



**VCU**

School of Medicine

Medical Physics

# **2017-2018 Student Handbook**

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## **Purpose**

This handbook is intended to serve as a reference for information and policies relevant to the Medical Physics Graduate Program at Virginia Commonwealth University (VCU). General information maintained and relevant to the School of Medicine (SOM), the Graduate School, or VCU in general, is published and maintained by those sources.

## **General Information**

### **Administration**

The Medical Physics Graduate Program is administratively a sub-division of the Division of Clinical Medical Physics, Department of Radiation Oncology within the VCU School of Medicine.

The administrative office for the Medical Physics Graduate Program is located on the MCV campus in the basement level of North Hospital, 401 College Street, with research offices in Sanger Hall.

### **General Resources**

Medical Physics Educational Programs Coordinator: .....(804) 628-7780  
Contracts and Assistantships: .....(804) 828-6331  
Local IT Specialists: .....(804) 628-0988-or-(804) 628-0978  
VCU website: .....<http://www.vcu.edu/>  
Graduate School website: .....<http://www.graduate.vcu.edu/>  
VCU School of Medicine.....<http://www.medschool.vcu.edu/>  
Medical Physics Program website: .....<http://www.medicalphysics.vcu.edu>

### **Student Office Areas**

Student office areas are located in Sanger Hall. Because many of the work spaces are an open concept, students should be considerate of others working in the area.

### **Enrollment Status**

To be considered a full time student, graduate students must register for 9 to 15 credit hours in the fall and spring semesters. Masters students who are not receiving financial support are allowed to enroll for less than full-time. This also applies to PhD students who are not receiving financial support through the University. Please keep in mind that fewer than nine credit hours may have an impact on student funding, financial aid, visa status, and other areas.

## **Immigration Services**

The [VCU Global Education Office's immigration services](#) works with international students, scholars, faculty, researchers and their dependents to help them maintain their various visa statuses.

## **Medical Physics Graduate Program Policies**

In all cases, the official policies and procedures of the University Graduate Council, as published on the Graduate Bulletin website and on the Graduate School website, take precedent over individual program policies and guidelines. Graduate students should contact the program coordinator or the Graduate School office regarding questions related to policies and procedures for graduate studies at VCU.

It is the responsibility of all graduate students to be familiar with the Graduate Bulletin of Record which contains the official University policies and procedures to be followed. For each student, the Graduate Bulletin of Record is the bulletin in effect at the time of the student's official admission. Archived copies of past bulletins can be found [here](#). For additional guidance, graduate students should also review other reference materials, such as individual school and department publications, the [Medical Physics Graduate program's website](#), and this handbook.

### **VCU Honor System Policy**

Virginia Commonwealth University recognizes that honesty, truth, and integrity are values central to its mission as an institution of higher education. The Honor System is built on the idea that a person's honor is his/her most cherished attribute. A foundation of honor is essential to a community devoted to learning. Within this community, respect and harmony must coexist. The Honor System is the policy of VCU that defines the highest standards of conduct in academic affairs. Each member of the VCU community is responsible for upholding and enforcing the Honor System.

The VCU Honor System Policy in its entirety can be reviewed [here](#).

### **Safety Policy**

General safety and security guidelines, hazards awareness, and important phone numbers are located on the VCU Office of Environmental Health and Safety (OEHS) [website](#). Students should be familiar with relevant safety policies and receive required training (e.g. radiation safety training) when applicable.

Students are not permitted to use any clinical or research equipment until training, and documentation of the training, has been completed. In the Department of Radiation Oncology, training is approved by the Division of Clinical Medical Physics Chair, Dr. Jatinder Palta. Training on linear accelerators and imaging devices, including, EPID, OBI/CBCT, ExacTrac and Calypso is handled by Chris Bartee.

### **Academic Requirements**

Graduate courses have higher expectations on student effort than undergraduate courses. Students are expected to be prepared for lectures and ask questions. While professors prepare lecture materials for presentation, most prefer a more interactive style focused on student participation.

Graduate students are required to remain in good academic standing through the course of their degree program. Unsatisfactory student performance includes:

- The assignment of a grade of “U” in any course.
- Failure to maintain a cumulative GPA of 3.0 or greater.
- Failure to pass the written or oral comprehensive examinations.

Unsatisfactory performance constitutes grounds for academic probation, termination of financial assistance, or termination from the program.

In addition to these requirements and those set forth by the university, students must meet the requirements for specific degrees set forth by the Medical Physics Graduate Program.

## **Academic Probation**

When a student has a GPA that falls below 3.0, receives a grade of “U” in any course, or is found to have participated in other academic misconduct, the student can be placed on academic probation.

A letter stating the cause of probation, the terms of probation (deadline, advising, retaking a course, etc.), the consequences for not meeting the terms of the probation, and the appeal process will be sent to the student.

## **Student Advisors**

Each student is assigned an advisor when starting the program. Advisors will assist students in course selection and direct the student in his/her research, if applicable. Each semester, faculty advisors meet with the student and with the Medical Physics Advising Committee to discuss student progress. The student will receive a copy of the Progress Report from their advisor. Students are encouraged to discuss and respond in writing, if appropriate, to areas identified as being in need of improvement.

## **Immunization Policy**

The Commonwealth of Virginia and VCU require that all full-time students supply validated immunization records to University Student Health Services.

Medical Physics students must have a healthcare professional fill out and sign a [VCU Health Sciences Certificate of Immunization](#). (Note that Medical Physics students are not exempt from the "Health Sciences Students" policy, and must, therefore, follow the stricter set of immunizations.) Completed applications must then be uploaded onto the [Student Health WebPortal](#) within 30 days of the start of the fall semester.

**All documentation of required immunizations must be completed and submitted prior to registering for second semester.** Failure to meet these requirements will result in a hold placed on the student's second semester registration. The hold can be removed only upon receipt of the student's documented records. Students who cannot provide documented evidence of all required

immunizations must see their health care provider, health department or Student Health Services to complete all requirements.

For the most up-to-date policies and forms regarding immunizations, please visit the University Student Health Services [website](#).

## **Health Insurance Requirement**

As of July 2014, the School of Medicine requires that students enrolled in all program levels (Doctoral, Masters and Certificate) have health insurance. The enabling memoranda and a set of Frequently Asked Questions (FAQ's) are provided below for students in particular categories. [http://www.medschool.vcu.edu/graduate/student\\_res/health-insurance-requirement/](http://www.medschool.vcu.edu/graduate/student_res/health-insurance-requirement/)

## **Change in Academic Program**

A student in good standing who is nearing the completion of their degree program may wish to be considered for admission to a more advanced degree administered by the School of Medicine. On rarer occasions, a student may wish to leave (withdraw) from the program in which he/she is currently enrolled and join another program at the same academic level in the School of Medicine.

In all cases the student seeking the change shall submit a hard copy version of the VCU Application for Graduate School to the Office of Graduate Education in the School of Medicine. The one-page application must be accompanied by a letter written by the student providing the rationale for the change and the program into which the student is seeking admission. The Office of Graduate Education will review the application and the record of the student and then alert the Department to the interest of the student if deemed appropriate. Students who are not making satisfactory academic progress (i.e. a student who is not in good academic standing) in a given program would not be considered candidates for a program change. In the absence of prior approval from the Office of the Dean, neither an "application" by a student directly to a program nor the "acceptance" of a student by a program will be valid. Neither students nor programs may initiate admission to a program in the School of Medicine in the absence of the approval by the Office of Graduate Education acting in consultation with the MCV Campus Graduate Committee.

The above applies to all changes in program (e.g. Certificate level to Masters, Masters to Ph.D., program change at the same degree level).



# Master of Science Program Degree Requirements

## Program Mission and Goals

The mission of the Medical Physics masters program is to serve the Commonwealth of Virginia and the nation by helping to meet the demand for competent medical physicists in the healthcare delivery setting. The program will prepare students for careers as qualified and independent clinical medical physics.

### Goal 1: Professional Competency

To develop professional competency in medical physics by providing a framework in which students progressively develop mastery of the current state of medical physics and an ability to synthesize this information and apply it in a clinical setting. Additionally, students in the program will develop skills in the various means of communicating the core of medical physics knowledge and clinical applications of that knowledge to a variety of potential audiences.

### Goal 2: Clinical Competency

To develop clinical competent medical physics graduates by providing a framework in which students progress from didactic knowledge to clinical knowledge and demonstrated application of clinical medical physics principles, practices, and procedures.

## General Degree Requirements

Official University requirements can be found in the [VCU Bulletin](#). Students entering the program with an undergraduate degree are required to earn a minimum of 30 credits in didactic or laboratory course work. At least 15 credits must be earned at the 600 level or higher.

Students are required to complete the core graduate medical physics course work (MEDP 563, 567, 601, 630, 635, 636, 637), one credit of MEDP 689 and six credits of MEDP 682. Elective courses, selected with approval of the student's graduate advisor, make up the remainder of the student's didactic course requirement.

## M.S. Written Examination

To graduate, students must pass a written comprehensive examination, which covers information from the core Medical Physics courses, clinical rotations, and anatomy. In the event of failure, the student may retake the written comprehensive examination one time only with approval of the examination committee. Graduate students may not take the comprehensive examination if their overall GPA is less than 3.0.

The written examination focuses on the subject matter deemed critical as a foundation in the program. The written examination is largely based on material covered in required course work and its application to theoretical and practical problems. The comprehensive written examination covers core knowledge and applications in medical physics course work, as well as basic concepts in physics, chemistry and biology.

## M.S. Suggested Timeline and Course Sequence

	Timeline	Step
1.	1 <sup>st</sup> Fall Semester	MEDP 563 Radiological Physics and Radiation Dosimetry MEDP 601 Health Physics MEDP 635 Physics of Diagnostic Imaging
2.	1 <sup>st</sup> Spring Semester	MEDP 561 Anatomy for the Medical Physicist MEDP 567 Introduction to Radiation Therapy Physics MEDP 630 Radiobiology for the Medical Physicist MEDP 636 Physics of MRI
3.	2 <sup>nd</sup> Fall Semester	MEDP 682 Clinical Rotations in Medical Physics Elective (suggested MEDP 633) Elective
4.	January 2 <sup>nd</sup> Spring Semester	Submit application for graduation
5.	2 <sup>nd</sup> Spring Semester	MEDP 637 Physics of Nuclear Medicine MEDP 682 Clinical Rotations in Medical Physics MEDP 689 Medical Physics Literature Review
6.	2 <sup>nd</sup> Spring Semester	Written Comprehensive Examination <ul style="list-style-type: none"> <li>◆ Must have a GPA of 3.0 or better to take</li> <li>◆ Must pass to complete the program</li> <li>◆ One chance to retake portions of the exam</li> </ul>
7.	May 2 <sup>nd</sup> Spring Semester	Graduation!

# Doctor of Philosophy Program Degree Requirements

## Program Mission and Goals

The mission of the Medical Physics doctoral program is to serve the Commonwealth of Virginia and the nation by helping to meet the demand for competent medical physicists in both the healthcare delivery and biomedical research settings. The program will prepare students for careers as independent investigators in the field of medical physics and jointly for careers in university departments, research institutes, laboratories, and hospitals as trainee clinical medical physicists.

### Goal 1: Professional Competency

To develop professional competency in medical physics by providing a framework in which students progressively develop a mastery of the current state of medical physics and an ability to synthesize this information and apply it in research and clinical settings. Additionally, the program aims to develop skills in the various means of communicating both the core of medical physics knowledge and expression of experimental design, results, and interpretation to a variety of potential audiences.

### Goal 2: Scientific Competency

To develop scientific competency in medical physics by providing a framework under which candidates develop skills to design, conduct, and implement theoretical and clinical research which answers identified questions. The research focus may lead to new and/or improved applications of physics for diagnosis and treatment of disease. Candidate research will focus on medical imaging, radiation therapy, radiation metrology or other burgeoning areas of investigation. In broad terms, candidate research will be directed toward advancing "minimally invasive medicine" through applications of ionizing and non-ionizing radiation.

## General Degree Requirements

Students entering the program with an undergraduate degree are required to earn a minimum of 30 credits in didactic or laboratory course work. Required graduate core courses include MEDP 563, 567, 601, 630, 635, 636, 637, and one credit of MEDP 689. Students must also take Responsible Scientific Conduct (OVPR 602). Elective courses, selected with approval of the student's graduate advisor, make up the remainder of the student's didactic course requirement.

Students entering with a master's degree in medical physics, physics or an appropriate related field, are required to earn a minimum of 18 didactic course credits. In addition to course work, the Ph.D. requires a minimum of 12 credits in MEDP 697 (directed research). At least half of the didactic course work must be earned at the 600 level or higher.

In order to advance to doctoral candidacy, the student must pass a written comprehensive examination and an oral candidacy examination. Graduate students may not take either examination if their overall GPA is less than 3.0. In the event of failure, the School of Medicine will determine if a second attempt to pass the oral comprehensive examination is appropriate.

After becoming a Ph.D. candidate, the student must conduct a substantial original investigation under the supervision of his/her advisor and must prepare a dissertation reporting the methodology and results of the research in the context of existing scientific knowledge. After the dissertation has been completed and unanimously accepted for defense by the student's graduate dissertation committee, the candidate will appear before the committee for an oral defense. The oral dissertation defense examines the candidate's research, dissertation documentation, and underlying fundamental knowledge. Upon successful completion of the defense and dissertation, the student may graduate with a Ph.D. in Medical Physics.

## **Ph.D. Written Examination**

The written examination focuses on the subject matter deemed critical as a foundation in the program. The written examination is largely based on material covered in required course work and its application to theoretical and practical problems. The comprehensive written examination covers core knowledge and applications in medical physics, as well as basic concepts in physics, chemistry and biology.

Students must pass a written comprehensive examination, which covers information from the core Medical Physics courses. In the event of failure, the student may retake the written comprehensive examination one time only with approval of the examination committee. Graduate students may not take the comprehensive examination if their overall GPA is less than 3.0.

## **Graduate Dissertation Advisory Committee**

After completion of the Ph.D. written examination, in collaboration with their advisor, the student will form a graduate dissertation committee. The graduate dissertation committee will have a minimum of four faculty members, including the student's faculty advisor. At least two members must be from within the student's department and at least one from another discipline. All members should be experts in some aspect of the student's research.

In Medical Physics, it is recommended that a student's committee have at least one physician.

## **Research Proposal**

Students must conduct a substantial, original investigation under the supervision of their Research Advisor and their Graduate Dissertation Committee.

Prior to scheduling the Oral Candidacy Examination, the student, in cooperation with his/her faculty advisor, will select a thesis topic. The research project should represent a significant contribution to the body of knowledge in its field and should result in materials deemed suitable for publication in refereed scientific journals. The emphasis of the research should be application of physical principles, including engineering and mathematical methods, to processes involved in the diagnosis or treatment of disease. Interdisciplinary research, involving application of methods from one or more fields to a problem of medical interest, is encouraged.

The student will prepare a prospectus describing the proposed research. A recommended design for the prospectus is the research section of an NIH F30/F31 application, which includes the

specific aims and general goal of the research, background information on the research topic including literature review and rationale, a statement of the hypotheses to be investigated or researched, questions to be answered, and proposed methods and analyses. In its review of the prospectus, the advisory/examination committee is verifying that the student and their proposal:

- Demonstrates sufficient background knowledge to solve the problem, including knowledge of related literature
- Describes routes of possible solution, including methodology
- Has clear problem statement and hypothesis where applicable
- Has clear milestones/specific aim(s) for project completion
- Confirms that resources are available for completion of the project

The following guidelines are given with respect to proposal length:

- Approximately 10 pages, excluding references
  - 1 page: Problems statement, milestones, specific aim(s)
  - 4-5 pages: Background and Significance, including literature review. Student should understand and be able to explain the strengths and weaknesses of the methods used by prior investigators
  - 4-5 pages: Methodology to be used during completion of the project
- NIH formatting rules for font, margin, spacing, etc.

## **Oral Examination**

Upon successful completion of the Comprehensive Written Examination and submission of a written research proposal approved by the Advisory Committee, students are required to pass an Oral Candidacy Examination administered by the student's Advisory Committee before advancing to candidacy status.

The oral examination, administered by a representative from the School of Medicine and the student's advisory committee, is based upon a written prospectus describing the proposed dissertation research project. The prospectus will be distributed to the Advisory Committee a minimum of four weeks prior to the proposed examination date. If the Advisory Committee approves the written prospectus with no more than one negative vote, the examination date will be finalized, scheduled in GradTrak (two weeks prior to the examination date), and the examination administered.

The Oral Candidacy Examination shall begin with a presentation of the proposed research by the student, followed by questions from the examining committee to determine the student's level of understanding of the proposed research, the likelihood that the dissertation can be completed successfully, and other subject areas relevant to the proposed research.

All examining committee members must vote pass or fail. A student may pass the examination with no more than one negative vote. Unsuccessful completion of the Oral Candidacy Examination shall require re-examination. Only one re-examination is permitted and requires permission from the School of Medicine.

Students are encouraged to complete their prospectus and oral examination as early as possible during their graduate career to ensure timely degree completion and prior to major undertaking of thesis research. The written comprehensive examination is typically taken in the Spring semester of the student's second year. A student is eligible to take the oral exam immediately following completion of the written comprehensive exam. Students should aim to complete their prospectus and oral examination by the end of the fall semester of their third year.

After the proposal is completed, the student should meet with their advisory committee at least annually to update them on their progress.

## **Candidacy**

Per VCU regulations, a graduate student approved for degree candidacy must register for at least one graduate credit hour at VCU each fall and spring semester until the degree is awarded. A student must be enrolled the semester the student graduates. See section Enrollment Status for details regarding financial implications of credit requirements.

The School of Medicine requires that doctoral students develop an [Individual Development Plan \(IDP\)](#) as a student enters the third year of training. The IDP is intended to provide a framework for planning both the near term and long range career objectives as related to the immediate research objectives and the career trajectory of the individual.

The School of Medicine requires that doctoral students meet with their Advisory Committee at least annually, and that a report of the minutes of that meeting be uploaded to GradTrak. The goal of this policy is to ensure that the student's academic progress is monitored and directed by the Advisory Committee along with the student's academic advisor.

## Ph.D. Suggested Timeline and Course Sequence

	Timeline	Step
1.	1 <sup>st</sup> Fall Semester	MEDP 563 Radiological Physics and Radiation Dosimetry MEDP 601 Health Physics MEDP 635 Physics of Diagnostic Imaging MEDP 697 Directed Research
2.	1 <sup>st</sup> Spring Semester	MEDP 567 Introduction to Radiation Therapy Physics MEDP 630 Radiobiology for the Medical Physicist MEDP 636 Physics of MRI MEDP 697 Directed Research
3.	1 <sup>st</sup> Summer Semester	MEDP 697 Directed Research *OVPR 602 Responsible Scientific Conduct
4.	2 <sup>nd</sup> Fall Semester	MEDP 633 Advanced Radiation Therapy Physics MEDP 697 Directed Research Elective Elective
5.	2 <sup>nd</sup> Spring Semester	MEDP 637 Physics of Nuclear Medicine MEDP 689 Medical Physics Literature Review MEDP 697 Directed Research
6.	2 <sup>nd</sup> Spring Semester	Written Comprehensive Examination <ul style="list-style-type: none"> <li>◆ Must have a GPA of 3.0 or better to take</li> <li>◆ Must pass to progress in the program; with one chance to retake portions of the exam</li> </ul>
7.	After the Written Comprehensive Exam	Work with advisor to select an advisory committee <ul style="list-style-type: none"> <li>◆ Complete Advisory Committee Form in GradTrak</li> </ul>
8.	2 <sup>nd</sup> Summer Semester	MEDP 697 Directed Research Note: From this point forward, each semester the student registers for Directed Research plus electives as approved by the student's graduate advisory committee. *OVPR 602 Responsible Scientific Conduct
9.	2 <sup>nd</sup> Summer/3 <sup>rd</sup> Fall Semesters	Oral Comprehensive Examination <ul style="list-style-type: none"> <li>◆ Submit written research proposal for advisor approval</li> <li>◆ Once approved by advisor, submit written research proposal to Advisory Committee</li> <li>◆ Schedule exam in GradTrak, submit form to Office of Graduate Education two weeks prior to the examination</li> <li>◆ Must have a GPA of 3.0 or better to take</li> <li>◆ Must pass to progress in the program, with one chance to retry with approval of the School of Medicine</li> </ul>
10.	First 2 weeks of Final Semester	Submit application for graduation
11.	1 month prior to defense	Complete draft of dissertation and submit to advisory committee for approval to proceed with defense

12.	2 weeks prior to defense	Schedule dissertation defense using GradTrak and submit form after obtaining signatures from advisor and Program Director
13.	At least 2 weeks prior to end of semester	Dissertation Defense <ul style="list-style-type: none"> <li>◆ May pass the examination with no more than one negative vote</li> <li>◆ Make changes to the dissertation as requested by advisory committee</li> <li>◆ Collect the signatures of the committee, graduate program director, and school dean on dissertation form</li> </ul>
14.		Graduation!

\* Responsible Conduct of Research is a mandatory course. Students are recommended to take it during the summer semester

### **Application for Graduation**

PhD students are required to submit a draft of their dissertation and a schedule for completion when they submit their graduation application at the beginning of the semester.



# Graduate Certificate Program Requirements

## Program Mission and Goals

The Graduate Certificate in Medical Physics offers coursework in physics as it is applied to the diagnosis and treatment of human diseases. Required course work provides theoretical and practical training in radiation dosimetry, radiation biology, radiation therapy, imaging and health physics. The goal of the program is to provide a career path in medical physics as an alternative to a terminal degree in medical physics. The program is primarily designed for re-training of those possessing a doctoral degree in physics or a related field.

The mission of the Medical Physics graduate certificate program is to serve the Commonwealth of Virginia and the nation by helping to meet the demand for competent medical physicists in the healthcare delivery setting. The program is intended for post-doctoral individuals seeking to enhance their credentials for admission into a medical physics residency position.

## Student Learning Goals

To develop core competency in medical physics by:

- Enhancing clinically-relevant communication skills
- Obtaining a medical physics knowledge base
- Enhancing medical physics-specific problem-solving skills

## Certificate Completion Requirements

Students are required to complete the 22 credits of the core graduate medical physics course work (MEDP 561, 563, 567, 601, 630, 635, 636, 637), plus one credit of MEDP 689.

## Certificate Suggested Timeline and Course Sequence

	Timeline	Step
8.	1 <sup>st</sup> Fall Semester	MEDP 563 Radiological Physics and Radiation Dosimetry MEDP 635 Physics of Diagnostic Imaging MEDP 601 Health Physics MEDP 689 Medical Physics Literature Review
9.	1 <sup>st</sup> Spring Semester	MEDP 561 Anatomy for the Medical Physicist MEDP 630 Radiobiology for the Medical Physicist MEDP 567 Introduction to Radiation Therapy Physics MEDP 636 Physics of MRI MEDP 637 Physics of Nuclear Medicine
10.	May	Graduation!

	1 <sup>st</sup> Spring Semester	
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## **Research Assistantships**

The VCU Graduate School and the Medical Physics Graduate Program offer research assistantships, which support Ph.D. students for up to two years. After the first two years, student support is derived from their advisors grant funding, or from independently obtained grants or scholarships. Students are reminded that faculty will only support students who are progressing satisfactorily in research.

## **Course Enrollment**

A student is required to be enrolled full time during the fall and spring semesters to maintain an assistantship (three or six credits in the summer, depending on source of support). Each student supported by a research assistantship is required to be enrolled in at least one Directed Research credit every semester.

## **Research**

Each student supported on a research assistantship is required to work an average of up to 20 hours per week during the semester working on a research project under the supervision of their advisor. The advisor grades the student on their performance as either Satisfactory, Unsatisfactory or Fail in MEDP 697 Directed Research.

## **Grades**

The VCU grading system is described in the [VCU Bulletin](#).

As a part of the MEDP 697, students are reminded they are required to give at least one departmental seminar per school year in order to receive a passing grade in the spring semester course. Failure to give at least 1 seminar will result in the assignment of a “U” or “F” for the Spring Semester Directed Research. It is the student’s responsibility to schedule their seminar, either as a part of the program’s Student Seminar Series or a standalone seminar approved by the Program Director.

## **Vacation, medical and family (maternity, paternity) leave for graduate students**

**Paid Leave Time**—Individuals employed as graduate assistants in programs administered by the School of Medicine are eligible for 20 days paid leave in each appointment year in addition to designated University holidays. These leave days can be used for any combination of vacation and sick leave. Leave is not cumulative from one appointment year to the next. Work performed on site on University holidays may be added to paid leave by arrangement with the mentor. All leave for vacation purposes must be approved in advance by the mentor, and, if the individual is not a U.S. citizen, any travel outside the U.S. must be approved by VCU Immigration Services.

**Family and Medical Leave**—Graduate students in programs administered by the School of Medicine are eligible for up to 60 calendar days (equivalent to 8 work weeks) of paid leave per year for the adoption or birth of each child. Either parent is eligible for the parental leave. The student must provide 6-weeks of advanced notice of said leave. Scholars may use paid leave time (described above) to cover additional leave for the birth or adoption of a child.

Scholars must provide advanced notification to the Advisor and the Fiscal Administrator of the appropriate unit at least six weeks in advance of the anticipated first day of leave.

## **Leave of Absence**

Graduate students with approved leaves of absence (LOA) are exempted from continuous enrollment requirements for the LOA period. Students should note that while a leave of absence temporarily suspends the continuous enrollment requirement, it does not extend the time limit for completion of the degree.

## Resources

### Computing Resources

Student accounts can be established by contacting Ron Broman in the Department of Radiation Oncology.

The Department of Radiation Oncology has several research computer systems, including Solaris systems for treatment planning activities and Linux systems for research computing.

Additionally, VCU maintains several research computers which are available for student access. Information on VCU's research computers can be found at <http://www.ts.vcu.edu/kb/1353.html>.

### Wiki's and Web Pages

Students have access to, and are encouraged to contribute to the program's wiki pages located at <https://wiki.vcu.edu/display/medphys/Home>.

### Educational Opportunities

**Journal Club:** Faculty and students review articles from recent medical physics journals. During the spring and fall semesters, this is offered as MEDP 689. All students are expected to attend and participate, independent of whether they are enrolled in MEDP 689 or not. Journal Club also meets during the summer session.

**Research Meetings:** Each research group typically has regular group meetings. Students are welcome to attend and participate in those meetings, and required to attend the meetings for his or her own research group. Please check with specific faculty members for meeting dates and times.

Several seminars are scheduled on a fixed basis (e.g., Student Seminar Series, board review sessions) and on an ad hoc basis. Students are encouraged to attend all seminars given in the department.

### Equipment

The following equipment is available for student use in the Department of Radiation Oncology.

#### **Treatment Planning Software:**

**Variseed** - for LDR Brachytherapy of the prostate

**Brachyvision** - for HDR & LDR Brachytherapy for various gynecological and breast techniques

**Pinnacle** - for 3D conformal (photon and electron) and IMRT (forward & inverse) external beam treatment plans

**BrainLab** - for Stereotactic Radiosurgery

**MIM** – Image registration and contouring software

### **Quality Assurance:**

**Wellhofer Blue Phantom** (electronics and software) - used for Annual Linac QA

**Omnipro software** - various uses including IMRT QA

**Argus Software** -for Monthly QA data record keeping

**Scanditronix IMatriXX** - used commonly for IMRT QA

### **Other Hardware:**

**Pro Focus Ultrasound Scanner** - used commonly in prostate LDR seed implants for TRUS guidance

**Phillips CT Scanner** - used for CT Simulation of patients

## **ABR**

- Part 1 is the general medical physics knowledge and clinical exam, which is the same for all medical physics specialties. The knowledge portion covers material in core graduate program classes, such as dosimetry, medical imaging, nuclear medicine, radiation safety, and radiotherapy treatment process. The clinical portion focuses on introductory anatomy, physiology, and terminology. A content guide and sample questions from ABR can be accessed [here](#).
- **The deadline for applying to take this exam is October 31 of the year before the student sits. In 2017, the exam was offered August 7th and cost \$505.**
- In order to be eligible for this exam, the applicant “must be enrolled in and in good standing with, or have graduated from, a CAMPEP-accredited program (graduate program, doctorate in medical physics [DMP] program, certificate program, or medical physics residency).” Students will need to submit a letter from Dr. Song confirming enrollment at VCU.
- Once a student has applied for Part 1, he or she has 5 calendar years to pass Part 1. Once he or she has passed Part 1, he or she will have 10 calendar years become board-eligible. According to ABR “Board eligibility for medical physicists begins once a candidate has been approved for the Part 2 Examination, or has completed a CAMPEP-accredited residency, whichever occurs first.”

## **Additional Information**

- The majority of time in the program will be in a hospital setting. Students should be aware and respectful that individuals in the hospital may have serious illnesses, many of which the students will try to learn how to diagnose or treat. Please act and dress accordingly. Students should dress professionally while in clinical areas for any reason,

and during clinical rotations. Lab coats are available for student use.

- Attendance is mandatory for all courses, Journal Club (MEDP 689), and student seminars. If a student cannot attend, he or she must inform the course instructor and make arrangements for getting materials and/or making up work.
- Students are expected to read and reply to emails and other correspondence from faculty and staff.
- Students are highly encouraged to communicate with their advisors, course instructors, the program director (Dr. Song), and/or the program coordinator (Katie Goracke) whenever there are issues or concerns regarding the graduate program.
- The program welcomes input as to additional information that would be useful for inclusion in this handbook. Please contact the program director or program coordinator with any suggestions.