

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

**DEGREE PLAN SHEET 2017-2018**  
**Mathematical Physics Major**  
**Computing and Mathematics Department**

TOTAL HOURS REQUIRED 129  
 Hours in general education 56  
 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
<b>FRESHMAN Semester 1</b>				<b>FRESHMAN Semester 2</b>			
_____	COMP 102	Composition I	3	_____	PHY 111	Physics I (Lecture & Lab)	4
_____	HUM 103	Christian Worldview & Culture	3	_____	HUM _____	Humanities Elective <sup>5</sup>	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 <sup>2</sup>	3
_____	GEN 150	Intro to Whole Person Education	1	_____	HPE 001	Health Fitness I	1
_____	PRFH 070	Swimming Proficiency	0				18
			17				

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

<b>SOPHOMORE Semester 3</b>				<b>SOPHOMORE Semester 4</b>			
_____	HUM _____	Humanities Elective <sup>5</sup>	3	_____	COM 101	Oral Communication	3
_____	HIS 101	American History	3	_____	HUM _____	Humanities Elective <sup>5</sup>	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 002	Health Fitness II	1	_____	HPE 026	Beginning Swimming <sup>3</sup> OR	1
			17	_____	HPE _____	^ HPE Activity	17

<sup>3</sup>If swimming proficiency (PRFH 070) NOT yet passed.

<sup>5</sup>See list of Humanities (HUM) options on the back.

<b>JUNIOR Semester 5</b>				<b>JUNIOR Semester 6</b>			
_____	MAT 321	Calculus III	4	_____	COMP 303	Critical Reading & Writing	3
_____	PHY 321	Electromagnetic Theory	3	_____	GOV 101	American Government	3
_____	MAT 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

<b>SENIOR Semester 7</b>				<b>SENIOR Semester 8</b>			
_____	_____	Minor	3	_____	_____	Minor	3
_____	_____	Minor	3	_____	_____	Minor	3
_____	_____	Elective	2	_____	MAT _____	Mathematics Elective	3
_____	PHY 401	Optics <sup>1</sup>	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				13.5

<sup>1</sup>This 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) <sup>S</sup>	Discrete Mathematics (MAT 207) <sup>F</sup>
Linear and Matrix Algebra (MAT 312) <sup>S</sup>	Senior Paper/Project Prep. (MAT 498) <sup>S</sup>
College Geometry (MAT 313) <sup>F**</sup>	Higher Algebra (MAT 401) <sup>S*</sup>
Elementary Number Theory (MAT 318) <sup>F*</sup>	Advanced Calculus I (MAT 421) <sup>S**</sup>
Probability and Statistics (MAT 325) <sup>F</sup>	Senior Paper/Project (MAT 499) <sup>F</sup>
Mathematical Methods in Physics (MAT 455) <sup>F**</sup>	

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

**2017-2018**  
**B.S. in Mathematical Physics (MPH)**

<b>General Education</b>	<b>Credit Hours</b>	<b>Semester to be taken</b>
Introduction to Whole Person Education (GEN 150)	1	1
English (COMP 102, 303)	6	1,6
Oral Communication (COM 101)	3	2,4
<sup>5</sup> 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.		
%Must be transferred in or completed as a pre-requisite to COMP 102 to receive humanities credit.		
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) <sup>4</sup>		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
<sup>4</sup> A grade of C or better is required for these classes		
<b>General Education Total</b>	<b>56</b>	
<b>Major</b>		
Modern Physics (PHY 211) - Lecture and Lab	4	4
Electromagnetic Theory (PHY 321)	3	5
Optics <sup>1</sup> (PHY 401)	3	7
Mathematical Methods in Physics (MAT 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
<sup>1</sup> This class may be substituted with PHY 450 (Special Topics in Physics)		
<b>Major Total</b>	<b>44</b>	
<b>Cognate</b>		
Intermediate Programming (CSC 206)	3	1
Data Structures (CSC 255)	3	2
<b>Cognate Total</b>	<b>6</b>	
<b>Minor</b>	<b>18</b>	5, 6, 7, 8
<b>Electives</b>	<b>5</b>	5, 6, 7, 8
<b>Degree Total</b>	<b>129</b>	