A note from the Director:

Welcome to the Oregon Medical Physics Program – a joint graduate program in medical physics between Oregon Health & Science University (OHSU) and Oregon State University (OSU).

This handbook is intended to help you get settled and answer some of the questions you might have as a new graduate student in our program. If, after reading the contents, you have unanswered questions, please feel free to ask me for help. The staff, faculty, and fellow graduate students are available and willing to help solve any issues as they arise. http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm

Additional information on deadlines, procedures and requirements is provided by the current Oregon Health & Science University Graduate Handbook which may be found here: http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/upload/Student-handbook-2016-17.pdf

Graduate students in the Oregon Medical Physics Program (OMPP) are responsible for complying with the rules of the University, the School of Medicine, and the Program. Policies, deadlines, and other pertinent items can be found at: http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm In some instances, the requirements of the Program are more restrictive than those of the School of Medicine. In such cases, the departmental and programmatic requirements specified in this document will apply.

The program requirements that an OMPP student must satisfy for the degree are those contained in the version of the handbook that is current at the time of your matriculation into the medical physics program.

The student and graduate advisor should consult the correct handbook version for appropriate guidelines.

The faculty hopes that your time in the OMPP will be rewarding, memorable, and the beginning of a fruitful career in the medical physics field.

We are glad you’re here!

-Dr. Krystina M. Tack, Graduate Program Director, Oregon Medical Physics Program
This office supports graduate program activities including admissions, progression and degree completion. The office is located in the Dean’s Office for the School of Medicine on the fourth floor of Mackenzie Hall.

Phone: 503-494-6222; E-mail: somgrad@ohsu.edu

Office Staff
Associate Dean for Graduate Studies: Allison Fryer, PhD

Program Manager: Rick Goranflo, Ed.M. | goranflr@ohsu.edu

Administrative Coordinator and CONJ Course Support: Brenda Donin | doninb@ohsu.edu

Admissions Coordinator: Lorie Gookin | gookinl@ohsu.edu

Administrative Coordinator: Rita Rand | randr@ohsu.edu

PMCB Program Coordinator: Crystal Paredes | paredes@ohsu.edu

MD/PhD Program Coordinator: Johanna Colgrove | colgrovj@ohsu.edu

Director of Professional Development Center: Jackie Wirz, PhD | wirzj@ohsu.edu

Program Contact List
A full list of current contacts for each program can be found at:
http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/contact.cfm
The Graduate Council oversees all graduate programs in the School of Medicine and advises the Dean on all matters related to graduate education. These include but are not limited to, transfer of credits, transfer of programs, setting stipend levels, program evaluations, course evaluations, new program and new course approvals. The Associate Dean for Graduate Studies convenes the Council, which includes faculty representatives from all graduate programs and two student representatives selected by the Graduate Student Organization (see listing below).

The Council meets monthly from September to June.

Meeting minutes are regularly posted on the Graduate Council website at https://o2.ohsu.edu/school-of-medicine/faculty/faculty-affairs/grad-council.cfm

<table>
<thead>
<tr>
<th>Graduate Program</th>
<th>Representative</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Program</td>
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</tbody>
</table>
Faculty in the OMPP

Oregon Health & Science University Medical Physics Faculty

Richard Crilly
Associate Professor and Radiation Therapy Physicist
B.S. Physics (1979), University of Saskatchewan, M.S. Biophysics (1987) University of Alberta (Edmonton), Ph.D. Medical Physics (1995), Wayne State University.
Member of: American Association of Physicists in Medicine (AAPM).
Certified by ABMP in Radiation Oncology (American Board of Medical Physics).
Fields of interest: Small Field Dosimetry, Ion Chamber Design, Helical Tomotherapy Planning, Helical Tomotherapy QA.

Thomas Griglock
Assistant Professor and Chief Diagnostic Imaging Physicist
B.S. Physics (2003), University of Scranton; M.S. Physics (2005), Lehigh University; M.S. Medical Physics (2009), University of Florida; Ph.D. Medical Physics (2012), University of Florida.
Member of: American Association of Physicists in Medicine (AAPM). Diplomate, American Board of Radiology (DABR®). Eagle Scout.
Fields of interest: Computed Tomography Dosimetry, practical approaches to radiation dose management.

Wolfram Laub
Associate Professor and Director of Medical Physics, Radiation Medicine
M.S. Physics (1995), Eberhard-Karls-Universitat Tubingen, Germany, Ph.D. Physics, Eberhard-Karls-Universitat Tubingen, Germany, MBA (2007), George Fox University.
Member of: American Association of Physicists in Medicine (AAPM), European Society of Therapeutic Radiology and Oncology (ESTRO), American Society for Radiation Oncology (ASTRO), Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM), editorial board of Radiation Oncology, manuscript reviewer for Medical Physics and Physics in Medicine and Biology. Certified by ABMP in Radiation Oncology (American Board of Medical Physics).
Fields of interest: Monte-Carlo dose calculations, Intensity modulated arc therapy QA, in-vivo electronic portal imaging dosimetry.

Susha Pillai
Assistant Professor and Radiation Therapy Physicist
M.S. Physics (1996), M.G. University, Kerala, India, M.S. Nuclear Engineering (1999), University of Missouri-Columbia.
Member of: American Association of Physicists in Medicine (AAPM), American Society of Therapeutic Radiology and Oncology (ASTRO). Diplomate of the American Board of Radiology (DABR®).
Fields of interest: Developing innovative treatment delivery techniques, Heterogeneity correction algorithms for treatment planning systems, In Vivo dosimetry, Intraoperative Radiation Therapy, Total Marrow Irradiation.
Lindsay DeWeese (Sinclair)  
Assistant Professor and Diagnostic Imaging Physicist.  
B.S. Nuclear Engineering (2007), University of Florida; M.S. Nuclear Engineering (2009), University of Florida; Ph.D. Medical Physics (2013), University of Florida.  
Member of: American Association of Physicists in Medicine (AAPM).  
Fields of interest: Computed Tomography Dosimetry.  

Krystina Tack  
Director of Medical Physics and Assistant Professor, Diagnostic Radiology  
Member of: American Association of Physicists in Medicine (AAPM), American Brachytherapy Society (ABS), American Society for Radiation Oncology (ASTRO), Society of Directors of Academic Medical Physics Programs (SDAMPP).  
Fields of interest: prostate brachytherapy, high dose rate (HDR) brachytherapy, clinical trials (correlation of dosimetry with clinical outcomes).  

James Tanyi  
Associate Professor and Radiation Therapy Physicist.  
B.S. Physics (with Distinction), United States Naval Academy, M.S.E. Nuclear Engineering and Radiological Sciences (2002), Ph.D. Medical Physics (2005), University of Texas Health Science Center at San Antonio.  
Member of: American Association of Physicists in Medicine (AAPM), European Society of Therapeutic Radiology and Oncology (ESTRO), American Society for Radiation Oncology (ASTRO), American Association for Cancer Research, Radiological Society of North American (RSNA), Golden Key International Honor Society, Alpha Nu Sigma Society, American Nuclear Society (ANS), International Foreign Language Honor Society (Phi Sigma Iota), National Physics Honor Society (Sigma Pi Sigma). Diplomate, American Board of Radiology (DABR®).  
Fields of interest: Non-invasive methods of treatment response detection, motion correction in radiotherapy, stereotactic image-guidance, and deformable image registration (DIR) for adaptive radiotherapy (ART).  

Charles Thomas  
Professor and Chairman Department of Radiation Oncology OHSU.  
Member of: AACR Radiation Oncology Subcommittee, Editorial Board of Gastrointestinal Cancer Research (GCR), Oral Examiner for the American Board of Radiology (ABR), American Society for Radiation Oncology (ASTRO).  
Fields of interest: Combined-modality clinical trials.
Junan Zhang  
Assistant Professor and Radiation Therapy Physicist.  
B.A. Electrical Engineering (1998), Tsinghua University, Beijing  
M.S. Electrical Engineering (2002), University of California, San Diego  
Ph.D. Electrical Engineering (2005), University of California, San Diego  
PostDoc Radiation Physics (2007), Duke University Medical Center,  
Residency Radiation Physics (2009), Duke University Medical Center.  
**Member of:** American Association of Physicists in Medicine (AAPM). Diplomate, American Board of Radiology (DABR®).  
**Fields of interest:** improving image quality and reduction of dose in 3D and 4D CBCT,  
 improving spatial resolution of IMRT and RapidArc quality assurance.

Stephanie Junell  
Assistant Professor and Radiation Therapy Physicist.  
B.S. Radiation Health Physics (2006), Oregon State University  
M.S. Medical Physics (2008), University of Wisconsin  
Ph.D. Medical Physics (2013), University of Wisconsin.  
**Member of:** American Association of Physicists in Medicine (AAPM), American Society for  
Radiation Oncology (ASTRO).

OHSU Clinical Teaching Faculty

Monica Kishore  
Staff Radiation Therapy Physicist  
B.S. Physics (2009), Haverford College  
Completed Radiation Therapy Physics Residency at Oregon Health & Science University in  
2013.  
**Member of:** American Association of Physicists in Medicine (AAPM), American Society of  
Therapeutic Radiology and Oncology (ASTRO).
Abi T. Farsoni  
Associate Professor.  
Fields of interest: health physics, neutron activation analysis, radiation detection and spectroscopy, advanced digital readout electronics, digital signal processing, nuclear detection systems for homeland security.

David M. Hamby  
Professor.  
Fields of interest: radiation dose assessment, skin dosimetry, radiation instrumentation, environmental health physics, environmental transport, fate and transport model analysis, beta spectroscopy, radiation risk.

Kathryn A. Higley  
Head, Department of Nuclear Engineering and Radiation Health Physics; Professor.  
Fields of interest: human and ecological risk assessment, environmental pathway analysis, environmental radiation monitoring, radionuclide and hazardous chemical transport, radiochemistry, neutron activation analysis, nuclear emergency response planning, and environmental regulations.
Andrew C. Klein
Professor.
Fields of interest: Nuclear Systems Analysis and Design, Space Applications of Nuclear Technology, Radiation Shielding and Health Physics.

Wade R. Marcum
Assistant Professor.
Fields of interest: experimental and computational thermal hydraulics, reactor safety, multiphysics experimentation and computation, fluid structure interactions, hydro-mechanics, and computational fluid dynamics.

Todd S. Palmer
Professor.
Laboratory, Portland General Electric, and Nuclear Regulatory Commission. At Oregon State University since 1995.

Fields of interest: numerical techniques for particle transport and diffusion, computational fluid dynamics, reactor physics, general numerical methods, nuclear criticality safety, Monte Carlo methods, transport in stochastic mixtures.

Alena Paulenova  
*Associate Professor. Director of Laboratory of Transuranic Elements.*  

Fields of interest: Separation and speciation chemistry of actinides and fission products for: fuel cycle and waste forms; production and application of radiotracers, behavior and mobility of radionuclides in natural biogeochemical systems; nano-radiochemistry in material science; radiation chemistry and post-irradiation processes.

Steven R. Reese  
*Director, Radiation Center.*  

Fields of interest: radiation protection, activation analysis, radiation shielding, neutron radiography and dosimetry.

José N. Reyes, Jr. (currently on assignment at NuScale Power Inc.)  
*Professor; Henry W. and Janice J. Schuette Chair in Nuclear Engineering and Radiation Health Physics, Director, Advanced Thermal Hydraulics Research Lab.*  

*Fields of interest:* thermal hydraulics, multi-phase fluid flow, scaling analyses, ALWR Safety, fluid-structure interactions, reactor system design, and probabilistic risk assessment.

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**Brian Woods**

*Professor.*


*Fields of interest:* reactor thermal hydraulics, reactor safety, high-temperature gas reactor design, experimental fluid dynamics and heat transfer.

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**Qiao Wu**

*Professor.*


*Fields of interest:* thermal hydraulics and reactor safety, reactor engineering and design, multi-phase flow and boiling heat transfer, ALWR and IFR stability and safety, thermal hydraulics instrumentation.

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**Haori Yang**

*Assistant Professor.*

B.S. Engineering Physics (2001), M.S. Engineering Physics (2003), Tsinghua University; Ph.D. Nuclear Engineering and Radiological Sciences (2009), University of Michigan. Assistant Professor Assistant Professor, University of Utah (2011-2013). Research Scientist, Canberra Industries (2008-2010), At Oregon State University since 2013.

*Fields of interest:* non-destructive interrogation techniques, development of innovative radiation sensors, nuclear material detection, detectors for medical imaging, high-energy physics, and nondestructive testing, and general applications of nuclear engineering.
Facilities

OHSU Radiation Medicine

Radiation Oncology at OHSU consists of the main campus (Sam Jackson Park Road hospital – all new in 2007), and two satellite facilities. Under the OHSU umbrella, students have access to:

- **Linacs:**
  - 2 Elekta Versa HD
  - Elekta Infinity
  - Elekta Infinity (satellite campus)
- Mobetron IORT Linac
- Intrabeam IORT
- TomoTherapy
- Imaging / Localization / TP / RV Systems:
  - CBCT
  - Novalis (SRS) w/ Big Bore CT
    - Novalis Robotic Tabletop (Varian)
      - Exactrac (BrainLab)
  - Calypso Prostate Localization
  - Respiratory Gating
  - VisionRT Laser Scanning Patient Positioning System
  - Eclipse TPS – with Rapidarc license
  - Pinnacle TPS – with Smartarc license
  - Monaco (CMS) – with VMat license
  - iPlan TPS (BrainLab)
  - IMPAC RV (Mosaiq RBV)
- Treatment types include:
  - IMRT / Conventional / 3DCRT / EBT
  - SRS / SBRT
  - TBI
  - TSE
  - Novalis / Exactrac
  - Eye Plaques
  - LDR Seed Implants (permanent and temporary)
  - HDR
  - TomoTherapy
  - IORT (Mobetron, Intrabeam)
The Department of Diagnostic Radiology at OHSU consists of the main campus (Marquam Hill campus hospital and the Center for Health and Healing), and seven satellite facilities. Within these facilities, students have access to the following equipment:

- 14 general radiographic rooms (all DR)
  - with 12 utilizing wireless DR
- 6 radiographic & fluoroscopic rooms
- 6 interventional suites
  - including 2 bi-plan rooms and 5 utilizing flat-panel detectors (FPDs)
- 4 cardiac catheterization angiography suites
- 24 portable x-ray units
  - including 5 with wireless DR detectors
- 24 portable fluoroscopic units
  - including 4 with FPDs
- 8 diagnostic CT scanners (16-320 slice);
  - 5 with iterative reconstruction technology
  - 2 with iterative model based (IMR) technology
  - *This fleet includes a Toshiba Aquilion ONE Prime 320 slice CT and a Philips Brilliance iCT 256 slice.*
- 2 mobile head CT scanners
- 6 MRI scanners
  - two 3.0 Tesla magnets, three 1.5 Tesla magnets, and one open
- 22 diagnostic ultrasound units
- 3 full-field digital mammography units
  - one digital breast tomosynthesis (DBT) unit and one additional stereotactic breast biopsy (SBB) unit
- 2 PET/CT units
  - one with time-of-flight technology
- 1 SPECT/CT unit
- 2 gamma cameras with flat-panel cone-beam CT
- 2 C-arm interventional radiology units used for animal research at the Dotter Research Institute
- C-arm fluoroscopy and mobile CT used for animal research at the Oregon National Primate Research Center
OSU Nuclear Science and Engineering (NSE)

The Department of Nuclear Engineering and Radiation Health Physics is housed in the Radiation Center, an instructional and research facility established specifically to accommodate research programs involving nuclear science and engineering, to provide a location for the use of radionuclides and ionizing radiation sources, and to provide sources of fast and thermal neutrons and gamma rays. Major facilities at the OSU Radiation Center include: a 1.1 MW TRIGA research reactor and associated facilities, including a rotating sample rack, a pneumatic transfer irradiation system, a thermal column, in-core irradiation tubes (with and without cadmium), and four beam port facilities; a cobalt-60 gamma-ray irradiator; state-of-the-art digital gamma-ray spectrometers and associated germanium detectors; and various radiochemistry laboratories.

The Department of Nuclear Engineering and Radiation Health Physics is equipped with state-of-the-art nuclear and radiation protection instrumentation and computing facilities. Computers include a number of PC and UNIX based workstations. The department's computers also provide access through networking to larger computers, such as supercomputing facilities, on and off campus. In addition to radiation facilities, there are laboratories dedicated to the investigation of other phenomena important to the study of Nuclear Science and Engineering, including a number of large-scale experimental test facilities. The major facilities and laboratories are:

1.1 MW TRIGA
Mark II Pulsing Research Reactor is a water-cooled, swimming pool type of research reactor which uses uranium/zirconium hydride fuel elements in a circular grid array. The reactor is licensed by the U.S. Nuclear Regulatory Commission to operate at maximum steady state power of 1.1 MW, and can also be pulsed up to a peak power of about 3000 MW. The reactor has a variety of irradiation facilities available.

ATHRL
Advanced Thermal Hydraulic Research Facilities incorporates two facilities: Advanced Plant Experiment (APEX), a three story test facility that assess the safety systems of Westinghouse’s next generation of nuclear power plants (AP600, APEX-CE, and AP1000), and the Multi-Application Small Light Water Reactor (MASLWR) test facility, a Generation IV design concept. ATHRL offers excellent opportunities for student research and training in instrumentation, quality assurance, safety, operations, and nuclear and mechanical design.

ANSEL
The Advanced Nuclear Systems Engineering Laboratory is the home to two major thermalhydraulic test facilities—the High Temperature Test Facility (HTTF) and the Hydro-mechanical Fuel Test Facility (HMFTF). The HTTF is a 1/4 scale model of the Modular High Temperature Gas Reactor. The vessel has a ceramic lined upper head and shroud capable of operation at 850°C (well mixed helium). The design will allow for a maximum operating pressure of 1.0MPa and a maximum core ceramic temperature of 1600°C. The nominal working fluid will be helium with a core power of approximately 600 kW (note that electrical heaters are used to simulate the core power). The test facility also includes a scaled reactor cavity cooling system, a circulator and a heat sink in order to complete the cycle. The HTTF can be used to simulate a wide range of accident scenarios in gas reactors to include the depressurized
conduction cooldown and pressurized conduction cooldown events. The HMFTF is a testing facility which will be used to produce a database of hydro-mechanical information to supplement the qualification of the prototypic ultrahigh density U-Mo Low Enriched Uranium fuel which will be implemented into the U.S. High Performance Research Reactors upon their conversion to low enriched fuel. This data in turn will be used to verify current theoretical hydro- and thermomechanical codes being used during safety analyses. The maximum operational pressure of the HMFTF is 600 psig with a maximum operational temperature of 450°F.

TRUELAB
Laboratory of Transuranic Elements is a state-of-art radiochemical research laboratory, equipped with a variety of instrumentation for characterization of actinides and fission products and their chemical reactivity with organic and inorganic ligands and evaluation of postirradiation changes in solutions: Vibrational spectroscopy (Nicolet Fourier Transformation Infrared and Raman and FTIR and Raman spectroscopy) which allow to characterization of solid and liquid samples, Microcalorimetry (quantification of chemical thermodynamics of studied processes); UV-Vis and NIR spectroscopy (speciation of irradiated solutions, complexation of actinides in aqueous and organic matrices) with the stop-flow cell and syringe titrator; Dionex Ion-exchange and Finnigan liquid chromatography, potentiometric titration, glove box, electrochemistry (cyclic voltammetry). Preparation of samples for LSC and alpha-and gamma spectrometry.

Other Labs and Facilities
Cobalt-60 Gamma Irradiator; Neutron Radiography facility; Neutron Activation facility, Gamma and Alpha Spectrometry laboratory; Liquid Scintillation Counter (LSC Perkin Elmer); Radiological Instrument Calibration facilities; Thermoluminescent Dosimetry systems; large inventory of radiation detection instrumentation; student computer laboratory; student nuclear instrumentation laboratory; green house and wet chemistry laboratories.
Health Insurance

OHSU’s Student Health Insurance plan is with Pacific Source. All students are required to enroll in the health insurance plan unless they can prove comparable coverage elsewhere. Students who do waive out of the insurance must do so annually. Waiver forms can be found on the JBT Health & Wellness website. Any additional questions about waiving out of the insurance should be directed to Student Health Services: 503-494-8665 ext. 1.

http://www.ohsu.edu/xd/education/student-services/joseph-trainer-health-wellness-center/

For more information on health insurance requirements, please visit:
http://www.ohsu.edu/xd/education/student-services/joseph-trainer-health-wellness-center/student-requirements/newstudents.cfm

Joseph B. Trainer Health & Wellness Center
Oregon Health & Science University
Baird Hall Room 18
3181 S.W. Sam Jackson Park Road, Mail Code L-587
Portland, Oregon 97239
Phone: 503 494-8665
Fax: 503 494-2958
E-mail: askshs@ohsu.edu
http://www.ohsu.edu/xd/education/student-services/joseph-trainer-health-wellness-center/

The Joseph B. Trainer Health & Wellness Center wants to be your "medical home" providing routine outpatient care and counseling services to meet a wide variety or your health care needs. We are open Monday through Friday from 8:30 am until 4:30 pm and are located in room 18 (Primary Care) and room 6 (Counseling and Wellness Services) of Baird Hall. Services offered include primary care, well woman exams, contraception, STD screenings, travel medicine, immunizations, counseling and medication management. All registered full-time students in degree and certificate training programs that pay the required health fees in addition to their tuition at OHSU are eligible for health and counseling services at JBT. A student’s spouse or domestic partner who is not enrolled at OHSU may also be seen at JBT if an additional Student Health Fee is assessed to the student’s account.

A referral is required to see any health care provider outside of JBT, with the exception of women’s health providers. There is no cost for a JBT visit, so this should be considered your primary care place and is always cheaper than seeking outside providers.

A Resource Fee fund is available to the School of Medicine basic science PhD graduate students for spouse/partner/family health insurance. Please contact the Graduate Studies Office for information and paperwork needed to enroll (somgrad@ohsu.edu).
Tuition & Fees

Registrar and Financial Aid Office
If you need financial assistance to attend OHSU, please visit the Financial Aid Office in Mackenzie Hall. Federal aid applications are available beginning in December and should be received by the federal processor by March 1 to qualify for priority processing. Late applications are accepted, but funding may be exhausted in some programs. Additional information can be found in your school catalog and the OHSU publication, Student Financial Aid Explained, available in the Financial Aid Office.

The Registrar’s Office services include registration for courses, grade reports and official transcripts. It is particularly important that students register for courses by the term deadlines listed in the academic calendar. The Registrar and Financial Aids office also receives requests for financial aid and deferral of student loans. It should be noted that many actions that affect student status are initiated at the program level before being officially recorded by the Registrar. These actions include change of grade, advancement to candidacy, request for oral exam and leave of absence. Graduate Studies Coordinators within each department can assist students with these procedures and other requests.

For important policy information on tuition and fees, please visit:
http://www.ohsu.edu/xd/education/student-services/registrar/registrar-registration-information/tuition-fees/index.cfm

The current academic year fee book can be found here:

Tuition information for the current academic year can be found here:
http://www.ohsu.edu/xd/education/student-services/registrar/registrar-forms/index.cfm

The current academic year tuition refund schedule can be found here:

Registration
Registration for all courses takes place solely through the OHSU Registrar’s Office. Enrollment in OSU-delivered courses will occur behind the scenes, (students will select a CRN in the OHSU system that reflects an OSU-taught course).
Course Information & Program Structure

At a minimum, students in the Medical Physics program are required to enroll in and pass the following courses (or be able to show equivalency). These courses should be taken in the order laid out below. *It should be noted that not all courses shown below are offered in every academic year.*

Medical Physics students will choose to pursue a track either in Radiation Therapy or in Diagnostic Imaging. Students begin taking track-specific courses in the fall of their second year of studies.

---

### ALL 1st Year Medical Physics Students

<table>
<thead>
<tr>
<th>Year / Term</th>
<th>Designation</th>
<th>Number</th>
<th>Major Core Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Term: September 26 - December 16, 2016</td>
<td>Required:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1 Fall</td>
<td>CONJ</td>
<td>650</td>
<td>Practice and Ethics of Science</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>521</td>
<td>Radiological Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>531</td>
<td>Radiophysics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>IPE</td>
<td>501</td>
<td>Interprofessional Education (auto-enroll)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>507</td>
<td>Matriculation Seminar (required)</td>
<td>1</td>
</tr>
<tr>
<td>Winter Term: January 9 - March 24, 2017</td>
<td>Required:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1 Winter</td>
<td>MP</td>
<td>561</td>
<td>Therapy Physics I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>541</td>
<td>Diagnostic Physics I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>570</td>
<td>Radiation Biology</td>
<td>4</td>
</tr>
<tr>
<td>Optional:</td>
<td>MP</td>
<td>507</td>
<td>Therapy Physics Journal Club</td>
<td>1</td>
</tr>
<tr>
<td>Spring Term: April 3 - June 23, 2017</td>
<td>Required:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1 Spring</td>
<td>MP</td>
<td>562</td>
<td>Therapy Physics II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>542</td>
<td>Diagnostic Physics II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>535</td>
<td>Rad Shielding and External Dosimetry</td>
<td>4</td>
</tr>
<tr>
<td>Optional:</td>
<td>MP</td>
<td>507</td>
<td>Diagnostic Physics Journal Club</td>
<td>1</td>
</tr>
<tr>
<td>Summer Term: June 26 - August 25, 2017*</td>
<td>Required:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V1 Summer</td>
<td>MP</td>
<td>565</td>
<td>Therapy Physics Practicum</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>545</td>
<td>Diagnostic Physics Practicum</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>536</td>
<td>Advanced Radiation Detection</td>
<td>4</td>
</tr>
</tbody>
</table>

*these dates are tentative and intentionally not OHSU's academic calendar dates

Key: Seminar / Journal Club - 3 total required
### Year Two Medical Physics Students
#### Radiation Therapy Physics Track

<table>
<thead>
<tr>
<th>Year / Term</th>
<th>Designation</th>
<th>Number</th>
<th>Major Core Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Term: Dates TBD 2017</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2 Fall</td>
<td>Required: MP</td>
<td>563</td>
<td>Therapy Physics Lab I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>BSTA</td>
<td>511</td>
<td>Statistics</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Optional: MP</td>
<td>507</td>
<td>Matriculation / Information Seminar</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>503</td>
<td>Thesis</td>
<td>varies</td>
</tr>
<tr>
<td><strong>Winter Term: Dates TBD 2018</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2 Winter</td>
<td>Required: MP</td>
<td>564</td>
<td>Therapy Physics Lab II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Optional: MP</td>
<td>507</td>
<td>Therapy Physics Journal Club</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>503</td>
<td>Thesis</td>
<td>varies</td>
</tr>
<tr>
<td><strong>Spring Term: Dates TBD 2018</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y2 Spring</td>
<td>Required: MP</td>
<td>537</td>
<td>Shielding in Medical Physics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Optional: MP</td>
<td>507</td>
<td>Diagnostic Physics Journal Club</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>MP</td>
<td>503</td>
<td>Thesis</td>
<td>varies</td>
</tr>
</tbody>
</table>

Total Credits ≥ 60

**Key:**
- Seminar / Journal Club - 3 total required
- Thesis Credits - 6 total required
The above courses are required for all Medical Physics degrees awarded by the OMPP (MS, PhD). PhD students should register for 600-level versions of the above courses. *These courses satisfy the CAMPEP-required didactic elements of a graduate program in medical physics.*
**PhD Requirements** (in addition to above courses)

Additional Requirements for those pursuing a PhD in Medical Physics from the OMPP (based on OSU NSE requirements):

**COURSE OF STUDY**
The requirements for the doctoral degree include the following:

1. **Graduate Work Required:**
   a. 135 term hours of approved graduate credits are required.
   b. Graduate credit shall be granted only for course work completed during the 8 calendar years (32 terms) prior to completing all degree requirements.
   c. Required courses must be completed before these time limits or they must be re-taken. These limits include an allowance for a one year degree extension (By-Law Article IX Section I).
   d. All coursework applied towards degree requirements must meet the minimum cumulative grade point average of at least 3.0.
   e. The time limit from matriculation to granting the PhD degree shall be limited to 28 consecutive terms (seven academic years) unless waived for a leave of absence under the By-Law Article IX Section K.


2. **PhD Mentor Assignment.** The student’s selection of a mentor for the doctoral dissertation must be approved by the Director of the student’s graduate program and by the Director of the mentor’s primary administrative unit.
   a. The Mentor must be a member of the OHSU graduate faculty.
   b. Documentation of these approvals will be obtained using the MENTOR ASSIGNMENT – PhD PROGRAMS form, which should be forwarded to the Associate Dean for Graduate Studies as soon as the mentor is assigned (typically the end of the first year).
   c. A new form should be submitted whenever there is a change in the mentor assignment.


3. **Advancement to PhD Candidacy at OHSU.**
   a. Successful completion of CONJ650: The Practice and Ethics of Science (or an approved alternate course)
   b. The OMPP’s Qualifying Exam
   c. All other academic requirements specified by the Medical Physics program.
      i. Students may not take the Qualifying Examination if they are on academic probation or if an Incomplete (I) grade remains on their transcript.
      ii. The qualifying examination is given by the Program in which the student is registered.
      iii. Students are expected to take the qualifying exam by the end of their 12th term of graduate study; or they will be recommended for dismissal for
failure to progress academically.

iv. In the event of a report of unsatisfactory for the qualifying examination, the Program will provide the student and Associate Dean for Graduate Studies with a written description of the student’s deficiencies on the examination within 2 weeks of the examination. The Program will also notify the student of policies concerning re-examination.

v. Upon completion of all requirements, the Program Director will submit the ADVANCEMENT TO CANDIDACY form to the Associate Dean for Graduate Studies for approval. The Associate Dean will forward the approved form to the Registrar.

vi. The Advancement to Candidacy form must be on record in the Registrar’s Office at least (3) terms before the final oral examination for PhD degree.

4. Request for Appointment of a Dissertation Advisory Committee. The Dissertation Advisory Committee is appointed by the Program Director to guide and advise the student in the dissertation research and preparation of the dissertation document.

a. The committee must be appointed within 1 year after advancement to candidacy or upon commencement of the dissertation research, whichever is earlier.

b. The committee must consist of no fewer than four members of the graduate faculty who do not all have primary appointments in the same department or institute.

c. A listing of all members of the School of Medicine Graduate Faculty can be found on the Graduate Studies web page

   http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/faculty/index.cfm

   d. The Program Director may request permission to replace one of the committee members by a recognized scholar who is not a member of the graduate faculty.

      i. Requests to appoint an outside member to the Advisory Committee must be supported by a letter from the Program Director and a copy of the individual’s curriculum vitae.

      e. The candidate’s mentor may be included as a member of the committee.

   f. The Program Director’s recommendation for appointment of the Advisory Committee will be sent to the Associate Dean for Graduate Studies for approval using the REQUEST FOR ADVISORY COMMITTEE form.

   g. The Advisory Committee is expected to meet at least annually to evaluate progress toward completion of the dissertation.

      i. With the approval of the Program Director, the committee may place a student on academic probation if it is determined that progress has not been adequate.

      ii. In such cases, the Program Director will notify the student and the Associate Dean for Graduate Studies in writing of the probationary status, specify in what way(s) the student is failing to meet standards and specify time limits for correcting the deficiencies.

      iii. If the student fails to correct the deficiencies within the specified time limits, the Program Director may recommend dismissal of the student.


5. Request for Oral Examination. The Program Director must submit a signed REQUEST FOR ORAL EXAMINATION form to the Associate Dean for Graduate Studies at least 4 weeks before the scheduled oral defense date.
6. **Post Notices Announcing the Oral Examination.** The oral examination must be held on campus and shall be open to the public.
   a. See this link for details: http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/students/upload/Guidelines-and-Regulations-revised-9-2010.pdf

7. **Distribution of Dissertation to Oral Examination Committee.**
   a. See this link for details: http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/students/upload/Guidelines-and-Regulations-revised-9-2010.pdf

8. **Recording the Outcome of the Oral Examination.**
   a. See this link for details: http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/students/upload/Guidelines-and-Regulations-revised-9-2010.pdf


Note: OHSU requires PhD degree completion within 7 years, with a petition to extend to 8 years. After 8 years the curriculum begins to expire.

For other regulations and policies, see the OHSU Graduate School website: http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm.
Degree Process / Steps to Completion

1. **Enroll** in (and successfully pass) required MP courses (listed above) with a B average or higher.
2. **Review OHSU graduate school policies and deadlines:**
   [http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm](http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm)
3. **Select your research advisor.** (←this should happen by fall term of Y2 in the OMPP)
4. **Begin working on research project.**
   a. (most students work for about 1 year on a research project while they complete their coursework / apply for residencies / etc.)
5. **Establish your research committee.**
6. **Set the date for your Oral Examination.**
7. **Distribute your written thesis.** Thesis MUST be distributed to each committee member at least 2 weeks prior to scheduled defense date to give your committee ample time to review your work.
8. **Oral Examination.**
9. **Submit all paperwork / written thesis to OHSU Graduate School in accordance with:**
10. **Apply for Graduation.** (Note: each year there is a final defense date, after this date you will not be able to walk at graduation. Plan to defend prior to this date).

**Guidelines and Regulations for Completion of Master's and Ph.D. Degree**

It is your responsibility to read it thoroughly and understand the guidelines and regulations for your specific degree type. Find it online here: [http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm](http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm) and the detailed document at: [http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/students/upload/Guidelines-and-Regulations-revised-9-2010.pdf](http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/students/upload/Guidelines-and-Regulations-revised-9-2010.pdf)
Calendar & Deadlines

It is important to be aware of and note dates and deadlines as you work toward your graduate degree. The current academic year calendar can be found here:
http://www.ohsu.edu/xd/education/student-services/Registrar/registration-information/academic-calendar/  Deadlines for this academic calendar can be found here:
http://www.ohsu.edu/xd/education/student-services/Registrar/registration-information/academic-calendar/deadlines_16-17.cfm

Forms

All forms can be found on the Student Portal.
http://student.ohsu.edu

Graduation

Degree Award Dates
OHSU awards diplomas for the term that degree requirements are completed. The degree requirements can be fulfilled at any time during the academic year. Degrees will not be awarded until all academic requirements have been met and the student pays all debts and discharges all other obligations. The academic requirements can be found in the Guidelines and Regulations for Completion of Master’s and PhD Degrees online at http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm

Commencement
The Hooding and Commencement ceremony is held in early June each year. Graduate students who have applied for degree may participate in the event. Additional criteria will be sent to individual programs and communicated to students in the Spring.