Ph.D. in Medical Physics Plan of Study

Purdue University – School of Health Sciences – College of Health and Human Sciences
90 Credits

Requirements (35 Credits)

- HSCI 31200 (3): Radiation Science Fundamentals – Fall
- HSCI 31300 (2): Principles of Radiation Detection and Measurement – Fall
- HSCI 51400 (3): Radiation Instrumentation Laboratory – Spring
- HSCI 52600 (3): Principles of Health Physics & Dosimetry – Fall
- HSCI 54000 (3): Radiation Biology – Spring
- HSCI 54101[1] (4) OR 59000 (4): Human Sectional Anatomy – Fall
- HSCI 57000 (3): Introduction to Medical Diagnostic Imaging – Spring
- HSCI 57200 (3): Radiation Oncology Physics – Spring
- HSCI 57400 (2): Medical Health Physics – Fall
- HSCI 61300 (1): Professionalism and Professional Development in Health Sciences – Spring
    - AND AAPM/RSNA Ethics and Professionalism Modules (online)
- HSCI 62500 (1): Grant Writing for Health Sciences
- HSCI 69600[2] (1): Graduate Seminar – Fall, Spring
- HSCI 69900 (6): Research PhD Thesis – Fall, Spring, Summer

Selective Courses (9 Credits)

Selective options can be found on the next page. 6 credits of Clinical Internship Courses are recommended.

Electives (0 Credits)

[1]BIOL 20300 (4), BIOL 20400 (4), and previously offered HSCI 54100 (2) also meet this requirement.
[2]All students are required to take HSCI 69600 for 1 credit every fall and spring semester, however; it will only be entered into your plan of study twice.

A total of 90 credits is required for the Ph.D. degree. These credits may be any combination of course and research credit. Up to 30 credits may be credited for an M.S. degree upon recommendation of the Ph.D. graduate student's advisory committee and this may include all required coursework and the clinical internship if the equivalent has recently been taken. No more than 6 credits of coursework at the 300 or 400 level are allowed to form part of the student's Ph.D. degree plan of study.

Note: Graduate courses taken while registered as a graduate student at Purdue University may be considered for fulfilling the plan of study requirements only if the student has received grades of C or better. For courses at the 300 or 400 level taken as a graduate student or courses that represent either undergraduate or graduate excess credit or transfer credit, grades of B or better are required for fulfilling plan of study requirements.

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Fall 2026
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List of Selective Courses

Clinical Internship Selective Courses

- HSCI 67200 (3): MRI QA Internship – Fall
- HSCI 67400 (3): Diagnostic Imaging Physics Internship – Spring
- HSCI 67600 (3): RT Clinical Competencies I – Fall
- HSCI 67700 (3): RT Clinical Competencies II – Spring

Timing of the clinical internships are subject to change. Please keep in touch with the program director to learn about the latest schedule. It is highly recommended that students take 6 CR of clinical selective courses.

Advanced Coursework

- BME 51500 (1): Practical MRI and Applications – Spring
- BME 55500 (3): Magnetic Resonance Imaging Theory – Fall
- HSCI 52500 (3): Statistics for Health Sciences – Fall
- HSCI 53400 (3): Applied Health Physics – Spring
- HSCI 51600 (2): Molecular Imaging in Nuclear Medicine – Fall
- HSCI 57100 (3): Magnetic Resonance Spectroscopy – Spring
- HSCI 59000 (3): Data Acquisition and Image Reconstruction in MRI – Varies
- STAT 51100 (3): Statistical Methods – Fall, Spring, Summer
- STAT 51200 (3): Applied Regression Analysis – Fall, Spring, Summer

Research

- HSCI 59000 (0-8): Independent Research Project – Fall, Spring, Summer
- HSCI 69800 (0-8): MS Research Thesis – Fall, Spring, Summer
- HSCI 69900 (0-8): PhD Research Thesis – Fall, Spring, Summer

Students performing an MS Thesis, 6-CR of HSCI 59000 is replaced by HSCI 69800.

Supplemental Coursework (Physics Minor)

Required:

- PHYS 34202 OR PHYS 34202D (3): Quantum Mechanics – Fall, Spring

Select 6 credits:

- PHYS 31000 (4): Intermediate Mechanics – Fall
- PHYS 32200 (3): Optics – Fall
- PHYS 33000 (3): Intermediate Electricity and Magnetism – Fall, Spring
- PHYS 36000 (3): Quantum Mechanics – Spring

Only required for students whose previous coursework does not include a physics minor.
A grade of B or better in all 10000, 20000, 30000 or 40000 level classes.

Other Coursework

- HSCI 49200 (0-3): Professional Experience In Health Sciences Internship – Fall, Spring, Summer

Suggested Arrangement of Courses:

Fall 1st Year: 12 Credits
HSCI 31200 (3)
HSCI 31300 (2)
HSCI 57400 (2)
HSCI 54101 OR 59000 (4) Human Sectional Anatomy
HSCI 69600 (1)

Spring 1st Year: 11 Credits
HSCI 51400 (3)
HSCI 54000 (3)
HSCI 57000 OR HSCI 57200 (3)
HSCI 61300 (1) & AND AAPM/RSNA Ethics and Professionalism Modules (online)
HSCI 69600 (1)

Summer 1st Year: 6 Credits
HSCI 69900 (6)
Research and/or Shadowing

Fall 2nd Year: 10 Credits
HSCI 52600 (3)
HSCI 67200 OR HSCI 67600 (3)
HSCI 69600 (1)
HSCI 69900 (3)

Spring 2nd Year: 13 Credits
HSCI 57000 OR HSCI 57200 (3)
HSCI 67400 OR HSCI 67700 (3)
HSCI 69600 (1)
HSCI 69900 (3)
Medical Physics Selective (3)

Remaining Fall and Spring Semesters: 9 Credits
HSCI 69600 (1)
HSCI 69900 (8)

Remaining Summers: 6 Credits
HSCI 69900 (6)

Suggested Arrangement of Courses with Physics Minor:

Fall 1st Year: 15 Credits
HSCI 31200 (3)
HSCI 31300 (2)
HSCI 54101 OR 59000 (4) Human Sectional Anatomy
HSCI 57400 (2)
HSCI 69600 (1)
PHYS 34202 OR PHYS 34202D (3)

Spring 1st Year: 13 Credits
HSCI 51400 (3)
HSCI 54000 (3)
HSCI 57000 OR HSCI 57200 (3)
HSCI 61300 (1) & AND AAPM/RSNA Ethics and Professionalism Modules (online)
HSCI 69600 (1)
PHYS 33000 (3) – may conflict with HSCI 57200

Summer 1st Year: 6 Credits
HSCI 69900 (6)

Fall 2nd Year: 14 Credits
HSCI 52600 (3)
HSCI 62500 (1)
HSCI 67200 OR HSCI 67600 (3)
HSCI 69600 (1)
HSCI 69900 (3)
PHYS Class (3)

Spring 2nd Year: 13 Credits
HSCI 57000 OR HSCI 57200 (3)
HSCI 67400 OR HSCI 67700 (3)
HSCI 69600 (1)
HSCI 69900 (3)
Medical Physics Selective (3)

Remaining Fall and Spring Semesters: 9 Credits
HSCI 69600 (1)
HSCI 69900 (8)

Remaining Summers: 6 Credits
HSCI 69900 (6)