APPLIED PHYSICS MAJOR
Program Tracking Sheet
Effective for students entering AY 2022-2023

Name:	Class Year:
Advisor:	2nd Major:

<u>NOTES</u>: Minimum total academic credit = 15 units
Residency Req.: Min. of 8 units must be completed at WPI

HUMANITIES AND ARTS (2 units)
All 5 HUA courses must be completed before beginning the Inquiry Seminar or Practicum.

Depth Component
Students must complete at least three thematically-related courses prior to the culminating Inquiry Seminar or Practicum in the same thematic area. At least one of the three courses should be at the 2000-level or above.

	Course	Term	Grade	Units
1				1/3
2				1/3
3				1/3
4	HU 3900 or HU 3910			1/3

Breadth Component
Students must take at least one course outside the grouping in which they complete their depth component. To identify breadth, courses are grouped in the following manner.
i. art/art history, drama/theatre, and music (AR, EN/TH, MU);
ii. foreign languages (AB, CN, EN, GN, SP);
iii. literature and writing rhetoric (EN, WR, RH);
iv. history and international studies (HI, HU, INTL);
v. philosophy and religion (PY, RE).
Exception: May take all six courses in a foreign language

5				1/3

Humanities Elective

6				1/3

PHYSICAL EDUCATION (4 PE classes = 1/3 unit)

				1/12
7				1/12
				1/12
				1/12

SOCIAL SCIENCE (2/3 unit) ECON, ENV, GOV, PSY, SD, SOC, SS, STS, DEV, and ID2050

8				1/3
9				1/3

THE INTERACTIVE QUALIFYING PROJECT (1 unit)

10				1/3
11				1/3
12				1/3

FREE ELECTIVES (1 unit)

13				1/3
14				1/3
15				1/3

MATHEMATICS (3 units)
Mathematics must include at least 2/3 unit of mathematics at the level of MA 3000 or higher

16	MA 1021 (Calc 1)			1/3
17	MA 1022 (Calc 2)			1/3
18	MA 1023 (Calc 3)			1/3
19	MA 1024 (Calc 4)			1/3
20	MA 2051 (Diff Eqs)			1/3
21	MA 2071 (Lin Alg)			1/3
22	MA 2251 (Vector/Tensor Calculus)			1/3
23	MA 4451 (Boundary Value Problems)			1/3
24				1/3

PHYSICS (5 units, includes MQP)
ES 3001 and CH 3510 count as physics courses

25	PH 1110/1111 (Mechanics)			1/3
26	PH 1120/1121 (E&M)			1/3
27	PH 1130 (Modern Physics)			1/3
28	PH 1140 (Oscillations and Waves)			1/3
29	Mechanics:			1/3
30	Electromagnetism:			1/3
31	Experimental Physics:			1/3
32	Quantum Mechanics:			1/3
33	Thermals and statistical physics:			1/3
34				1/3
35				1/3
36				1/3

MAJOR QUALIFYING PROJECT (3/3 unit)

37				1/3
38				1/3
39				1/3

APPLIED FOCUS or MINOR (2 units)
The Applied Focus requirement is satisfied by completing a minor in a department other than physics or by completing a coherent group of at least two units of courses in an applied field. The 2-unit program must be formulated prior to the student's final year of study by the student in consultation with his/her academic advisor and approved by the Physics Department Undergraduate Curriculum Committee.

40				1/3
41				1/3
42				1/3
43				1/3
44				1/3
45				1/3

Physics Courses must include at least 1/3 unit from each of the five principal areas of physics: mechanics, experimental physics, electromagnetism, quantum mechanics, and thermal statistical physics.

This core distribution requirement is satisfied by successfully completing at least one course from each of the following five sets of courses: PH 2201 or 2202 (mechanics); PH 2651 or 2601 (experimental physics); PH 2301 or 3301 (electromagnetism); PH 3401 or 3402 (quantum mechanics); ES 3001, CH 3510, PH 2101 or PH 3206 (thermal and statistical physics); or other courses approved by the department Program Review Committee following petition by the student.

Physics (PH) Courses Grid - 2022-23

2022-2023 Physics Course offering and other recommendations (check with Workday or the Physics Department with any questions)

PH			CAT	A	B	C	D	E	suggested concurrent	sug-rec	
1000	PH 1110	General Physics - Mechanics	Cat I	A		C		E	MA 1021		Calc I
	PH 1111	Principles of Mechanics	Cat I	A		C			MA 1023		Calc III
	PH 1120	General Physics - Electricity and Magnetism	Cat I		B			E	MA 1022		Calc II
	PH 1121	Principles of Physics - Electricity and Magnetsim	Cat I		B		D		MA 1024		Calc IV
	PH 1130	Modern Physics	Cat I		B		D	E	MA 1024		Calc IV
	PH 1140	Oscillations and Waves	Cat I	A		C			MA 1023		Calc III
	PH 1150	Introductory Physics of Living Systems	Cat I				D	E	MA 1023		Calc III
2000	PH 2101	Principles of Thermodynamics	Cat I			C			MA 1024		Calc IV
	PH 2201	Intermediate Mechanics I	Cat I	A		C			MA 2051		
	PH 2202	Intermediate Mechanics II	Cat I		B					MA 2051	Diff Eqs
	PH 2301	Electromagnetic Fields	Cat I	A						MA 2251	Vector/Tensor Calc
	PH 3301	Electromagnetic Theory	Cat I		B					MA 2251	Vector/Tensor Calc
	PH 2501	Photonics	Cat II		B*				see catalog		
	PH 2601	Photonics Laboratory	Cat II			C*			see catalog		
	PH 2502	Lasers	Cat II		#				see catalog		
	PH 2510	Atomic Force Microscopy	Cat II			#			see catalog		
	PH 2651	Intermediate Physics Laboratory	Cat I				D			MA 2071	Linear Algebra
	PH 2520	Introduction to Astrophysics	Cat II			#		E	PH1010, PH 1120, PH 1130		
	PH 2540	Solar Systems	Cat II			C*			PH1010, PH 1120, MA 1022		
	PH 2550	Atmospheric and Space Environments	Cat I				D	E	PH1010, PH 1120, MA 2051		
3000	PH 3206	Statistical Physics	Cat I				D			MA 4451	Boundry Value Problems
	PH 3401	Quantum Mechanics I	Cat I			C				MA 4451	Boundry Value Problems
	PH 3402	Quantum Mechanics II	Cat I				D				
	PH 3501	Relativity	Cat II			C*					
	PH 3502	Solid State Physics	Cat II				D*				
	PH 3503	Nuclear Physics	Cat II				#				
	PH 3504	Optics	Cat II			#					
	PH 351X	General Relativity	Cat II	#							
	PH 352X	Particle Physics	Cat II	A*							
4000	PH444X	Quantum Optics	Cat II	A*							
	ISU	Topic of interest to be arranged									

	*	Indicates course is offered in AY 22-23, but not next year, Cat II course.				
	#	Indicates course is offered in AY 23-24, but not this year, Cat II course.				

Here are some Math Courses and other courses. There are many more depending on your interests and career goals!

This schedule is based off of history and may change - check Workday   suggested

			A	B	C	D	suggested
MA 1021	Calc I		A	B			
MA 1022	Calc II		A	B	C	D	MA 1021
MA 1023	Calc III		A	B	C	D	MA 1022
MA 1024	Calc IV		A	B	C	D	MA 1023
MA 2051	Diff Eqs		A	B	C	D	MA 1024
MA 2071	Linear Algebra		A	B	C	D	None
MA 2251	Vector/Tensor Calc				C		MA 1024
MA 3457	Num Meth for Calc & Diff Eqs			B			programming
MA 4411	Num Analysis of Diff Eqs		A				MA 2071 and MA 3457/CS 4033
MA 4451	Boundry Value Problems		A				MA 1024 or and MA 2051
MA 4291	Applied Complex Variables				C		MA 1024 and MA 2051
MA 4473	Partial Diff Eqs			B			MA 2251 and MA 3832

			A	B	C	D	
CS 1004	Introduction to Programming for non-majors		A		C		
ECE 2010	Introduction to Electrical and Computer Engineering		A	B	C	D	HS PH and MA 1022
ECE 2019	Sensors, Circuits, & Systems			A		C	ECE 2010, MA 1024 (or equivalent), PH 1120/21 and MA 2051 (concurrent)