical rotations. If she decides to do this, she does so in full knowledge of the potential hazard of embryo/fetal radiation exposure.
        i. It is recommended that the student consult their personal physician should they choose this option. The student must also indicate, in writing her intention to continue the program without modification. A copy of this document will be kept in the student's file.

Should delivery occur during clinical internship, all course work and clinical time must be completed before the student is eligible for graduation.

Dismissal
Radiological Technologies University reserves the right to dismiss any student from the program for any of the following reasons:

- ✓ Non-compliance of the rules and regulations of Radiological Technologies University
- ✓ Engagement in any illegal or criminal act
- ✓ Any conduct that brings discredit or embarrassment to Radiological Technologies University
- ✓ Failure to make satisfactory academic progress
- ✓ Failure to meet ones financial obligations to Radiological Technologies University

Student Records
All documentation and records pertaining to students are held in strict confidence as afforded by law. It is also an ethical policy of the Radiological Technologies University to do so. Student records will be retained indefinitely by Radiological Technologies University. Information on students is not available to anyone without one of the following:

- ✓ Written request or release signed by the student
- ✓ A court order
- ✓ An oversight agency's requirement

Family Educational Rights and Privacy Act
All students enrolled at Radiological Technologies University-VT shall have the right to inspect and review their educational records, to request corrections and deletions, and to limit disclosure with the Family Educational Rights and Privacy Act of 1974. The procedure for exercising these rights is available to students upon request at the office of the Executive Director.

Student records are kept on file in an appropriate and secure location. They are confidential and are available for approved purposes only by authorized employees. In accordance with the Family Educational Rights and Privacy Act of 1974, the college will not release educational records to unauthorized persons without the prior written consent of the student or parent/legal guardian if the student is less than 18 years of age.

The Family Educational Rights and Privacy Act of 1974 was designed to protect the privacy of educational records, establish the right of students to inspect and review their educational records, and provide guidelines for correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act (FERPA) Office concerning alleged failures by the school to comply with the Act.

NOTICE: Radiological Technologies University-VT will generally release certain directory information pertaining to its students to the public. This information may include student's name, address(es), phone number, program, dates of attendance, photographs, post- graduation employer and job title, participation in activities and recognition record, and the secondary and postsecondary

educational institution attended by the student. If students prefer that any of this information may not be released by Radiological Technologies University-VT, they may make that request in writing, and Radiological Technology University – VT will honor it.

Drop/ Add Period
Courses dropped during the first week of the semester will not appear on the student's transcript and students will not be charged tuition for those courses. Courses dropped during the second through seventh week of any semester will appear on the student's transcript with a grade of "W". Any course dropped after the seventh week of the semester will appear on the student's transcript with a grade of "WF". Tuition refunds will follow the stated refund policy of RTU.

Students may choose to add a subject to their schedule only during the first week of the semester. The addition of one or more courses may affect the tuition due.

Withdrawals
We hope it will not be necessary for you to withdraw; but if circumstances cause you to consider doing so, please discuss any problems with us before making that decision. We are often able to provide assistance that enables students to remain in college.
If you must withdraw, an exit interview with the Administrator or Administrative services is required. During this meeting, you will discuss tuition due, refunds or outstanding debts. Students who withdraw from class will receive an appropriate grade as outlines in the section entitled Drop/Add Period. Upon returning, students will be required to repeat the class and will be responsible for any additional expenses.

Transcripts
Upon written request by the student, Radiological Technologies University will prepare and forward a transcript of the student's record. All requests must include the student's full name, a statement requesting a transcript be issued, the address to which the student would like the transcript sent, and a release signature. Official transcripts will only be released if the student is in good standing with the academic office. Transcripts are sent free of charge within two weeks of the date the request was received.

Tuition and Fees
Radiological Technologies University charges a fixed rate for each degree program. The program amount is based on the rate per credit. The cost of textbooks and study materials are not included in the tuition.

Masters in Medical Physics (MSMP)	$50,000.00	$1,020.41 per credit hour
Masters in Medical Health Physics (MSMHP)	$50,000.00	$961.54 per credit hour
Masters in Medical Dosimetry (MSMD)	$35,000.00	$744.68 per credit hour
Masters in Nanomedicine (MSNM)	$41,836.81	$1,020.41 per credit hour
Application Fee	$35.00	(Non Refundable)
IT Service Fee	$30.00	per semester
Library Fee	$20.00	per semester
Textbooks	The student is responsible for securing all required textbooks unless otherwise stated	

Boot Camp weeks	The student is responsible for any travel, meals, and accommodation expenses that are incurred by attending boot camps.
Auditing a course prior to completion for credit	$1,100.00

If a student wants to audit a course that they need to complete for credit at a later time, the flat rate for access is $1,100.00 and the student has access to lectures and homework assignments only.

Students in the following programs are expected to maintain student memberships with the following organizations:

Medical Physics Program	
American Association of Physicists in Medicine	$69.00 per year (directly to AAPM)
Medical Health Physics Program	
Health Physics Society	$10.00 (directly to HPS)

FINANCIAL POLICIES

The primary responsibility for financing a college education rests with the student. Students with unpaid balances may lose current enrollment and will not be allowed to register for any subsequent terms. Transcripts and diplomas are withheld from those who have not settled their financial obligations, which may include collection fees, attorney's fees, and court costs. Students are not fully registered, nor will they have the privilege of class attendance, participation in activities, or use of facilities until their charges are paid. A service charge of 1.5 percent, not to exceed $45.00, may be added to any balance in the student account that is more than two (2) weeks past due. Radiological Technologies University VT is not a participant in Federal or State financial aid programs.

Payment

Students assume the responsibility for payment of the tuition costs in full, either through direct payment or through a financial aid plan for those who qualify. All financial arrangements must be made before the beginning of classes. Full tuition or the first payment of a payment plan must be received no later than one week prior to the start of classes. The school will contact students who are delinquent in paying tuition and fees. They will then be counseled and encouraged to make specific arrangements with the school in order to remove their delinquency and remain in good financial standing. The school reserves the right to change tuition and fees, make curricular changes when necessary, and make substitutions in books and supplies as required without prior notice. Any changes in tuition or fees will not affect a student already in attendance or enrolled.

Tuition Payment Methods

Radiological Technologies University accepts payment for tuition, course materials, equipment and other fees through cash payment, all major credit/debit cards, cashier's check, personal check, or company check. Upon availability, Radiological Technologies University will also assist students in applying for student financial assistance in order to defray the cost of their education. At the school's discretion, installment payments may also be arranged for those who qualify. Radiological

Technologies University does not participate in government student aid programs. All outstanding student account balances are billed directly to the student upon graduation or termination. Failure to satisfy delinquent accounts within a reasonable time period will result in the account being submitted to a collection agency for processing and the student will not be allowed to graduate.

Refunds

The University shall pay a refund to the student in the amount calculated under the refund policy specified in this section. The University must make the proper refund no later than thirty-one (31) days of the student's request for cancellation or withdrawal.

The following refund policy applies:

1) A student is entitled to a full refund if one (1) or more of the following criteria are met:
   A. The student cancels the enrollment agreement or enrollment application within six (6) business days after signing.
   B. The student does not meet the postsecondary proprietary educational institution's minimum admission requirements.
   C. The student's enrollment was procured as a result of a misrepresentation in the written materials utilized by the postsecondary proprietary educational institution.
   D. If the student has not visited the postsecondary educational institution prior to enrollment and, upon touring the institution or attending the regularly scheduled orientation/classes, the student withdrew from the program within three (3) days.

2) A student withdrawing from an instructional program, after starting the instructional program at a postsecondary proprietary institution and attending one (1) week or less, is entitled to a refund of ninety percent (90%) of the cost of the financial obligation, less an application/enrollment fee of ten percent (10%) of the total tuition, not to exceed one hundred dollars ($100).

3) A student withdrawing from an instructional program, after attending more than one (1) week but equal to or less than twenty-five percent (25%) of the duration of the instructional program, is entitled to a refund of seventy-five percent (75%) of the cost of the financial obligation, less an application/enrollment fee of ten percent (10%) of the total tuition, not to exceed one hundred dollars ($100).

4) A student withdrawing from an instructional program, after attending more than twenty-five percent (25%) but equal to or less than fifty percent (50%) of the duration of the instructional program, is entitled to a refund of fifty percent (50%) of the cost of the financial obligation, less an application/enrollment fee of ten percent (10%) of the total tuition, not to exceed one hundred dollars ($100).

5) A student withdrawing from an instructional program, after attending more than fifty percent (50%) but equal to or less than sixty percent (60%) of the duration of the instructional program, is entitled to a refund of forty percent (40%) of the cost of the financial obligation, less an application/enrollment fee of ten percent (10%) of the total tuition, not to exceed one hundred dollars ($100).

6) A student withdrawing from an institutional program, after attending more than sixty percent (60%) of the duration of the instructional program, is not entitled to a refund.

Federal VA Policy:
Title 38 US Code CFR 21.4255 Refund Policy; Non-Accredited Courses for IHL/NCD

A refund of the unused portion of the tuition, fees and other charges will be made to the veteran or eligible person who fails to enter or fails to complete the course as required by Veteran Administration regulation. The refund will be within 10% (percent) of an exact pro rata refund. No more than $10.00 of the established registration fee will be retained if a veteran or eligible person fails to enter and complete the course.

The code states that the exact proration will be determined on the ratio of the number of days of instruction completed by the student to the total number of instructional days in the course.

This policy will change upon accreditation of the school by an accrediting body recognized by the U.S Department of Education. The State Approving Agency will be notified accordingly.

STUDENT SERVICES

Faculty and staff work along with the individual student (as much as possible) to aid in making the duration of the program comfortable. All resources that are available to us are utilized to the fullest to assist the student in attaining his/her career goal.

Placement Services
Both on line and personnel placement services are available to all graduates of Radiological Technologies University VT. These services include resume review services and job placement boards. Radiological Technologies University VT does not guarantee employment after graduation.

Orientation
A new student will receive online orientation including computer hardware and software requirements, resources available for successful completion of program requirements, as well as policies and procedures prior to the start of a program. Completion of administrative matters are also taken care of at this time. Each student will receive a written course outline no later than the first day of class.

Books and Supplies
Course material and resources will be provided to the students online. Required textbooks are to be obtained by the student. Students will be informed of what materials are required and where they may purchase them.

Hours of Operation

Administrative Offices	Monday – Friday	9:00 am – 5:00pm EST

Contact Information
100 E. Wayne Street, Suite 140
South Bend, IN 46601
Phone: 574.232.2408
Toll Free 877.411.7238
Fax: 574.232.2200

PROGRAM DESCRIPTIONS

Course numbering system descriptions

MP	Medical Physics core and elective courses
MHP	Medical Health Physics core and elective courses
MD	Medical Dosimetry core and elective courses
BIOL	Biology courses
MATH	Mathematics courses
PHY	Physics courses
NM	Nanomedicine courses

100-299	Associate level
300-499	Bachelor level
500-600	Graduate level

GRADUATE LEVEL PROGRAMS

Masters in Medical Physics

The Medical Physicist's role is multi-faceted. The Medical Physicist works closely with Radiation Oncologists, Radiologists, Medical Dosimetrists, Radiation Therapists, X-ray Technicians, Nurses, and Regulators. The Medical Physicist works with radiation delivery devices, imaging devices, and the software associated with both of these units. Medical Physicists ensure that all radiation equipment is safe for patient use. The main objectives of this program are to provide education and clinical training for graduate students and to prepare them for careers in areas of diagnostic imaging, nuclear medicine, radiation therapy, and health physics.

Program Goals and Objectives

The Program goal for Master in Medical Physics:

Assist and direct students in the development of skills, competencies, and aptitude to enhance a career in Medical Physics

Objectives

- ✓ Prepare students to assume appropriate responsibilities in clinical practice of medical physics under the supervision of a certified medical physicist or to enter a medical physics residency program in Radiation oncology or diagnostic radiology.
- ✓ Prepare students with foundational knowledge for certification within the field of medical physics.
- ✓ Provide a foundation in which students can further their education, teach, pursue research in medical physics, and foster lifelong learning.

Evening courses, weekend courses, and remote learning processes will be offered to allow the working professionals the opportunity to succeed in furthering their professional development.

Application Requirements:

- ✓ Letters of reference
- ✓ Official transcripts from all higher education institutions
- ✓ Personal statement letter
- ✓ Copies of GRE if applicable to program
- ✓ Copies of TOEFL if applicable
- ✓ On line application and fee of $35.00

Program Admission Requirements

- ✓ Bachelor of Science Degree or equivalent
- ✓ A GPA of 2.5 (on a 4.0 scale) for the last degree earned. A 3.0 or higher (on a 4.0 scale) is preferred.
- ✓ TOEFL minimum of 650 if applicant's first language is not English or course is not taught in primary language.
- ✓ Interview with RTU representative
- ✓ Personal statement
- ✓ Letters of References

Admission requirements will be used to evaluate the acceptance of an applicant into the program.

Program Recommendations

- ✓ Statistics (upper level)
- ✓ Human Anatomy and Physiology I & II
- ✓ GRE test scores (advised but not required)
- ✓ Calculus – 2 semesters
- ✓ Minor in Physics(required for Medical Physics)
- ✓ General Physics (calculus based) – 2 semesters
- ✓ Modern Physics – 1 semester
- ✓ Three additional upper level physics courses such as Quantum Mechanics, Electricity and Magnetism, Nuclear Physics, or Thermodynamics

Program recommendations are not a requirement for admissions and can be taken during the program.

Program Details

Credit hours: 49
Duration: Two years
Tuition: $50,000 (25,000 per year)
$1020.41 per credit graduate level and program courses
$416.67 per credit for undergraduate level course

Curriculum

Core Courses (40 credits required)

MP501	Radiation Dosimetry	(4 credits)
MP502	Radiation Biology	(3 credits)
MP503	Diagnostic Radiology	(3 credits)
MP504	Nuclear Medicine	(3 credits)

MP505	Radiation Oncology I	(3 credits)
MP506	Radiation Oncology II	(3 credits)
MP508	Radiological Instrumentation	(2 credits)
MHP510	Health Physics and Radiation Safety	(3 credits)
MP520	Computer Systems in Medicine	(2 credits)
MP590	Medical and Professional Ethics	(1 credit)
MATH401	Mathematical Methods	(3 credits)
MATH402	Advanced Mathematical Methods	(2 credits)
MP599	Seminars*	(1 credit)
MP699	Clinical Internship	(4 credits)

*Required each of the four semesters

Elective Courses (9 credits required)

MP611	Brachytherapy	(3 credits)
MP613	Nuclear Oncology	(3 credits)
MP615	Proton Therapy	(2 credits)
MD689	Medical Dosimetry Lab	(1 credit)
MP602	Advanced Radiation Biology	(2 credits)
MP603	Advanced Diagnostic Radiology	(2 credits)
MHP601	Shielding Design	(2 credits)
MP698	Independent Study	(1-4 credits)

Masters in Medical Dosimetry

Radiation oncology is a health care discipline that uses ionizing radiation for the treatment of cancer and allied diseases. Radiation therapy, one of the three major modalities used in cancer management, is part of the treatment regimen for more than half of all cancer patients.

The Medical Dosimetrist is considered the leader of many Radiation Therapy Departments. The Medical Dosimetrist is actively engaged in patient imaging, simulation, and treatment planning. The Medical Dosimetrist works very closely with Physicians and Radiation Therapists. The plan that is generated will set the course of how the radiation is delivered. This plan could be the single most important component of a cancer patient's radiation therapy course.

Program Objectives

The Masters in Medical Dosimetry is designed to prepare confident, patient focused, and clinically proficient medical dosimetrists that can offer support to the radiation therapy team and make a positive contribution to the healthcare field.

Goal: Students will be clinically proficient.

Student Learning Outcomes:

- ✓ Students will develop treatment plans that provide adequate target coverage while sparing normal and critical tissues.
- ✓ Students will demonstrate the ability to assist underclassmen in plan development and evaluation.

- ✓ Students will take an active role in their clinical rotations.

Goal: Students will demonstrate professional planning practices.

Student Learning Outcomes:

- ✓ Students will demonstrate knowledge of common toxicities by body site.
- ✓ Students will demonstrate a clear understanding of the effects of radiation on the human body.
- ✓ Students will evaluate plan parameters to ensure optimal patient care.

Goal: Students will develop effective communication and leadership skills.

Student Learning Outcomes:

- ✓ Students will demonstrate proficiency in oral communications through oral examinations and presentations.
- ✓ Students will demonstrate proficiency in written communications through essays and research papers.
- ✓ Students will demonstrate an understanding of radiation oncology department management.

Goal: Students will demonstrate an understanding of the roles of the Radiation Therapist, Medical Dosimetrist, and Medical Physicist

Student Learning Outcome:

- ✓ Students will gain experience and knowledge through clinical interaction and discussions.

Goal: Students will be team oriented and exemplify professionalism.

Student Learning Outcomes:

- ✓ Students will demonstrate the ability to work and communicate in a group setting.
- ✓ Students will model professional and courteous behavior with faculty, staff, and peers.

Goal: Students will exercise critical thinking and problem solving skills.

Student Learning Outcomes:

- ✓ Students will discuss and evaluate complex case studies related to the field.
- ✓ Student will practice quality assurance by detecting and correcting plan errors.
- ✓ Students will demonstrate knowledge of multiple treatment planning calculation algorithms and demonstrate proper application.

Program Requirements

- ✓ Program Application Requirements
- ✓ Letters of references
- ✓ Official transcripts from all higher education institutions
- ✓ Personal statement letter
- ✓ Copies of TOEFL if applicable
- ✓ On line application and $35.00 application fee

Program Admission Requirements

- ✓ Bachelor of Science Degree or equivalent
- ✓ A GPA of 2.0 (on a 4.0 scale) for the last degree earned. A 3.0 or higher (on a 4.0 scale) is preferred.
- ✓ TOEFL minimum of 650 if applicant's first language is not English or course is not taught in primary language.
- ✓ Interview with RTU representative
- ✓ Personal statement
- ✓ Letters of References

Program Recommendations

- ✓ Human Anatomy and Physiology I & II
- ✓ Completion of GRE (advised but not required)

Program recommendations are not a requirement for admissions but must be taken prior to program completion.

Clinical Obligations

Some Clinics may require different student clinical obligations such as drug screening, immunization records, and background checks. Clinics that prefer to do their own testing and verification may do so directly with the student. RTU may be asked to perform these services and provide the results to the clinic upon their request.

Due to availability of clinical sites and student schedules, travel may be necessary in order to secure an appropriate clinical site. RTU resolves to make every effort to place student in a location that is within a reasonable distance from their place of residence.

Should students wish to propose a clinical site closer to their place of residence than is currently available, they must do so at least 6 months prior to their clinical start date. In addition, students are expected to serve as a liaison between the university and the clinical setting.

Should a proposed site prove unsuitable, the student may propose another site or choose from sites currently available.

Evening/weekend clinical assignments are not required or encouraged. If measures must be taken in order to ensure adequate clinical time, proposals will be considered and must be agreeable to the student, University and clinical site.

Program Details

Credit hours: 47
Program duration: Two years

Tuition: $35,000 (17,500 year)
$744.68 per credit graduate level/program courses
$416.67 per credit undergraduate level

Curriculum

Core Courses (41 credits required)

MD502	Radiation Biology	(3 credits)
MD505	Radiation Oncology I	(3 credits)
MD506	Radiation Oncology II	(3 credits)
MP520	Computer Systems in Medicine	(2 credits)
MHP510	Health Physics and Radiation Safety	(3 credits)
MHP607	Radiation Oncology Department Management	(2 credits)
MHP609	Radiation Oncology Financials	(2 credits)
MP590	Medical and Professional Ethics	(1 credit)

MATH401	Mathematical Methods	(3 credits)
MP599	Seminars[A]	(1 credit)
MD588	Clinical Treatment Planning I	(2 credits)
MD590	Clinical Treatment Planning II	(3 credits)
MD688	Clinical Treatment Planning III	(3 credits)
MD690	Clinical Treatment Planning IV	(3 credits)
MD699	Clinical Internship	(4 credits)

Elective Courses (6 credits required)

MD501	Radiation Dosimetry	(4 credits)
MD611	Brachytherapy	(3 credits)
MD503	Diagnostic Radiology	(3 credits)
MD504	Nuclear Medicine	(3 credits)
MD613	Nuclear Oncology	(3 credits)
MD615	Proton Therapy	(2 credits)
MD698	Independent Study	(1-4 credits)
MD610	Education and Practicum I[B]	(2 credits)
MD611	Education and Practicum II[B]	(3 credits)
MD612	Education and Practicum III[B]	(3 credits)
MD613	Education and Practicum IV[B]	(3 credits)

[A]Required each of the four semesters
[B]Certified Medical Dosimetrists may take this course in lieu of the four Clinical Treatment Planning Courses (MD588, MD590, MD688, MD690)

Masters in Medical Health Physics

The Medical Physicist is responsible for radiation dose calculations and the administration of radiation dose to patients through their work with linear accelerators, sealed radiation sources, and computers.

The Medical Health Physicist is responsible for radiation safety aspects necessary to ensure the safe use of ionizing and non-ionizing radiation sources. Examples of Radioactive sources professionals may be handling or exposed to include radiation units and sources in radiation therapy, X-ray machines in diagnostic radiology, sealed and unsealed radioactive sources used in nuclear medicine and biomedical research, and lasers used in surgery and other areas of the hospital.

Program Objectives

- ✓ Provide the highest level of instruction both academically and clinically in the field of Medical Health Physics.
- ✓ Provide a comprehensive curriculum that is up to date in this rapidly progressing field of Medical Health Physics.
- ✓ Provide the highest level of clinical opportunities in the Medical Health Physics profession.
- ✓ Provide the tools necessary for the graduate to enter the workforce in the field of Medical Health Physics.
- ✓ Provide an active professional in a related field the opportunity to participate in the program through evening courses, weekend courses, and remote learning opportunities.
- ✓ The program structure, to ensure success of meeting the objectives, will include:

- ✓ A curriculum fostered after the Medical Physics Curriculum of the following institutions: University of Wisconsin and Purdue University
- ✓ Long term relationships with over 10 clinical institutions to ensure the student is actively engaged, supported, and a positive learning environment is created.
- ✓ An aggressive marketing campaign will focus on recruiting dedicated, hardworking students out of the science and engineering programs of the country's best institutions.
- ✓ Long term relationships with radiation therapy vendors to include: Varian Medical Systems, Siemens Medical Systems, Phillips, GE Medical Systems, Tomotherapy, Inc. and others to ensure an active engagement with the new technologies

Program Requirements

- ✓ Program Application Requirements
- ✓ Letters of references
- ✓ Official transcripts from all higher education institutions
- ✓ Personal statement letter
- ✓ Copies of TOEFL if applicable
- ✓ On line application and $35.00 application fee

Program Admission Requirements

- ✓ Bachelor of Science Degree or equivalent
- ✓ A GPA of 2.0 (on a 4.0 scale) for the last degree earned. A 3.0 or higher (on a 4.0 scale) is preferred.
- ✓ TOEFL minimum of 650 if applicant's first language is not English or course is not taught in primary language.
- ✓ Interview with RTU representative
- ✓ Personal statement
- ✓ Letters of References

Program Recommendations

- ✓ Statistics
- ✓ Human Anatomy and Physiology I & II
- ✓ Calculus two semesters
- ✓ Completion of GRE

Program recommendations are not a requirement for admissions but must be taken prior to program completion.

Program Details

Credit hours: 52
Duration: Two years
Tuition: $50,000 ($25,000 per year)
$961.54 a credit hour for graduate level/program courses
$416.67 a credit hour for undergraduate courses

Curriculum

Core Courses (43credits required)

MP501	Radiation Dosimetry	(4 credits)
MP502	Radiation Biology	(3 credits)
MP503	Diagnostic Radiology	(3 credits)
MP504	Nuclear Medicine	(3 credits)
MP505	Radiation Oncology I	(3 credits)
MP508	Radiological Instrumentation	(2 credits)
MHP510	Health Physics and Radiation Safety	(3 credits)
MHP601	Shielding Design	(2 credits)
MHP603	Non-Ionizing Radiation Safety	(2 credits)
MHP605	Regulations and Licensing	(2 credits)
MP520	Computer Systems in Medicine	(2 credits)
MP590	Medical and Professional Ethics	(1 credit)
MATH401	Mathematical Methods	(3 credits)
MATH402	Advanced Mathematical Methods	(2 credits)
MP599	Seminars*	(1 credit)
MP699	Clinical Internship	(4 credits)

*Required each of the four semesters

Elective Courses (9 credits required)

MP611	Brachytherapy	(3 credits)
MP613	Nuclear Oncology	(3 credits)
MP615	Proton Therapy	(2 credits)
MD689	Medical Dosimetry Lab	(1 credit)
MP602	Advanced Radiation Biology	(2 credits)
MHP602	Reactor Health Physics	(3 credits)
MHP606	Environmental Health Physics	(3 credits)
MP698	Independent Study	(1-4 credits)

Masters in Nanomedicine

The application of science and technology at the nano-scale is revolutionizing medicine in the 21st Century – enabling us to understand many diseases leading to new insights in diagnostics and therapy and contributing to the development of new generations of medicinal products.
Developed in response to industry and society demand – the MS program in Nanomedicine at RTU is a national first that bridges the gap between nanotechnology and medicine, providing students with advanced knowledge, skills and practical experience of the principles, technology and applications within this exciting area. The main goal is to train the next generation of scientists and clinicians who will invent and use novel nanomedical products, expand the local talent pool for translation and commercialization, and bring relevant information to the public regarding new developments in nanomedicine.

Program Objectives

- ✓ Provide the highest level of instruction both academically and clinically in the field of Nanomedicine.

- ✓ Provide a comprehensive curriculum that is up to date in this rapidly progressing field of Nanomedicine.
- ✓ Provide the highest level of clinical opportunities in the Nanomedicine profession.
- ✓ Provide the tools necessary for the graduate to enter the workforce in the field of Nanomedicine.
- ✓ Provide an active professional in a related field the opportunity to participate in the program through evening courses, weekend courses, and remote learning opportunities.
- ✓ The program structure, to ensure success of meeting the objectives, will include:

    - ✓ Students will build a solid foundation in medical physics concepts that will set the foundation for continuing to a master's degree in Medical Physics.

    - ✓ Students will master core concepts of nanotechnology in medicine. Students will begin with foundational nanotechnology concepts and build throughout course work to a final understanding of the nanomedicine and medical physics delivery systems.

    - ✓ Student will evaluate and or participate with current research in nanomedicine and learn to merge the concepts of Medical Physics that assist in safe delivery systems to patient populations.

Program Application Requirements

- ✓ Letters of references
- ✓ Official transcripts from all higher education institutions
- ✓ Personal statement letter
- ✓ Copies of TOEFL if applicable
- ✓ On line application and $35.00 application fee

Program Admission Requirements

- ✓ Bachelor of Science Degree or equivalent
- ✓ A GPA of 2.5 (on a 4.0 scale) for the last degree earned. A 3.0 or higher (on a 4.0 scale) is preferred.
- ✓ TOEFL minimum of 650 if applicant's first language is not English or course is not taught in primary language.
- ✓ Interview with RTU representative
- ✓ Personal statement
- ✓ Letters of References

Recommendations/Prerequisites required for program completion

- ✓ Anatomy and Physiology
- ✓ Calculus I & II
- ✓ Statistics
- ✓ Completion of GRE

Program recommendations are not a requirement for admissions but must be taken prior to program completion.

Program details
Credit hours: 41
Program duration: Two years
Tuition: $41,836.81
$1020.41 per credit graduate level/program courses
$416.67 per credit for undergraduate course

Curriculum

Core Courses (39 credits required)

MP501	Radiation Dosimetry	(4 credits)
MP502	Radiation Biology	(3 credits)
MP503	Diagnostic Radiology	(3 credits)
MP505	Radiation Oncology I	(3 credits)
MP508	Radiological Instrumentation	(2 credits)
MP603	Advanced Diagnostic Radiology	(2 credits)
NM540	Nanotechnology I	(3 credits)
NM541	Nanotechnology II	(3 credits)
NM550	Nanomedicine I	(4 credits)
NM551	Nanomedicine II	(4 credits)
NM598	Nanomedicine Seminar I	(1 credit)
NM599	Nanomedicine Seminar II	(1 credit)
NM560	Research/Design Sequence in Cancer Nanomedicine	(2 credits)
NM699	Clinical Internship	(4 credits)

Elective Courses (2 credits required)

MHP510	Health Physics & Radiation Safety	(3 credits)
MP506	Radiation Oncology II	(3 credits)
MP613	Nuclear Oncology	(3 credits)
MP602	Advanced Radiation Biology	(2 credits)
MP611	Physics of Brachytherapy	(3 credits)
MP615	Physics of Proton Therapy	(2 credits)
MHP601	Shielding Design	(2 credits)
MD689	Medical Dosimetry Lab	(1 credit)
MD698	Independent Study	(1-4 credits)

UNIVERSITY STRUCTURE

Radiological Technologies University owns RTU-VT Indiana, LLC and RTU-VT Florida, LLC.

Radiological Technologies University 100 E. Wayne Street, Suite 140 South Bend, IN 46601 574-232-2408	Radiological Technologies University 121 Central Park Place Sanford, FL 32771 574-232-2408

All administrative information goes through the campus in South Bend, Indiana.

Board of Directors

Brent D. Murphy, MS, DABR	Founder and Chairman of the Board, President/CEO
Melody Murphy, RN	Director of Development
Scott Dube, MS, DABR	

Administrative Control

Brent D. Murphy, MS, DABR	President/CEO
Renat Letfullin Ph.D.	Vice President of Academic Affairs and Academic Dean
Elizabeth Datema	Director of Administrative Services
Melody Murphy, RN	Director of Development

Program Leadership

Brent D. Murphy, MS, DABR	Medical Physics Program Director
Manuel Arreola, Ph.D., DABR	Dean of Medical Physics Imaging
Lisa Stout, MBA, CMD	Medical Dosimetry Program Director

RTU-VTCOURSE CATALOG

PROGRAM DESCRIPTIONS

Course numbering system descriptions

MD	Medical Dosimetry core and elective courses
BIOL	Biology courses
MATH	Mathematics courses
PHY	Physics courses

100-299	Associate level
300-499	Bachelor level
500-600	Graduate level courses

Credit hour definition

One semester credit hour equals, at a minimum, 15 classroom hours of lecture and 30 hours of laboratory or 45 hours of practicum. The formula for calculating the number of semester credit hours for each course is: (hours of lecture/15) + (hours of lab/30) + (hours of practicum/45).

GRADUATE LEVEL COURSES DESCRIPTIONS

Core and Elective Courses

MATH401 MATHEMATICAL METHODS 3 CREDITS
This course focuses on the fundamentals of statistical analysis for science. Emphasis is placed on statistic nomenclature, probability evaluation, hypothesis testing and evaluation, experimental design, regression models, and variable/data analysis.

MATH402 ADVANCED MATHEMATICAL METHODS 2 CREDITS
This course focuses advanced statistical analysis. Emphasis is placed on Multiple Data Comparisons, Clinical Regression Models, Time Series Analysis, Forecasting, Survival Analysis, Clinical Study Design, and Statistical Quality Control.
Prerequisite: Math 401

MP501/MD501 RADIATION DOSIMETRY 4 CREDITS
This course focuses on introducing radiation terminology used in radiation dosimetry. Fundamental dose calculation theories are reviewed and an emphasis is placed on clinical and radiation safety related dosimetry techniques.
Recommended: Calculus I and Calculus II

MP502/MD502 RADIATION BIOLOGY 3 CREDITS
This course focuses on introducing fundamental radiation biology concepts. Emphasis is placed on radiation interactions, cell damage, cell survival curves, cell sensitivity and response, factors affecting cell response, tissue kinetics, effects on the fetus, biological models, and radiobiological risk assessment.

MP503 / MD503 DIAGNOSTIC RADIOLOGY 3 CREDITS
This course focuses on introducing fundamental physics in the medical imaging profession. Fundamental concepts are applied to the system design of each imaging component presented. A special emphasis is placed on the implementation and application of each diagnostic imaging modality.

MP504 / MD504 NUCLEAR MEDICINE 3 CREDITS
This course focuses on introducing physical principles of radioisotopes and imaging systems used in medicine and biology. Imaging systems are discussed at length with a focus on applying universal imaging concepts such as contrast and resolution to the Anger camera, PET and SPECT scanners. Radiochemical therapy and other radiopharmaceuticals are discussed. Health physics and quality control issues pertinent to nuclear medicine physics are addressed.

MP505 / MD505 RADIATION ONCOLOGY I 3 CREDITS

This course focuses on applying the fundamental radiation oncology physics concepts to specialty procedures. Emphasis is placed on: Advanced electron beam therapy, electron arc therapy, electron IORT, stereotactic radiosurgery, IMRT, IGRT, IMET, Robotic therapy, Tomotherapy, physics measurement for specialty procedures using different phantoms, and comprehensive quality assurance.

MP506 / MD506 RADIATION ONCOLOGY II 3 CREDITS
This course builds upon the fundamental ideas developed in Radiation Oncology I. A wide range of specialized topics are covered. The intent is to familiarize the student with a broad swath of special procedures encountered in radiation oncology, and to provide in-depth understanding of the most common of these special procedures. The course also covers the process of machine acceptance and commissioning, the use of this data by the operator of the treatment planning system, and how the system then uses that data to calculate doses from therapy devices. Emphasis throughout this course is placed on quality control and quality assurance.
Prerequisite: Radiation Oncology I MP505 or MD505

MP508 RADIOLOGICAL INSTRUMENTATION 2 CREDITS
This course focuses on introducing fundamental radiation measuring devices and instrumentation. Emphasis is placed on clinical use of the instrumentation in the Radiological Fields.

MP520 COMPUTER SYSTEMS IN MEDICINE 2 CREDITS
This course serves as a fundamental introduction to software, hardware, networks, and installation design for computers used in medical applications. Computer Systems in the following radiological disciplines will be presented: Diagnostic Radiology, Nuclear Medicine, Radiation Oncology, and PACs.

MP590 MEDICAL AND PROFESSIONAL ETHICS 1 CREDIT
This course focuses areas that require an understanding of medical ethics. Emphasis will be placed on Patient Data, Patient Records, Publications, Presentations, General Professional Conduct, Medical Malpractice, and Research.

MP599 SEMINARS 1 CREDIT
Two series of seminars are run concurrently. The “informational seminar” series provides the student with updates regarding new and emerging technologies and research in the relevant disciplines. The student will write a number of white papers on the subjects of these seminars. Concurrently, a “didactic seminar” series is provided with diverse “mini-lab” assignments.

MP602 ADVANCED RADIATION BIOLOGY 2 CREDITS
This course focuses on introducing advanced radiobiological concepts and practices. Emphasis is placed on tumor kinetics, radiation biology models, experimental set-up, and radiobiological treatment planning.
Prerequisite: Radiation Biology MP502 or MD502

MP603 ADVANCED DIAGNOSTIC RADIOLOGY 2 CREDITS
This course focuses on introducing advanced principles in the medical imaging sciences. Emphasis is placed on mathematical methods used for image creation and evaluation, ultrasound imaging, advanced CT imaging, and MRI imaging.
Prerequisite: Diagnostic Radiology MP503

MP611 / MD611 BRATHYTHERAPY 3 CREDITS
This course focuses on introducing fundamental radiation physics and safety of Brachytherapy. Special emphasis is placed on both LDR and HDR Brachytherapy.

MP613 / MD613 NUCLEAR ONCOLOGY 3 CREDITS
This course introduces the new emerging field of Nuclear Oncology. Topics covered include: liver microsphere treatment imaging and treatment, I-131 thyroid ablation, and high dose I-131 thyroid ablation, Sr-89 treatment, and new experimental isotopes.

MP615 / MD615 PROTON THERAPY 2 CREDITS
This course gives the student a background in the fundamental science underlying proton and heavy ion therapy. The radiological physics of these particles is treated first to give the student background necessary for the remainder of the course. The remainder of the course emphasizes the unique challenges faced and opportunities made possible in the use of these types of treatments; these points are presented in contrast with standard x-ray and electron therapy.

MD588 CLINICAL TREATMENT PLANNING I 2 CREDITS
The ability to create a workable treatment plan is the fundamental responsibility of the medical dosimetrist, and is a skill that a medical physicist must keep well in practice. This course focuses on applying the fundamental treatment planning concepts to include an anatomical, molecular imaging and biological overview. An emphasis is placed on developing basic physics and dosimetry quantities, CT anatomy delineation, immobilization, simulation, treatment computer planning algorithms including calculations, commissioning and quality assurance.

Certified Medical Dosimetrists may take Education and Practicum I (MD610) in lieu of this course.

MD590 CLINICAL TREATMENT PLANNING II 3 CREDITS
This course focuses on applying the fundamentals of 2D-3D treatment planning concepts to include an anatomical and biological overview of multiple cancer types. An emphasis is placed on understanding basic site specific radiation treatment planning techniques and different cancer treatment options. Site specific cancer overview may include epidemiological statistics, anatomy, pathology, clinical presentation, routes of spread, diagnostic studies, staging, prognostic factors, and treatment toxicity. CT anatomy and multiple imaging modalities will accompany treatment planning lab exercises.
Prerequisite: Clinical Treatment Planning I (MD588)

Certified Medical Dosimetrists may take Education and Practicum II (MD611) in lieu of this course.

MD688 CLINICAL TREATMENT PLANNING III 3 CREDITS
This course focuses on applying the fundamentals of 3D and IMRT treatment planning concepts to include image guidance with an anatomical and biological overview of multiple cancer types. An emphasis is placed on understanding basic site specific radiation treatment planning techniques and different cancer treatment options. Site specific cancer overview may include epidemiological statistics, anatomy, pathology, clinical presentation, routes of spread, diagnostic studies, staging, prognostic factors, and treatment toxicity. Special procedures including Stereotactic Radiosurgery (STS), Stereotactic Body Radiation (SBRT) and Hyperthermia will be discussed in relation to planning and treatment delivery. Specialized radiation therapy equipment (Tomotherapy, Gamma Knife and CyberKnife) used to deliver special procedures will be evaluated and compared to traditional linear accelerator treatments. CT anatomy and multiple imaging modalities will accompany treatment planning lab exercises.
Prerequisite: Clinical Treatment Planning II (MD590)

Certified Medical Dosimetrists may take Education and Practicum III (MD612) in lieu of this course.

MD690 CLINICAL TREATMENT PLANNING IV 3 CREDITS
This course focuses on applying the fundamentals of IMRT, VMAT, and Brachytherapy treatment planning concepts to include an anatomical and biological overview of multiple cancer types. An emphasis is placed on understanding advanced radiation treatment planning techniques and comparison between static and volumetric intensity modulated treatment plans. Additional emphasis will be given to HDR/LDR brachytherapy treatment planning. Site specific cancer overview may include epidemiological statistics, anatomy, pathology, clinical presentation, routes of spread, diagnostic studies, staging, prognostic factors, and treatment toxicity. Special procedures including Proton Therapy, Heavy Charged Particle Therapy and Radioisotope Therapy will be discussed in relation to general theory, planning techniques and treatment delivery. CT anatomy and multiple imaging modalities will accompany treatment planning lab exercises.
Prerequisite: Clinical Treatment Planning III (MD688)

Certified Medical Dosimetrists may take Education and Practicum IV (MD613) in lieu of this course.

MD610 EDUCATION AND PRACTICUM I 2 CREDITS
Education and Practicum I-IV is offered only to those students who have passed the Certified Medical Dosimetrist (CMD) board exam given by the Medical Dosimetry Certification Board (MDCB). This class will offer alternative assignments dealing with current and experimental special radiation therapy procedure such as: CyberKnife, Tomotherapy, Particle Therapy, Stereotactic Radiosurgery and Brachytherapy. This class will also include oral competency exams, project presentation and leadership development skills. These classes will progress in increasing complexity from I-IV.
Prerequisite: Anatomy 1 semester

MD611 EDUCATION AND PRACTICUM II 3 CREDITS
Education and Practicum I-IV is offered only to those students who have passed the Certified Medical Dosimetrist (CMD) board exam given by the Medical Dosimetry Certification Board (MDCB). This class will offer alternative assignments dealing with current and experimental special radiation therapy procedure such as: CyberKnife, Tomotherapy, Particle Therapy, Stereotactic Radiosurgery and

Brachytherapy. This class will also include oral competency exams, project presentation and leadership development skills. These classes will progress in increasing complexity from I-IV. Prerequisite: Education and Practicum I (MD610)

MD612 EDUCATION AND PRACTICUM III 3 CREDITS
Education and Practicum I-IV is offered only to those students who have passed the Certified Medical Dosimetrist (CMD) board exam given by the Medical Dosimetry Certification Board (MDCB). This class will offer alternative assignments dealing with current and experimental special radiation therapy procedure such as: CyberKnife, Tomotherapy, Particle Therapy, Stereotactic Radiosurgery and Brachytherapy. This class will also include oral competency exams, project presentation and leadership development skills. These classes will progress in increasing complexity from I-IV. Prerequisite: Education and Practicum II (MD611)

MD613 EDUCATION AND PRACTICUM IV 3 CREDITS
Education and Practicum I-IV is offered only to those students who have passed the Certified Medical Dosimetrist (CMD) board exam given by the Medical Dosimetry Certification Board (MDCB). This class will offer alternative assignments dealing with current and experimental special radiation therapy procedure such as: CyberKnife, Tomotherapy, Particle Therapy, Stereotactic Radiosurgery and Brachytherapy. This class will also include oral competency exams, project presentation and leadership development skills. These classes will progress in increasing complexity from I-IV. Prerequisite: Education and Practicum III (MD612)

MP698 / MD698 INDEPENDENT STUDY 1-4 CREDITS
Independent study courses are generally designed to allow a student to pursue one of their academic or research interests outside of the standard curriculum offered by the school. You will arrange with your selected instructor a schedule, goals, and assessment milestones.

MP699 / MD699 CLINICAL INTERNSHIP 4 CREDITS
The student participates in a six week clinical internship. The internship is designed to give the student laboratory/clinical instruction in specific areas of medical physics or dosimetry practice. The student keeps a daily journal of their progress on each of the course competencies, to include not only assigned calculations and discussions but also relevant notes and observations on clinical practice.

MHP510 HEALTH PHYSICS AND RADIATION SAFETY 3 CREDITS
This course focuses on introducing physical principles of radioisotopes and imaging systems used in medicine and biology. Imaging systems are discussed at length with a focus on applying universal imaging concepts such as contrast and resolution to the Anger camera, PET and SPECT scanners. Radiochemical therapy and other radiopharmaceuticals are discussed. Health physics and quality control issues pertinent to nuclear medicine physics are addressed.

MHP601 SHEILDING DESIGN 2 CREDITS

This course focuses on technical aspects of Radiation Shielding fundamentals. Emphasis is placed on facility shielding for radiation devices to include: x-ray units, CT units, HDR Brachytherapy units, and therapy treatment units.

MHP602 REACTOR HEALTH PHYSICS 3 CREDITS
This course focuses on technical aspects of reactor health physics. Emphasis is placed on reactor operation, reactor waste, reactor processes, and establishment of the Health Physics Program.

MHP603 NON-IONIZING RADIATION SAFETY 2 CREDITS
This course focuses on introducing fundamental concepts and safety with non-ionizing radiation sources. Emphasis is placed on laser operation and safety, ultrasound operation and safety, MRI operation and safety, safety program development, and other non-ionizing devices.

MHP605 REGULATIONS AND LICENSING 2 CREDITS
This course focuses on the regulatory agencies, the respective regulations, and licensing of radiation devices. Emphasis is placed on learning the working regulations of the NRC, EPA, DOT, and other respective guidelines.

MHP606 ENVIRONMENTAL HEALTH PHYSICS 3 CREDITS
This course focuses on technical aspects of environmental health physics. Emphasis is placed on radon evaluation, environmental monitoring and techniques, dose assessment from water, air, gas, and food, dose and risk assessment.

MHP607 RADIATION ONCOLOGY DEPARTMENT MANAGEMENT 2 CREDITS
This course focuses on management techniques for medical professionals in the radiation oncology field. Emphasis is placed general management techniques and managing radiation oncology professionals. Implementation of a New Cancer Center is also discussed.

MHP609 RADIATION ONCOLOGY FINANCIALS 2 CREDITS
This course focuses on the financial aspects of a Radiation Oncology Department. Emphasis is placed and technical and professional billing, budget development, contract evaluation, and program start-up cost.

NM540 NANOTECHNOLOGY I 3 CREDITS
This course will be designed to provide a comprehensive understanding of the technologies used for structuring matter at the nanometer scale (approximately 100 nm and below). Different approaches for creating nanostructures and Nano devices will be covered, with a discussion of the capabilities and limits of each. Students will learn the fundamental physics, chemistry, and material science of nanofabrication, as well as the practical aspects of the creative process of building functional structures at the Nano scale.
Prerequisite: Upper division or graduate standing in area of science

NM550 NANOMEDICINE I 4 CREDITS

This course will address the state of the art in nanotechnologies and nanomedicine, and their ongoing applications focused on addressing the challenges posed by cancer prevention, diagnosis and treatment. This program is designed to inform cancer researchers, clinicians, bio-nano technologists, technology managers, and business developers of the state of the art in bio-nano technologies, focusing on applications of these technologies for cancer prevention, diagnosis and treatment.

NM541 NANOTECHNOLOGY II 3 CREDITS

This course will provide students with the fundamentals of computational problem-solving techniques that are used to understand and predict properties of nanoscale systems. Emphasis will be placed on how to use simulations effectively to predict properties that occur at the nanoscale for real systems. The course is designed to present a broad overview of computational Nano science and is therefore suitable for both experimental and theoretical researchers.
Prerequisite: Nanotechnology I- NM540

NM551 NANOMEDICINE II 4 CREDITS

This course will provide a comprehensive introduction to the rapidly developing field of Nanomedicine. This highly innovative, multidisciplinary course offers the latest scientific knowledge in nanotechnology based diagnostic and therapeutic applications in medicine providing revolutionary approaches in tumor nano-therapy, drug delivery Nano systems, the bio tolerability of materials, nano-sensor technology, and the use of selective Nano photodynamic therapy in cancer treatment.
Prerequisite: Nanomedicine I-NM598

NM598 NANOMEDICINE SEMINAR I 1 CREDIT

This is a science-oriented multi-disciplinary course where the student will be introduced to the nature of performing fundamental research. The student will receive training in research techniques on real life example projects. Skills include the development of sophisticated models, numerical simulation methods for solving complex problems in modern science, and experience in writing a research report.

NM599 NANOMEDICINE SEMINAR II 1 CREDIT

This course is intended to survey the field of Nano biomedicine in a lecture format given by experts in this field. Topics will range from multimodality imaging to targeted therapeutics to molecular diagnostics. Benefits and toxicities will be presented as well as the translational aspects of the commercialization of Nano systems for medical use.

NM560 RESEARCH/DESIGN SEQUENCE IN CANCER NANOMEDICINE 2 CREDITS

The main aim of this research is to study the fundamental mechanisms of the radiation interaction with biological systems containing nanostructures for selective nano-photodynamic therapy and cancer cells treatment. Proposed research topics for students will include but not be limited to:

- Surface Plasmon resonance as a cancer biomarker detection technology.

- Ultra short laser pulse heating of nanostructures in cancer cells. Time and space simulations of the temperature fields.
- Laser-induced explosion of nanoparticles
- New Dynamic Modes in Selective Cancer Nanomedicine

Prerequisite: Statistics

FACULTY AND STAFF ADDENDUM – Volume 3 (January 4, 2013)

Faculty and Staff
Faculty members are selected on the basis of professional experience, expertise in teaching theoretical and applied subjects, research and case study supervision capabilities, involvement in community and professional affairs, and leadership and role model capabilities essential to student advancement and professional growth.

Faculty Listing

Name	
Brent Murphy, MS, DABR	MS Medical Physics from the University of Wisconsin Area of specialization-Medical Physics Program Chair-Medical Physics, Medical Dosimetry
Scott Dube, MS, DABR	MS Radiological Sciences from the University of Colorado Area of specialization –Medical Physics
Steve Goetsch, Ph.D.	Ph.D. University of Wisconsin Area of specialization-Medical Physics
Carl Helrich, Ph.D.	Ph.D. Northwestern University Area of specialization-Physics
Michael Stabin, Ph.D., CHP	Ph.D. University of Tennessee Area of specialization-Nuclear Engineering
Scott Mitchell, MS	MS Auburn University Area of specialization-Mathematics
Wanpeng Tan, Ph.D.	Ph.D. Michigan State University Area of specialization-Physics
Liliana Braescu, Ph.D.	Ph.D. West University of Timisoara Area of specialization-Mathematics
David Phebus, MS, CMD	MS Radiological Technologies University Area of specialization- Medical Dosimetry
Manuel Arreola, Ph.D., DABR	Ph.D. University of Florida Area of specialization-Diagnostic Medical Physics
Renat Letfullin, Ph.D.	Ph.D. Saratov State Area of specialization-Optical Physics

Staff Listing

Elizabeth Datema	Director of Administrative Services
Melody Murphy	Director of Development

Professional Services

Accounting:	Steven A. Goldberg, CPA
Legal:	Barnes & Thornburg

Legal control of the organization is through the primary membership of the limited liability corporation which is controlled by Brent D. Murphy. Brent Murphy is the sole member.