PURDUE UNIVERSITY

RADIOLOGICAL HEALTH SCIENCES /HEALTH PHYSICS EMPHASIS
College of Health and Human Sciences

HLSC-BS
RADH
120 credits

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] 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) 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 30000 level or higher courses at Purdue for graduation.

120 credits required for Bachelor of Science degree

Revised 5/2015

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 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 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 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
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)

Name_____ **School of Health Sciences (HSCI)** **Minor(s)** _____

PUID_____ **RADIOLOGICAL HEALTH SCIENCES/HEALTH PHYSICS EMPHASIS** **RADH**

RADH

120 credit hours required

Freshman Year	**First Semester**	Sem/Yr	Grade
BIOL 11000 (4)	Fundamentals of Biology I		
(S)*			
CHM 11500 (4)	General Chemistry I		
(S)*	(MA 15400, 15800, 15900, or calculus placement) OR		
	ALEKS = 75		
COM 11400 (3) or	Fundamentals of Speech Communication or		
COM 21700 (3)***	Science Writing and Presentation (OC)*		
HSCI 10100 (2)	Intro to Health Science Professions		
	Fall only		
MA 16500 (4) or	Plane Analytic GEOM & CALC I**		
MA 16100 (5)	(ALEKS = 85) (QR)*		
Total Credits = 17 - 18			

	Second Semester	Sem/Yr	Grade
BIOL 11100 (4)	Fundamentals of Biology II		
(S)*	(BIOL 11000)		
CHM 11600 (4)	General Chemistry II		
(S)*	(CHM 11200 or CHM 11500)		
ENGL 10600 (4) or	First-Year English Composition or		
ENGL 10800 (3) ***	Accelerated First-Year Composition		
(WC,IL)*			
MA 16600 (4) or	Plane Analytic GEOM & CALC II**		
MA 16200 (5)	(MA 16500 or 16100 = C-)		
(QR)*			
Total Credits = 15 - 17			

Sophomore Year	**Third Semester**	Sem/Yr	Grade
BIOL 20300 (4)	Human Anatomy & Physiology I		
(S)*	Fall only		
HSCI 20200 (3)	Essentials of EH, OH and RH		
(STS)*	Fall only (3 credits in BIOL & CHM)		
MATH 26100 (4)	Multivariate Calculus		
(QR)*	(MA 16200 or 16600 = C-)		
PHYS 17200 (4)	Modern Mechanics		
(S)*	(MA 16100 or 16500 or ALEXS = 85)		
Total Credits = 15			

	Fourth Semester	Sem/Yr	Grade
BIOL 20400 (4)	Human Anatomy & Physiology II		
(S)*	Spring only (BIOL 20300)		
HSCI 20100 (3)	Principles of Public Health Sciences		
(STS)*	Spring only (Classification of at least 03)		
NUCL 20000 (3)	Intro to Nuclear Engineering		
	Spring only (MA 16200 or 16600 & PHYS 17200)		
NUCL 20500 (2)	Nuclear Engineering Undergrad Lab I		
	Spring only (NUCL 20000 co-req)		
Total Credits = 12			

*****These courses are usually completed during the first/freshman year. However, they could be taken during summer or sophomore year in order to decrease credit load.**

Junior Year	**Fifth Semester**	Sem/Yr	Grade
HSCI 31200 (3)	Radiation Science Fundamentals**		
Fall only	(MA 16600 or 16200 & PHYS 17200 or NUCL 20000)		
HSCI 31300 (2)	Principles of Rad. Detection & Measurement **		
Fall only	(MA 16600 or 16200 & PHYS 17200 or NUCL 2000)		
NUCL 30500 (2)	Nuclear Engineering Undergrad Lab II		
	Fall only (NUCL 20500)		
PHYS 24100 (3)	Electricity & Optics (S)*		
(PHYS 17200)			
STAT 30100 (3)	Elem. Statistical Method (IL)*		
Humanities Sel. (3)			
(BSS)*	(Select from University list)		
Total Credits = 16			

	Sixth Semester	Sem/Yr	Grade
HSCI 51400 (2)	Radiation Instrumentation. Lab**		
	Spring only (HSCI 31200)		
HSCI 54000 (3)	Radiation Biology**		
	Spring only (BIOL 11100 & HSCI 31200)		
PHYS 34200 (3)	Modern Physics		
	(PHYS 24100)		
PHYS 34000 (1)	Modern Physics Lab		
	(PHYS 24100) PHYS 34200 may be taken concurrently.		
Humanities Sel. (3)			
(H)*	(Select from University list)		
English Selective (3)			
Total Credits = 15			

Senior Year	**Seventh Semester**	Sem/Yr	Grade
HSCI 52600 (2)	Principles of HP & Dosimetry**		
	Fall only (HSCI 31200)		
HSCI 57400 (2)	Medical Health Physics**		
	Fall only (HSCI 31200 & MA 26100 & PHYS 241)		
MA/CS Selective (3)			
	(Select from MA/CS selective list)		
Health Physics Sel. (3)			
	(Select from Health Physics selective list)		
Health Physics Sel. (3)			
	(Select from Health Physics selective list)		
Elective (1-4)			
Total Credits = 14-17			

	Eighth Semester	Sem/Yr	Grade
HSCI 53400 (3)	Applied Health Physics		
	Spring only(HSCI 31200)		
MA/CS or General			
Science Selective (4)	(Select from MA/CS or Gen Science list)		
General Science or			
RADH Selective (3)	(Select from Gen Science or RADH list)		
HSCI Hum. Sel. (3)			
Total Credits = 13			

University Foundations Learning Outcome List

http://www.purdue.edu/provost/initiatives/curriculum/course.html

*(BSS) Behavioral/Social Science - 1 course
*(H) Humanities - 1 course
*(OC) Oral Communication - 1 course
*(QR) Quantitative Reasoning - 1 course
*(S) Science - 2 courses
*(IL) Information Literacy - 1 course
*(STS) Science, Technology, & Society) - 1 course
*(WC) Written Communication – 1 course

Purdue students must complete 32 credit hours of 30000 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 31200, 31300, 51400, 52600, 53400, 54000, and 57400.**

Radiological Health
5/2015