

ORAL ROBERTS UNIVERSITY
 DEGREE: Bachelor of Science
 MAJOR: Mathematical Physics (MPH)

DEGREE PLAN SHEET 2016-2017
Mathematical Physics Major
 Computing and Mathematics Department

TOTAL HOURS REQUIRED 128
 Hours in general education 55
 Hours in major 44
 Hours in cognate 6
 Hours in minor 18
 Hours in electives 5

Name _____
 ID _____ Date _____
 Telephone _____ Email _____
 Advisor _____ Minor _____

SEMESTER TAKEN	COURSE CODE	COURSE TITLE	CREDIT HOURS	SEMESTER TAKEN	COURSE CODE	COURSE TITLE	CREDIT HOURS
FRESHMAN Semester 1				FRESHMAN Semester 2			
_____	COMP 102	Composition I	3	_____	PHY 111	Physics I (Lecture & Lab)	4
_____	HUM 103	Christian Worldview & Culture	3	_____	HUM _____	Humanities Options ⁵	3
_____	MAT 201	Calculus I	4	_____	MAT 202	Calculus II	4
_____	CSC 111	Introduction to Computing	3	_____	CSC 206	Intermediate Programming	3
_____	THE 103	Spirit-Empowered Living	3	_____	_____	Social Sciences Elective ²	3
_____	GEN 099	Whole Person Assessment	0	_____	HPE 002	Health Fitness II	1
_____	PRFH 070	Swimming Proficiency	0				18
_____	HPE 001	Health Fitness I	1				
			17				

²Choice of one of the following: PSY 201, MUS 208, SWK 202, SOC 101, SOC 201, SOC 323, BUS 201, or FIN 244

SOPHOMORE Semester 3				SOPHOMORE Semester 4			
_____	HUM _____	Humanities Options ⁵	3	_____	COM 101	Oral Communication	3
_____	HIS 101	American History	3	_____	HUM _____	Humanities Options ⁵	3
_____	MAT 207	Discrete Mathematics (Gen Ed)	3	_____	PHY 211	Modern Physics (Lecture & Lab)	4
_____	PHY 112	Physics II (Lecture & Lab)	4	_____	MAT 211	Differential Equations	3
_____	BLIT 110	Survey of Old Testament Literature	3	_____	BLIT 120	Survey of New Testament Literature	3
_____	HPE 026	Beginning Swimming ³ OR	0.5	_____	HPE _____	HPE Activity	0.5
_____	HPE _____	^ HPE Activity					16.5
			16.5				

³If swimming proficiency (PRFH 070) NOT yet passed.

⁵See list of Humanities (HUM) options on the back.

JUNIOR Semester 5				JUNIOR Semester 6			
_____	MAT 321	Calculus III	4	_____	COMP 303	Critical Reading & Writing	3
_____	PHY 321	Electromagnetic Theory	3	_____	GOV 101	American Government	3
_____	PHY 455	Mathematical Methods in Physics	3	_____	_____	Minor	3
_____	_____	Minor	3	_____	MAT _____	Mathematics Elective	3
_____	_____	Elective	3	_____	MAT 312	Linear and Matrix Algebra	3
_____	HPE _____	^ HPE Activity	0.5	_____	MAT 498	Senior Paper/Project Preparation	1
			16.5	_____	HPE _____	^ HPE Activity	0.5
							16.5

SENIOR Semester 7				SENIOR Semester 8			
_____	_____	Minor	3	_____	_____	Minor	3
_____	_____	Minor	3	_____	_____	Minor	3
_____	_____	Elective	2	_____	MAT _____	Mathematics Elective	3
_____	PHY 401	Optics ¹	3	_____	PHY 341	Advanced Physics Lab	1
_____	MAT 499	Senior Paper/Project	2	_____	PHY 402	Quantum Mechanics	3
_____	HPE _____	^ HPE Activity	0.5	_____	HPE _____	^ HPE Activity	0.5
			13.5				

¹This class may be substituted with PHY 450 (Special Topics in Physics)

Courses above calculus are offered according to the following schedule (S - Spring, F - Fall, * Even years only, ** Odd years only):

Differential Equations (MAT 211) ^S	Discrete Mathematics (MAT 207) ^F
Linear and Matrix Algebra (MAT 312) ^S	Senior Paper/Project Prep. (MAT 498) ^S
College Geometry (MAT 313) ^{F**}	Higher Algebra (MAT 401) ^{S*}
Elementary Number Theory (MAT 318) ^{F*}	Advanced Calculus I (MAT 421) ^{S**}
Probability and Statistics (MAT 325) ^F	Senior Paper/Project (MAT 499) ^F
Mathematical Methods in Physics (PHY 455) ^{F**}	

^ Each HPE course is 1 credit hour, but students can petition to take it for .5 credits. Course work remains the same.

**2016-2017
B.S. in Mathematical Physics (MPH)**

General Education	Credit Hours	Semester to be taken
Whole Person Assessment (GEN 099)	0	1
English (COMP 102, 303)	6	1,6
Oral Communication (COM 101)	3	2,4
⁵ Humanities (HUM 103 plus three of the following: HUM 222*, 233*, 244*, 333*, 250, 255, 260, 270, COMP 101^, MAT 315)	12	1, 2, 3, 4
*At least one course must be chosen from courses marked with asterisks.		
^Can count for humanities for students who have not yet taken COMP 102.		
Discrete Mathematics (MAT 207)	3	5
Bible Literature (BLIT 110, 120)	6	1,3,4
Theology (THE 103)	3	1,3,4
Laboratory Science	8	
PHY 111, 112 (lecture & lab) ⁴		2, 3
American History (HIS 101)	3	3
American Government (GOV 101)	3	4
Social Sciences (Choice of one of the following: PSY 201, MUS 208, SWK 202, SOC 101, SOC 201, SOC 323, BUS 201, or FIN 244)	3	2
Health, Physical Education and Recreation (one course per full-time semester at ORU, including HPE 001 and 002, swimming course or proficiency, and electives)	5	Each
⁴ A grade of C or better is required for these classes		
General Education Total	55	
Major		
Modern Physics (PHY 211) - Lecture and Lab	4	4
Electromagnetic Theory (PHY 321)	3	5
Optics ¹ (PHY 401)	3	7
Mathematical Methods in Physics (PHY 455)	3	5
Advanced Physics Lab (PHY 341)	1	9
Quantum Mechanics (PHY 402)	3	9
Calculus I (MAT 201)	4	1
Calculus II (MAT 202)	4	2
Differential Equations (MAT 211)	3	4
Linear and Matrix Algebra (MAT 312)	3	6
Calculus III (MAT 321)	4	5
Math Electives - Choice of two of the three following courses:	6	
Probability and Statistics (MAT 325)		6 or 8
Higher Algebra (MAT 401)		6 or 8
Advanced Calculus (MAT 421)		6 or 8
Senior Paper/Project Preparation (MAT 498)	1	6
Senior Paper/Project (MAT 499)	2	7
¹ This class may be substituted with PHY 450 (Special Topics in Physics)		
Major Total	44	
Cognate		
Intermediate Programming (CSC 206)	3	1
Data Structures (CSC 255)	3	2
Cognate Total	6	
Minor	18	5, 6, 7, 8
Electives	5	5, 6, 7, 8
Degree Total	128	

**Each HPE course is 1 credit hour, but students can petition to take it for .5 credits. Course work remains the same.