Table of Curriculum

Classificati on	ti Course No. Computer Course Name		Lecture; Lab.; Credit (Assignment)	Semester	Note	
Mandatory Major	PH221	20.221	Classical Mechanics I	3:0:3(6)	spring	
	PH231	20.231	Electromagnetism I	3:0:3(6)	spring	
	PH251	20.251	Physics Laboratory I	0:4:2(3)	spring	
	PH301	20.301	Quantum Mechanics I	3:0:3(6)	spring	
	PH302	20.302	Quantum Mechanics II	3:0:3(6)	fall	
	PH311	20.311	Thermal Physics	3:0:3(4.5)	spring	
	PH351	20.351	Physics Laboratory III	0:3:2(3)	spring/fall	
	PH211	20.211	Mathematical Methods in Physics I	3:0:3(6)	fall	
	PH212	20.212	Mathematical Methods in Physics II	3:0:3(6)	spring	
	PH222	20.222	Classical Mechanics II	3:0:3(6)	fall	
	PH232	20.232	Electromagnetism II	3:0:3(6)	fall	
	PH241	20.241	Modern Physics	3:0:3(4.5)	spring	
	PH252	20.252	Physics Laboratory II	0:4:2(3)	fall	
	PH312	20.312	Statistical Physics	3:0:3(6)	fall	
	PH361	20.361	Solid State Physics I	3:0:3(4.5)	fall	
	PH391	20.391	Optics	3:0:3(4.5)	spring/fall	
	PH401	20.401	Atomic and Molecular Physics	3:0:3(4.5)	spring/fall	0
	PH402	20.402	Laser Optics	3:0:3(4.5)	spring/fall	0
Elective	PH413	20.413	Computational Physics	2:3:3(4.5)	spring/fall	0
Major	PH421	20.421	Nonlinear Dynamics	3:0:3(4.5)	fall	0
	PH422	20.422	Nonequilibrium Statistical Mechanics	3:0:3	spring/fall	0
	PH430	20.430	Biophysics	3:0:3(4.5)	spring/fall	0
	PH431	20.431	Soft Matter Physics	3:0:3(4.5)	spring	0
	PH441	20.441	Introduction to Plasma Physics	3:0:3(4.5)	fall	0
	PH450	20.450	Nuclear and Elementary Particle Physics	3:0:3(4.5)	fall	
	PH462	20.462	Solid State Physics II	3:0:3(4.5)	spring	
	PH471	20.471	Theory of Relativity and Cosmology	3:0:3(4.5)	spring	0
	PH481	20.481	Astrophysics	3:0:3(4.5)	fall	0
	PH487	20.487	Lecture on current topics of physics research I	1:0:1(1.5)	summer	
	PH488	20.488	Lecture on current topics of physics research II	2:0:2(3)	summer	
	PH489	20.489	Special Topics in Physics	3:0:3(4.5)	spring/fall	0
Research	PH490	20.490	B.S. Thesis Research	0:6:3	spring/fall	
	PH491	20.491	Introduction to Physics Research	1:0:1	spring	
	PH495	20.495	Individual Study	0:6:1	spring/fall	
	PH496	20.496	Seminar	1:0:1	spring/fall	
	PH497	20.497	Special Topics in Experimental Physics	2:2:2(3)	fall	

No.	Computer Code	Course Name	Lecture; Lab.; Credit (Assignment)	Semester	Note
CC510	11.510	Introduction to Computer Application	2:3:3(10)	spring/fall	
CC511	11.511	Probability and Statistics	2:3:3(6)	spring/fall	
CC512	11.512	Introduction to Materials and Engineering	3:0:3(3)	spring/fall	
CC522	11.522	Introduction to Instruments	2:3:3(8)	fall	
PH503	20.503	Quantum Mechanics I	3:0:3(4.5)	spring	0
PH507	20.507	Advanced Electrodynamics I	3:0:3(4.5)	fall	0
PH504	20.504	Quantum Mechanics II	3:0:3(4.5)	fall	0
PH505	20.505	Advanced Mechanics	3:0:3(4.5)	spring	0
PH508	20.508	Advanced Electrodynamics II	3:0:3(4.5)	spring	0
PH509	20.509	Statistical Mechanics	3:0:3(4.5)	spring	0
PH510	20.510	Quantum Computing	3:0:3	spring or fall	0
PH511	20.511	Quantum Metrology and Sensing	3:0:3	spring or fall	0
PH601	20.601	Applied Physics Laboratory I	0:9:3(4.5)	spring or fall	
PH602	20.602	Applied Physics Laboratory II	0:9:3(4.5)	fall	
PH611	20.611	Advanced Solid State Physics I	3:0:3(4.5)	spring/fall	
PH612	20.612	Advanced Solid State Physics II	3:0:3(4.5)	spring/fall	
PH613	20.613	Semiconductor Physics	3:0:3(4.5)	spring/fall	
PH615	20.615	Introduction to Phase Transition	3:0:3(4.5)	spring/fall	
PH616	20.616	Semiconductor Photonics	2:3:3(4.5)	spring	
PH621	20.621	Advanced Wave Optics	3:0:3(4.5)	spring/fall	
PH622	20.622	Geometrical Optics	3:0:3(4.5)	spring/fall	
PH624	20.624	Quantum Optics	3:0:3(4.5)	spring/fall	
PH627	20.627	Fiber Optics	3:0:3(4.5)	spring/fall	
PH641	20.641	Advanced Plasma Physics	3:0:3(4.5)	spring/fall	
PH642	20.642	Plasma Waves	3:0:3(4.5)	spring/fall	
PH643	20.643	Applied Plasma Physics	3:0:3(4.5)	spring/fall	
PH650	20.650	Advanced Soft Matter Physics	3:0:3(4.5)	fall	
PH653	20.653	Relativistic Qauntum Field Theory I	3:0:3(4.5)	spring/fall	
PH654	20.654	Relativistic Qauntum Field Theory II	3:0:3(4.5)	spring/fall	
PH711	20.711	Physics of Magnetism	3:0:3(4.5)	spring/fall	
PH713	20.713	Physics of Superconductivity	3:0:3(4.5)	spring/fall	
PH716					
PH717					
PH721					
PH724					
PH741	20.741	Topics in Plasma Physics	3:0:3(4.5)	spring/fall	
PH742	20.742	Plasma Confinement Theory	3:0:3(4.5)	spring/fall	
PH754	20.754	Advanced Particle Physics	3:0:3(4.5)	spring/fall	
PH757	20.757	Topics in Particle Physics			
		Advanced lecture on current topics of			
		Advanced lecture on current topics of			
	CC511 CC512 CC522 PH503 PH507 PH504 PH505 PH508 PH509 PH510 PH511 PH601 PH602 PH611 PH612 PH613 PH615 PH624 PH627 PH624 PH627 PH624 PH627 PH624 PH627 PH616 PH621 PH622 PH611 PH622 PH613 PH615 PH616 PH615 PH616 PH621 PH622 PH624 PH627 PH616 PH617 PH721 PH711 PH7121 PH721 PH721 PH722 PH741 PH742 PH742	CC511 11.511 CC512 11.512 CC522 11.522 PH503 20.503 PH507 20.507 PH504 20.504 PH505 20.505 PH508 20.508 PH509 20.509 PH510 20.510 PH511 20.511 PH601 20.601 PH601 20.601 PH612 20.602 PH611 20.613 PH615 20.615 PH616 20.616 PH621 20.621 PH622 20.622 PH624 20.624 PH627 20.627 PH641 20.641 PH627 20.627 PH641 20.641 PH642 20.642 PH643 20.643 PH650 20.650 PH653 20.653 PH654 20.654 PH711 20.711 PH713 20.713 PH716 20.716 PH717 20.717 PH721 20.721 PH724 20.724 PH741 20.741 PH725 20.757 PH878 20.878 PH879 20.879	CC511 11.511 Probability and Statistics CC512 11.512 Introduction to Materials and Engineering CC522 11.522 Introduction to Instruments PH503 20.503 Quantum Mechanics I PH507 20.507 Advanced Electrodynamics I PH508 20.505 Advanced Mechanics PH508 20.505 Advanced Mechanics PH509 20.509 Statistical Mechanics PH510 20.510 Quantum Metrology and Sensing PH611 20.511 Quantum Metrology and Sensing PH601 20.601 Applied Physics Laboratory I PH612 20.602 Applied Physics Laboratory I PH613 20.613 Semiconductor Physics PH614 20.615 Introduction to Phase Transition PH615 20.616 Semiconductor Photonics PH621 20.621 Advanced Wave Optics PH622 20.622 Geometrical Optics PH624 20.624 Quantum Optics PH624 20.627 Fiber Optics PH640 20.641 Advanced Plasma Physics PH641 20.641 Advanced Plasma Physics PH642 20.642 Plasma Waves PH643 20.633 Relativistic Qauntum Field Theory I PH650 20.650 Advanced Soft Matter Physics PH651 20.651 Relativistic Qauntum Field Theory I PH651 20.711 Physics of Magnetism PH711 20.711 Physics of Superconductivity PH711 20.711 Physics of Superconductivity PH711 20.711 Physics of Superconductivity PH711 20.711 Topics in Solid State Physics I PH711 20.711 Topics in Solid State Physics I PH711 20.711 Topics in Plasma Physics PH711 20.711 Topics in Plasma Physics PH714 20.714 Topics in Plasma Physics PH715 20.724 Laser Plasma Interactions PH716 20.735 Advanced Particle Physics PH741 20.741 Topics in Plasma Physics PH742 20.742 Plasma Confinement Theory PH754 20.754 Advanced Particle Physics PH757 20.757 Topics in Particle Physics PH758 20.758 Advanced Particle Physics PH759 20.759 Advanced Particle Physics PH759 20.759 Advanced Particle Physics PH759 20.759 Advanced Particle Physics PH750 20.759 Advanced Particle Physics	CC511 11.511 Probability and Statistics 2:3:3(6) CC512 11.512 Introduction to Materials and Engineering 3:0:3(3) CC522 11.512 Introduction to Instruments 2:3:3(8) PH503 20.503 Quantum Mechanics I 3:0:3(4.5) PH507 20.507 Advanced Electrodynamics II 3:0:3(4.5) PH508 20.504 Quantum Mechanics II 3:0:3(4.5) PH509 20.505 Advanced Electrodynamics II 3:0:3(4.5) PH509 20.509 Statistical Mechanics 3:0:3(4.5) PH510 20.510 Quantum Computing 3:0:3 PH511 20.511 Quantum Metrology and Sensing 3:0:3 PH601 20.612 Applied Physics Laboratory I 0:9:3(4.5) PH602 20.602 Applied Physics Laboratory II 0:9:3(4.5) PH611 20.611 Advanced Solid State Physics II 3:0:3(4.5) PH612 20.612 Advanced Solid State Physics II 3:0:3(4.5) PH613 20.615 Introduction to Phase Transition 3	CC511 11.511 Probability and Statistics 2:3:3(6) spring/fall CC512 11.512 Introduction to Materials and Engineering 3:0:3(3) spring/fall CC522 11.522 Introduction to Instruments 2:3:3(8) fall PH503 20.503 Quantum Mechanics I 3:0:3(4.5) spring PH504 20.504 Quantum Mechanics II 3:0:3(4.5) fall PH505 20.505 Advanced Electrodynamics II 3:0:3(4.5) spring PH508 20.508 Advanced Electrodynamics II 3:0:3(4.5) spring PH509 20.509 Statistical Mechanics 3:0:3(4.5) spring PH510 20.510 Quantum Computing 3:0:3 spring or fall PH511 20.511 Quantum Metrology and Sensing 3:0:3 spring or fall PH611 20.511 Applied Physics Laboratory II 0:9:3(4.5) spring of fall PH601 20.602 Applied Physics Laboratory II 0:9:3(4.5) spring/fall PH611 20.613 Semiconductor

Classifica tion	Course No.	Computer Code	Course Name	Lecture; Lab.; Credit (Assignment)	Semester	Note
Research	PH960	20.960	M.S. Thesis		spring/fall	
	PH965	20.965	Independent Study in M.S.		spring/fall	
	PH966	20.966	M.S. Seminar	1:0:1	spring/fall	
	PH969	20.969	Introduction to Physics Research	1:0:1	pring	
	PH980	20.980	Ph.D. Thesis		spring/fall	
	PH986	20.986	Ph.D. Seminar	1:0:1	spring/fall	
	PH990	20.990	Physics Colloquium	1:0:0	spring/fall	

 $[\]ensuremath{\mathbb{X}} \ensuremath{\text{\bigcirc}}$: Course mutually recognized by undergraduate and graduate programs

Substitute Course List

Substitute courses in the department							
Category	Courses	currently offered	Courses not currently offered				
	Course No.	Course title	Course No.	Course title	Remark		
Undergrad uate	PH241	Modern Physics	PH241	Modern Physicsl	change of course title		
			PH242	Modern PhysicsII	course abolished		
Undergrad uate	PH241	Modern Physics	PH243	Introduction to Modern Physics	course abolished		
Undergrad uate	PH351	Physics Laboratory III	PH352	Physics Laboratory IV	course abolished		
Undergrad uate	PH391	Optics	PH391	Optics I	change of course title		
Undergrad uate	PH402	Laser Optics	PH392	Laser Optics II	course abolished		
Undergrad uate	PH421	Nonlinear Dynamics	PH421	Fluid physics	course abolished		
			PH421	Chaos and Nonlinear Dynamics	change of course title		
Undergrad uate	PH491	Introduction to Physics Research	PH494	Introduction to Physics Research	course abolished		
Undergrad uate	PH497	Special Topics in Experimental Physics	PH451	Special Topics in Experimental Physics	change of course title		
Graduate	PH624	Quantum Optics	PH624	Laser and Quantum Optics	change of course title		
Graduate	PH653	Relativistic Qauntum Field Theory I	PH653	Advanced Quantum Mechanics I	change of course title		
Graduate	PH654	Relativistic Qauntum Field Theory II	PH654	Advanced Quantum Mechanics III	change of course title		
Graduate	PH969	Introduction to Physics Research	PH968	Introduction to Physics Research	course abolished		
			PH614	Light Scattering Spectroscopy	course abolished		
			PH625	Advanced Spectroscopy	course abolished		
			PH726	Semiconductor Optics	course abolished		

 $[\]ensuremath{\mathsf{XSubstitute}}$ courses may differ according to the effective year of the requirements.