RADIATIONAL HEALTH SCIENCES / HEALTH PHYSICS EMPHASIS

College of Health and Human Sciences

Student: ____________________________  PUID: ____________________________  Catalog Term: ______

Additional Majors: ____________________________  Minors: ____________________________

Radiological Health Sciences/Health Physics Emphasis Core (University Foundational Learning Outcomes) (27-29 credits)

___ (4-3) ENGL 10600 First-Year Composition or ENGL 10800 Accelerated First-Year Composition [Written Communication]

___ (3) COM 11400 Fundamental of Speech Communication or COM 21700 Science Writing & Presentations [Oral Communication]

___ (4) BIOL 11000 Fundamentals of Biology I [Fulfills 1 Science Core Course]

___ (4) BIOL 11100 Fundamentals of Biology II [Fulfills 1 Science Core Course]

___ (3) [Humanities] select course from University list

___ (3) [Behavior/Social Science Humanities] select course from University list

___ (4-5) MA 16100 Plane Analytic Geometry & Calculus I or MA 16500 Analytic Geometry & Calculus I [Quantitative Reasoning]

___ (3) HSCI 20100 Principles of Public Health Science [Science, Technology & Society]

Required Courses for Radiological Health Sciences/Health Physics Emphasis (87-88 credits)

___ (4) BIOL 20300 Human Anatomy & Physiology

___ (4) BIOL 20400 Human Anatomy & Physiology

___ (4) CHM 11500 General Chemistry

___ (4) CHM 11600 General Chemistry

___ (3) English Selective - select from list

___ (3) General Science or Radiological Health Sciences Selective – select from list

___ (3) Health Physics Selective – select from list

___ (3) Health Physics Selective – select from list

___ (2) HSCI 10100 Introduction to Health Sciences Professions

___ (3) HSCI 20200 Essentials of Environmental, Occupational, and Radiological Health Sciences

___ (3) HSCI 31200* Radiation Science Fundamentals

___ (2) HSCI 31300* Principles of Radiation Detection & Measurement

___ (2) HSCI 51400* Radiation Instrumentation Laboratory

___ (3) HSCI 52600* Principles of Health Physics & Dosimetry

___ (3) HSCI 53400* Applied Health Physics

___ (3) HSCI 54000* Radiation Biology

___ (2) HSCI 57400* Medical Health Physics

___ (3) Math-Computer Science Selective – select from list

___ (4) Math-Computer Science or General Science Selective - select from list

___ (4-5) MA 16200 Plane Analytic Geometry & Calculus II or MA 16600 Analytic Geometry & Calculus II

___ (4) MA 26100 Multivariate Calculus

___ (3) NUCL 20000 Introduction to Nuclear Engineering

___ (2) NUCL 20500 Nuclear Engineering Undergraduate Laboratory I

___ (2) NUCL 30500 Nuclear Engineering Undergraduate Laboratory II

___ (4) PHYS 17200 Modern Mechanics

___ (3) PHYS 24100 Electricity & Optics

___ (1) PHYS 34000 Modern Physics Laboratory

___ (3) PHYS 34200 Modern Physics

___ (3) STAT 30100 Elementary Statistical Methods

HSCI Humanities, Behavioral/Social Sciences Selectives – select from list (3 credits)

___ (3) ____________________________ select course from HSCI Humanities, Behavioral/Social Sciences list

Electives (0-3 credits)

___ ( ) ____________________________  ___ ( ) ____________________________  ___ ( ) ____________________________  ___ ( ) ____________________________

*A grade of "C" or higher must be earned in HSCI 31200, 31300, 51400, 52600, 53400, 54000, and 57400.

An Ethics course (such as PHIL 11100 Ethics or PHIL 29000 Environmental Ethics) is highly recommended.

All students must complete 32 credits of 300 level or higher courses at Purdue for graduation.

120 credits required for Bachelor of Science degree

Revised 5/2014
University Foundational Learning Outcomes List:
https://www.purdue.edu/provost/initiatives/curriculum/course.html

**English Selective List**

- ENGL 23000 Great Narrative Works
- ENGL 26600 World Literature: From The Beginnings To 1700 A.D.
- ENGL 26700 World Literature: From 1700 A.D. To The Present
- ENGL 30400 Advanced Composition
- ENGL 30600 Introduction To Professional Writing
- ENGL 42100 Technical Writing

**General Science Selective List**

- AT 57200 Human Error
- CHM 22400 Introductory Quantitative Analysis
- CHM 25500 Organic Chemistry
- CHM 25501 Organic Chemistry Laboratory
- CHM 25600 Organic Chemistry
- CHM 25601 Organic Chemistry Laboratory
- CHM 33300 Principles of Biochemistry
- HSCI 34500 Introduction To Occupational and Environmental Health Science
- BIOL 41500 Introduction To Molecular Biology
- BIOL 44400 Human Genetics
- BIOL 54200 Animal Cell Culture
- BIOL 51600 Molecular Biology Of Cancer
- HK 44500 Principles of Epidemiology
- HSCI 54700 Environmental Epidemiology
- HSCI 55100 Health Effects of Non-ionizing Radiation
- HSCI 55200 Introduction to Aerosol Science
- HSCI 56000 Toxicology
- HSCI 58000 Occupational Ergonomics
- PHIL 27000 Biomedical Ethics
- PHIL 29000 Environmental Ethics
- PHIL 35000 Philosophy and Probability
- PHYS 22000 General Physics
- PHYS 22100 General Physics
- PHYS 31000 Intermediate Mechanics
- PHYS 36000 Quantum Mechanics
- PHYS 55000 Introduction To Quantum Mechanics
- PHYS 55600 Introductory Nuclear Physics
- PHYS 56400 Introduction To Elements Particle Physics
- PHYS 56500 Introduction To Elementary Particle Physics

**Health Physics Selective List**

- HSCI 39000 Radiological Emergency Management
- HSCI 48500 Health Physics Internship
- HSCI 54700 Environmental Epidemiology
- HSCI 55100 Health Effects of Non-ionizing Radiation
- HSCI 55200 Introduction to Aerosol Science
- HSCI 59000 Public Health Law and Policy
- ME 20000 Thermodynamics I
- ME 27000 Basic Mechanics I
- NRES 28000 Hazardous Waste Handling
- NUCL 30000 Nuclear Structure and Radiation Interactions
- NUCL 31000 Introduction to Neutron Physics
- NUCL 35000 Nuclear Thermal–Hydraulics I
- NUCL 35100 Nuclear Thermal-Hydraulics II
- NUCL 50100 Nuclear Engineering Principles
- NUCL 50300 Radioactive Waste Management
- NUCL 50400 Nuclear Engineering Experiments
- NUCL 51000 Nuclear Reactor Theory I

**Math-Computer Science Selective List**

- CS 15800 C Programming
- CS 15900 Programming Applications for Engineers
- CS 18000 Programming I
- CS 31400 Numerical Methods
- CS 47800 Introduction to Bioinformatics
- MA 26200 Linear Algebra and Differential Equations
- MA 41600 Probability
- MA 52700 Advanced Mathematics for Engineers and Physicists I
- MA 52800 Advanced Mathematics for Engineers and Physicists II
- PHYS 58000 Computational Physics
- STAT 31100 Introductory Probability
- STAT 51200 Applied Regression Analysis

**Radiological Health Sciences Selective List**

Any course on the Health Physics Selective List
- HSCI 19000, 29000, 39000, 49000, 59000 - Special Topics in Radiological Health Sciences
- HSCI 57000 Introduction to Medical Diagnostic Imaging
- HSCI 57200 Radiation Oncology Physics
- HSCI 69000 Molecular Radiobiology
- NUPH 41200 Diagnostic Imaging I
- NUPH 41300 Diagnostic Imaging II
- NUPH 41400 Nuclear Pharmacy Laboratory
- NUPH 53000 Applied Nuclear Pharmacy
- NUPH 55000 Introduction to Positron Emission Tomography

**HSCI Humanities, Behavioral/Social Sciences Selectives List - select any course(s) from the following subjects:**

- Anthropology (ANTH)
- Art & Design (AD)
- Classics (CLCS)
- Communication (COM)
- Dance (DANC)
- Economics (ECON)
- English (ENGL)
- Foreign Languages & Literatures (FLL)
- History (HIST)
- Interdisciplinary Studies (IDIS)
- Music (MUS)
- Philosophy (PHIL)
- Political Science (POL)
- Psychology (PSY)
- Sociology (SOC)
- Theatre (THTR)

**General Science Selective List**

- AT 57200 Human Error
- CHM 22400 Introductory Quantitative Analysis
- CHM 25500 Organic Chemistry
- CHM 25501 Organic Chemistry Laboratory
- CHM 25600 Organic Chemistry
- CHM 25601 Organic Chemistry Laboratory
- CHM 33300 Principles of Biochemistry
- HSCI 34500 Introduction To Occupational and Environmental Health Science
- BIOL 41500 Introduction To Molecular Biology
- BIOL 44400 Human Genetics
- BIOL 54200 Animal Cell Culture
- BIOL 51600 Molecular Biology Of Cancer
- HK 44500 Principles of Epidemiology
- HSCI 54700 Environmental Epidemiology
- HSCI 55100 Health Effects of Non-ionizing Radiation
- HSCI 55200 Introduction to Aerosol Science
- HSCI 56000 Toxicology
- HSCI 58000 Occupational Ergonomics
- PHIL 27000 Biomedical Ethics
- PHIL 29000 Environmental Ethics
- PHIL 35000 Philosophy and Probability
- PHYS 22000 General Physics
- PHYS 22100 General Physics
- PHYS 31000 Intermediate Mechanics
- PHYS 36000 Quantum Mechanics
- PHYS 55000 Introduction To Quantum Mechanics
- PHYS 55600 Introductory Nuclear Physics
- PHYS 56400 Introduction To Elements Particle Physics
- PHYS 56500 Introduction To Elementary Particle Physics
Name________________________________          School of Health Sciences (HSCI)   Minor(s) ___________________________
PUID________________________________        RADIOLOGICAL HEALTH SCIENCES/HEALTH PHYSICS EMPHASIS
RADH
120 credit hours required
Effective: Fall 2014 Beginners

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Sem/Yr</th>
<th>Grade</th>
<th>Second Semester</th>
<th>Sem/Yr</th>
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<tr>
<td>BIOL 11000 (4)</td>
<td>Fundamentals of Biology I</td>
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<tr>
<td>CHM 11500 (4)</td>
<td>General Chemistry I</td>
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<td>CHM 11600 (4)</td>
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<td>(S)*</td>
<td>(MA 154, 158, 159, or calculus placement)</td>
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<tr>
<td>COM 11400 (3)</td>
<td>Fundamentals of Speech Communication or</td>
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<td>ENGL 10600 (4)</td>
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<td></td>
<td>Science Writing and Presentation</td>
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<td>First-Year English Composition or</td>
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<td>(OC)*</td>
<td>(Oral Communication)</td>
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<td>ENGL 108 (3) ***</td>
<td>Accelerated First-Year Composition</td>
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<td>HSCI 10100 (2)</td>
<td>Intro to Health Science Professions</td>
<td>Fall only</td>
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<td>MA 16600 (4) or</td>
<td>Plane Analytic GEOM &amp; CALC II**</td>
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<td>MA 16200 (5)</td>
<td>(MA 16500 or 16100)</td>
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<td>Total Credits = 15 - 17</td>
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<th>Third Semester</th>
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<th>Fourth Semester</th>
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<td>BIOL 20300 (4)</td>
<td>Human Anatomy &amp; Physiology I</td>
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<td>BIOL 20400 (4)</td>
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<tr>
<td>HSCI 20200 (3)</td>
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<td>HSCI 20100 (3)</td>
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<td>MATH 26100 (4)</td>
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<td>NUCL 20000 (3)</td>
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<td>(QR)*</td>
<td>(MA 16200 or 16600)</td>
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<td></td>
<td>Intro to Nuclear Engineering</td>
<td>Spring only (MA 16200 or 16600 &amp; PHYS 17200)</td>
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<tr>
<td>PHYS 17200 (4)</td>
<td>Modern Mechanics</td>
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<td>NUCL 20500 (2)</td>
<td>Nuclear Engineering Undergrad Lab I</td>
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<tr>
<td>(S)*</td>
<td>(MA 16100 or 16500 or ALEKS = 85)</td>
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<td></td>
<td>Spring only (NUCL 20000 co-req)</td>
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***These courses are usually completed during the first/freshman year. However, they could be taken during summer or the sophomore year in order to decrease the credit load.
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<th>Junior Year</th>
<th>Fifth Semester</th>
<th>Sem/Yr</th>
<th>Grade</th>
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<tr>
<td>HSCI 31200 (3)</td>
<td>Radiation Science Fundamentals**</td>
<td>Fall only (MA 16600 or 16200 &amp; PHYS 17200)</td>
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<td>HSCI 31300 (2)</td>
<td>Principles of Rad. Detection &amp; Measurement **</td>
<td>Fall only (MA 16600 or 16200 &amp; PHYS 17200)</td>
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<td>NUCL 30500 (2)</td>
<td>Nuclear Engineering Undergrad Lab II</td>
<td>Fall only (NUCL 20500)</td>
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<td>PHYS 24100 (3)</td>
<td>Electricity &amp; Optics (S)*</td>
<td>(PHYS 17200)</td>
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<td>STAT 30100 (3)</td>
<td>Elem. Statistical Method (IL)*</td>
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<td>Humanities Sel. (3)</td>
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<td>Total Credits = 16</td>
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<th>Senior Year</th>
<th>Seventh Semester</th>
<th>Sem/Yr</th>
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<td>HSCI 52600 (2)</td>
<td>Principles of HP &amp; Dosimetry**</td>
<td>Fall only (HSCI 31200)</td>
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<tr>
<td>HSCI 57400 (2)</td>
<td>Medical Health Physics**</td>
<td>Fall only (HSCI 31200 &amp; MA 26100 &amp; PHYS 241)</td>
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<td>MA/CS Selective (3)</td>
<td>(Select from MA/CS selective list)</td>
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<tr>
<td>Health Physics Sel. (3)</td>
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<tr>
<td>Health Physics Sel. (3)</td>
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<tr>
<td>Elective (1-4)</td>
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<th>Sixth Semester</th>
<th>Sem/Yr</th>
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<tr>
<td>HSCI 51400 (2)</td>
<td>Radiation Instrumentation. Lab**</td>
<td>Spring only (HSCI 31200)</td>
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<tr>
<td>HSCI 54000 (3)</td>
<td>Radiation Biology**</td>
<td>Spring only (BIOL 11100 &amp; HSCI 31200)</td>
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<tr>
<td>PHYS 34200 (3)</td>
<td>Modern Physics</td>
<td>(PHYS 24100)</td>
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<td>PHYS 34000 (1)</td>
<td>Modern Physics Lab</td>
<td>(PHYS 24100) (PHYS 34200 co-req)</td>
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<td>Humanities Sel. (3)</td>
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<td>English Selective (3)</td>
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<th>Eighth Semester</th>
<th>Sem/Yr</th>
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<tr>
<td>HSCI 53400 (3)</td>
<td>Applied Health Physics</td>
<td>Spring only(HSCI 31200)</td>
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<tr>
<td>MA/CS or General Science Selective (4)</td>
<td>(Select from MA/CS or Gen Science list)</td>
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<tr>
<td>General Science or RADH Selective (3)</td>
<td>(Select from Gen Science or RADH list)</td>
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<td>HSCI Hum. Sel. (3)</td>
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<td>Total Credits = 13</td>
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Purdue students must complete 32 credit hours of 300 level or above courses for graduation with a Bachelor of Science degree.

Student is responsible for completing and fulfilling all graduation requirements.

**A minimum grade of C must be earned in HSCI 312, 313, 514, 526, 534, 540, and 574.