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] and [Information Literacy]
- (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) [Science, Technology & Society] – select from HSCI Science, Technology & Society Core List

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)

- ( ) select from list

*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 5/2013
University Foundational Learning Outcomes List: https://www.purdue.edu/provost/initiatives/curriculum/course.html

HSCI Science, Technology & Society Core List
BCHM 10000 Intro to Biochemistry
EAPS 10000 Planet Earth
EAPS 11300 Introduction to Environmental Science
EAPS 12000 Introduction to Geography
HONR 19901 First-Year Honors in Science, Technology & Society
HSCI 20100 Principles of Public Health
NRES 29000 Introduction to Environmental Science
PHIL 27000 Biomedical Ethics
STAT 11300 Statistics and Society
TECH 12000 Technology and the Individual

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 42000 Business 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 28900 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 II

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

CONTINUED from Health Physics Selective List
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

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)

RADH revised 5/2013
### Freshman Year - First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
<th>Grade</th>
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<tbody>
<tr>
<td>BIOL 11000</td>
<td>Fundamentals of Biology I (Science)</td>
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<td>(4)</td>
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<tr>
<td>CHM 11500</td>
<td>General Chemistry I (MA 15800 or calculus placement)</td>
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<td>COM 11400</td>
<td>Fund. Of Speech or COM 21700 Science Writing &amp;Presentation (Oral Communication)</td>
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<tr>
<td>HSCI 10100</td>
<td>Intro to HSCI Professions Fall only</td>
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<td>(2)</td>
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<tr>
<td>MA 16500</td>
<td>(MA16100) Plane Analytic GEOM &amp;c (Quant. Reasoning)</td>
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**Total:** (17-18)

### Second Semester

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<tr>
<td>BIOL 11000</td>
<td>Fundamentals of BIOL II (BIOL 11000)</td>
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<td>CHM 11500</td>
<td>General Chemistry II (CHM 11500) (Science)</td>
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<tr>
<td>ENGL 10600</td>
<td>Freshman Composition (Written Communication &amp; Info Literacy)</td>
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<tr>
<td>MA 16600</td>
<td>(16200) Plane Analytic Gometry &amp; CALC II (MA16100/16500)</td>
<td>(4-5)</td>
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**Total:** [16-17]

### Sophomore Year - Third Semester

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<th>Course Code</th>
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<th>Credit Hours</th>
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<tr>
<td>BIOL 20300</td>
<td>Human ANAT &amp; Physiology I (Science)</td>
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<tr>
<td>HSCI 20200</td>
<td>Essentials of EH, OH, +RH (1 sem of BIOL &amp; 1 sem of CHM)</td>
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<td>(3)</td>
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<tr>
<td>MA 26100</td>
<td>Multivariate Calculus (Quant. Reasoning)</td>
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<tr>
<td>PHYS 17200</td>
<td>Modern Mechanics (Science)</td>
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**Total:** [15]

### Fourth Semester

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<tr>
<td>BIOL 20400</td>
<td>Human ANAT &amp; Physiology II (Science)</td>
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<tr>
<td>NUCL 20000</td>
<td>Intro to Nuclear Engrng (MATH 16200/16600 &amp; PHYS 17200)</td>
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<tr>
<td>NUCL 20500</td>
<td>Nucl Engr Undergrad Lab 1 (NUCL 20000-may be concurrent)</td>
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<tr>
<td>HSCI 20100</td>
<td>Principles of Public Health (Science, Technology &amp; Society)</td>
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**Total:** [12]

**Note:** All students must complete 32 hours of 300 level or higher courses at Purdue for graduation.

**Note:** Responsibility for completing graduation requirements is solely that of the student.
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<th>Junior Year - Fifth Semester</th>
<th>Sem/Yr</th>
<th>Grade</th>
<th>Sixth Semester</th>
<th>Sem/Yr</th>
<th>Grade</th>
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<tr>
<td>(3) HSCI 31200* Radiation Science Fund.</td>
<td>(1 yr CALC+ PHYS 17200)</td>
<td>Fall only</td>
<td>(3) Humanities Selective</td>
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<tr>
<td>(2) HSCI 31300* Principles of Rad. Detection &amp; Mesrmnt.</td>
<td>(1 yr CALC &amp; PHYS 172)</td>
<td>Fall only</td>
<td>(2) HSCI 5140X* Radiation Instr. Lab</td>
<td>(HSCI 31200 or consent)</td>
<td>Spring only</td>
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<td>(3) Humanities Selective</td>
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<td>(3) HSCI 53400* Applied Health Physics</td>
<td>(HSCI 31200)</td>
<td>Spring only</td>
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<tr>
<td>(2) NUCL 30500 Undergrad Lab II</td>
<td>NUCL 20500</td>
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<td>(3) PHYS 34200 Modern Physics</td>
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<tr>
<td>(3) PHYS 24100 Electricity and Optics</td>
<td>(Science)</td>
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<td>(3) HSCI 54000* Applied Health Physics</td>
<td>(HSCI 31200)</td>
<td>Spring only</td>
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<td>(3) STAT 30100 Elem. Statistical Methods</td>
<td>(Info Literacy)</td>
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<th>Senior Year - Seventh Semester</th>
<th>Sem/Yr</th>
<th>Grade</th>
<th>Eighth Semester</th>
<th>Sem/Yr</th>
<th>Grade</th>
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<tr>
<td>(3) HSCI 52600 Principles of HP and Dosimetry</td>
<td>(HSCI 31200)</td>
<td>Fall only</td>
<td>(3) Gen Science or RHS Elective</td>
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<tr>
<td>(2) HSCI 57400* Medical Health Physics</td>
<td>(HSCI 31200, MA 16100/16500, PHYS 24100)</td>
<td>Fall only</td>
<td>(3) ** Humanities Selective</td>
<td>(Behavior/Social Science)</td>
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<td>(3) Health Physics Selective</td>
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<td>(4) Math/Comp Science/General Science Elective</td>
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<tr>
<td>(1) Physics 34000L Modern Physics Lab</td>
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<td>(2) Elective</td>
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<tr>
<td>(3) Health Physics Elective</td>
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[16]

Note: *A grade of ‘C’ or higher must be earned in HSCI 312, 313, 314, 526, 534, 540, 574 and MA 161/162 or MA 165/166.

<table>
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<tr>
<th>Eighth Semester</th>
<th>Sem/Yr</th>
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<td>(3) English Selective</td>
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<tr>
<td>(3) Math/Comp Science Elective</td>
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[16]

Note: Selected courses only; please see your advisor.

Revised 09/28/2013