Cleveland State University
College of Science and Health Professions

Bachelor of Science in Physics

- NEW FALL 2014 -

First Year								
Fall Semester	**Credits**	**Major**	**Gen Ed**		**Spring Semester**	**Credits**	**Major**	**Gen Ed**
ASC 101 Introduction to University Life	1		INTRO		PHY 241^ or 243 University Physics I	5	X	NS,WAC
ENG 101 English I	3		W/C		MTH 182 Calculus II	4	X	M/QL
MTH 181 Calculus I	4	X	M/QL		Social Science Elective (outside US/ALAAME)	3		SS
Social Science Elective	3		SS		ENG 102 English II	3		W/C
CIS 151 Invitation to Computing	3	X						
Semester Total	*14*				*Semester Total*	*15*		

Second Year								
Fall Semester	**Credits**	**Major**	**Gen Ed**		**Spring Semester**	**Credits**	**Major**	**Gen Ed**
PHY 242^ or 244 University Physics II	5	X	NS;WAC		PHY 330 Intro Modern Physics	3	X	
MTH 281 Multivariable Calculus	4	X			Writing Across the Curriculum Elective	3		WAC
African American Experience Elective	3		DIV		Arts & Humanities Elective	3		A&H
CIS 260 Intro Programming	4	X			US Diversity Elective	3		DIV
					General Elective*	3		
Semester Total	*16*				*Semester Total*	*15*		

Third Year								
Fall Semester	**Credits**	**Major**	**Gen Ed**		**Spring Semester**	**Credits**	**Major**	**Gen Ed**
PHY 320 Intro Computational Physics	3	X			PHY 325 Intro Theoretical Physics	3	X	
PHY 340 Mechanics and Vibrations I	3	X			PHY 341 Mechanics and Vibrations II	3	X	
PHY 474 Thermal Physics	4	X	CAP		PHY 440 Quantum Physics I	3	X	
Arts and Humanities Elective (outside US/ALAAME)	3		A&H		PHY 475 Statistical Physics	3	X	
General Elective*	3				Physics Elective [300/400 level]	3	X	
Semester Total	*16*				*Semester Total*	*15*		

Fourth Year								
Fall Semester	**Credits**	**Major**	**Gen Ed**		**Spring Semester**	**Credits**	**Major**	**Gen Ed**
PHY 350 Electricity & Magnetism I	3	X			PHY 351 Electricity & Magnetism II	3	X	
PHY 360 Electronics Lab	3	X			PHY 455 Optics Lab	3	X	
PHY 450 Optics & Electromagnetic Waves	3	X			General Elective*	3		
General Elective*	3				General Elective*	3		
General Elective*	3				General Elective*	3		
Apply for Spring graduation prior to Sep 9th								
Semester Total	*15*				*Semester Total*	*15*		
Degree Total (as listed in above sample): 121 ***(120 hours minimum required to earn degree)***								

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes:
The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

^The PHY 241/242 sequence does not qualify for WAC credit; students choosing PHY 241/242 will need to complete 2 additional WAC courses.

*General Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a **minimum of 120 total credit hours**, of which a **minimum of 42 credit hours** must be upper division (300 or 400-level courses). Depending upon elective choices made, students may not need as many electives as indicated above, or may need additional electives.

University Notes:

Gen Ed Key:	
INTRO = Introduction to University Life Requirement (one course)	SS = Social Sciences Requirement (2 courses, one of which must be focused outside the US**)
W/C = Writing/Composition Requirement (two courses; C or better required)	A&H = Arts & Humanities Requirement (2 courses, one must be focused outside the US**)
M/QL = Mathematics/Quantitative Literacy Requirement (two courses)	DIV = Social Diversity Requirement (2 courses; one US Diversity and one African American Exp.)
NS = Natural Sciences (two courses, one of which must have a lab)	WAC/SPAC = Writing/Speaking Across the Curriculum Requirement (3 courses, one in the major)
** of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)	CAP = Capstone Requirement

Last Updated February 2014

Cleveland State University
College of Science and Health Professions

Bachelor of Science in Physics - Honors

- NEW FALL 2014 -

First Year

Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed
ASC 101 Introduction to University Life	1		INTRO	PHY 243H University Physics I	5	X	NS,WAC
ENG 101 English I	3		W/C	MTH 182 Calculus II	4	X	M/QL
MTH 181 Calculus I	4	X	M/QL	Social Science Elective (outside US/ALAAME)	3		SS
Social Science Elective	3		SS	ENG 102 English II	3		W/C
CIS 151 Invitation to Computing	3	X					
Semester Total	*14*			*Semester Total*	*15*		

Second Year

Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed
PHY 244H University Physics II	5	X	NS;WAC	PHY 330 Intro Modern Physics	3	X	
MTH 281 Multivariable Calculus	4	X		Writing Across the Curriculum Elective	3		WAC
African American Experience Elective	3		DIV	Arts & Humanities Elective	3		A&H
CIS 260 Intro Programming	4	X		US Diversity Elective	3		DIV
				General Elective*	3		
Semester Total	*16*			*Semester Total*	*15*		

Third Year

Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed
PHY 320 Intro Computational Physics	3	X		PHY 325 Intro Theoretical Physics	3	X	
PHY 340 Mechanics and Vibrations I	3	X		PHY 341 Mechanics and Vibrations II	3	X	
PHY 474 Thermal Physics	4	X	CAP	PHY 440 Quantum Physics I	3	X	
Arts and Humanities Elective (outside US/ALAAME)	3		A&H	PHY 475 Statistical Physics	3	X	
General Elective*	3			PHY 395 Seminar	3	X	
Semester Total	*16*			*Semester Total*	*15*		

Fourth Year

Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed
PHY 350 Electricity & Magnetism I	3	X		PHY 351 Electricity & Magnetism II	3	X	
PHY 360 Electronics Lab	3	X		PHY 455 Optics Lab	3	X	
PHY 450 Optics & Electromagnetic Waves	3	X		General Elective*	3		
PHY 441 Quantum Physics II	3	X		General Elective*	3		
PHY 493 Advanced Topics In Physics	2	X		General Elective*	3		
Apply for Spring graduation prior to Sep 9th				PHY 493 Advanced Topics In Physics	2	X	
Semester Total	*14*			*Semester Total*	*15*		
Degree Total (as listed in above sample): 122 ***(120 hours minimum required to earn degree)***							

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes:
The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

*General Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a **minimum of 120 total credit hours**, of which a **minimum of 42 credit hours** must be upper division (300 or 400-level courses). Depending upon elective choices made, students may not need as many electives as indicated above, or may need additional electives.

University Notes:

Gen Ed Key:	
INTRO = Introduction to University Life Requirement (one course)	SS = Social Sciences Requirement (2 courses, one of which must be focused outside the US**)
W/C = Writing/Composition Requirement (two courses; C or better required)	A&H = Arts & Humanities Requirement (2 courses, one must be focused outside the US**)
M/QL = Mathematics/Quantitative Literacy Requirement (two courses)	DIV = Social Diversity Requirement (2 courses; one US Diversity and one African American Exp.)
NS = Natural Sciences (two courses, one of which must have a lab)	WAC/SPAC = Writing/Speaking Across the Curriculum Requirement (3 courses, one in the major)
** of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)	CAP = Capstone Requirement

Cleveland State University
College of Sciences and Health Professions
Bachelor of Arts in Physics
CSUteach (minor in Mathematics and minor in Education)

First Year

Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed	Summer Semest	Credits	Major	Minor	Gen Ed
ASC 101: Intro to University Life	1			Intro	EUT 201: Step 1: Inquiry Approaches to Teaching	1		x						
ENG 101: College Writing I	3			W/C	ENG 102: College Writing II	3			W/C					
BIO 200/201: Intro to Biology I + Lab -OR- CHM 261/262: Gen Chem I + Lab	4	x	x	NS	BIO 202/203: Intro to Biology II + Lab -OR- CHM 262/267: Gen Chem II + Lab	4	x	x	NS					
PSY 221: Adolescent Psychology	3		x	SS	PHY 241/243/H: University Physics	5	x	x	NS					
MTH 181: Calculus I	4	x	x	M/QL	MTH 182: Calculus II	4	x	x	M/QL					
Semester Total	*15*				*Semester Total*	*17*				*Semester Total*	*0*			

Second Year

Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed	Summer Semest	Credits	Major	Minor	Gen Ed
EUT 217: Step 2: Inquiry-Based Lesson Design in Science	1		x		EDC 300: Div in Edu Settings	3		x	DIV	MTH 220: Discrete	3	x	x	
PHY 242/244/H: University Physics	5	x	x	NS	PHY 330: Modern Physics	3	x	x		MTH 323: Statistical Methods	3	x	x	
EVS 206/207: Intro to Env Science + L	4	x	x	NS	MTH 288: Linear Algebra	3	x	x						
MTH 281: Multivariable Calculus	4	x	x		CIS 151: Invitation to Computing	3	x							
PHY 470: Environmental Physics	3	x	x		Social Science Elective (outside U	3			SS					
Semester Total	*17*				*Semester Total*	*15*				*Semester Total*	*6*			

Third Year

Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed	Summer Semest	Credits	Major	Minor	Gen Ed
EUT 302: Knowing & Learning	3		x		EUT 305: Classroom Interactions	3		x		CHM 380: Prin of Chem Mid Sch Teach -OR- BIO 380/381: Bio Content Mid Sch Teach*	3 or 4	x	x	
PHY Elective: 3xx/4xx	3	x			PHY Elective: 3xx/4xx	3	x							
MTH 301: Introduction to Number The	3	x	x		MTH 358: Abstract Algebra	3	x	x	WAC					
MTH 333: Geometry	3	x	x		MTH 201: Functions & Modeling	3		x		EDL 305: Conter	3		x	
CIS 260: Introduction to Programm	4	x			African American Experience Elec	3			DIV					
					PHY Elective: 3xx/4xx	3	x							
Semester Total	*16*				*Semester Total*	*18*				*Semester Total*	*6 or 7*			

Fourth Year

Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed	Summer Semest	Credits	Major	Minor	Gen Ed
EUT 317: Project Based Instruction in Science	3		x		EST 499: CS*Uteach* STEM Apprentice Teaching II	6		x						
EST 399: CS*Uteach* STEM Apprentice Teaching I	1		x		EUT 210: Perspectives on Science & Math	3		x	A&H/WAC					
SCI 311: Research Methods	3		x	WAC	PHY Elective: 3xx/4xx	3	x							
MTH 424: Probability Theory & Ap	3	x	x		Arts & Humanities Elective (outside U	3			A&H					
PHY 474: Thermal Physics	4	x	x	CAP										
PHY Elective: 3xx/4xx	3	x												
Apply for Spring graduation prior to Sep 9th														
Semester Total	*17*				*Semester Total*	*15*				*Semester Total*	*0*			
Degree Total: 142														

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes:

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.
If a student chooses BIO 200/201 and BIO 202/203, he/she must choose CHM 380. If a student chooses CHM 262/266 and CHM 262.267, he/she must choose BIO 380/381

Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a **minimum of 120 total credit hours**, of which a **minimum of 42 credit hours** must be upper division (300 or 400-level courses). Depending upon other elective choices made (3 credit hour vs. 4 credit hour courses), students may not need as many general electives as indicated above, or may need additional electives.

University Notes:

Gen Ed Key:	
INTRO = Introduction to University Life (one course)	SS = Social Sciences (two courses, one of which must be focused outside the US**)
W/C = Writing/Composition (two courses; C or better required)	A&H = Arts & Humanities (two courses, one must be focused outside the US**)
M/QL = Mathematics/Quantitative Literacy (two courses)	DIV = Social Diversity (two courses; one US Diversity and one African American Experience)
NS = Natural Sciences (two courses, one of which must have a lab)	WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required)
the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAA	CAP = Capstone