

ORAL ROBERTS UNIVERSITY  
 DEGREE: Bachelor of Science  
 MAJOR: Biomedical Chemistry (BMC)  
 CONCENTRATION: Research

DEGREE PLAN SHEET 2011-2012  
**Biology and Chemistry Department**

TOTAL HOURS REQUIRED 129  
 Hours in General Education 57  
 Hours in Major 25  
 Hours in Concentration 9  
 Hours in Cognate 12  
 Hours in General Electives 5  
 Biology Minor 21

Name \_\_\_\_\_  
 Z No. \_\_\_\_\_ Date \_\_\_\_\_  
 Telephone \_\_\_\_\_ Email \_\_\_\_\_  
 Advisor \_\_\_\_\_

COURSE EARNED	COURSE CODE	COURSE TITLE	CREDIT HOURS	COURSE EARNED	COURSE CODE	COURSE TITLE	CREDIT HOURS
<b>FRESHMAN Semester 1</b>				<b>FRESHMAN Semester 2</b>			
_____	CHE 111	General Chemistry I Lecture	3	_____	CHE 112	General Chemistry II Lecture	3
_____	CHE 111	General Chemistry I Laboratory	1	_____	CHE 112	General Chemistry II Lab	1
_____	MAT 201	Calculus I	4	_____	MAT 202	Calculus II (Cognate)	4
_____	COMP 102	Reading and Writing in Liberal Arts	3	_____	BIO 112	Introductory Biology II Lecture	3
_____	BIO 111	Introductory Biology I Lecture	3	_____	BIO 112	Introductory Biology II Laboratory	1
_____	BIO 111	Introductory Biology I Laboratory	1	_____	COM 101	Oral Communication	3
_____	HPE 001	Health Fitness I	1	_____	HPE 002	Health Fitness II	1
_____	PRF 070	Swimming Proficiency	0				16
_____	GEN 099	Whole Person Assessment	0				
_____	PHP 100	Pre-Health Professions Seminar (semester 1 or 2)	1				
			17				

ORU Summer and Online Courses are available.

<b>SOPHOMORE Semester 3</b>				<b>SOPHOMORE Semester 4</b>			
_____	CHE 211	Organic Chemistry I Lecture (F)	3	_____	CHE 212	Organic Chemistry II Lecture (S)	3
_____	CHE 211	Organic Chemistry I Laboratory (F)	1	_____	CHE 212	Organic Chemistry II Lab (S)	1
_____	PHY 101	General Physics I Lecture	3	_____	CHE 300	Quantitative Analysis Lecture (S)	2
_____	PHY 101	General Physics I Laboratory	1	_____	CHE 300	Quantitative Analysis Lab (S)	2
_____	BIO ___	Biology Elective Lecture	3	_____	PHY 102	General Physics II Lecture	3
_____	BIO ___	Biology Elective Laboratory	1	_____	PHY 102	General Physics II Laboratory	1
_____	BLIT 110	Survey of Old Testament Literature	3	_____	BLIT 120	Survey of New Testament Literature	3
_____	HUM 101	Introduction to Humanities	3	_____	HUM ___	Humanities Elective	3
_____	HPE ___	HPE Activity	0.5	_____	HPE ___	HPE Activity	0.5
			18.5				18.5

ORU Summer and Online Courses are available.

<b>JUNIOR Semester 5</b>				<b>JUNIOR Semester 6</b>			
_____	CHE 303	Physical Chemistry I Lecture (F)	3	_____	CHE 303	Physical Chemistry I Lab (S)	1
_____	CHE 400	Chemical Instrumentation Lecture (F)	2	_____	CHE 449	Chemistry Research (S)	1
_____	CHE 400	Chemical Instrumentation Lab (F)	2	_____	CHE ___	Concentration Elective	3
_____	CHE 459	Biochemistry Lecture	3	_____	BIO ___	Biology Elective Lecture	3
_____	CHE 459	Biochemistry Lab	1	_____	BIO ___	Biology Elective Laboratory	1
_____	BIO 370	Methods in Biotechnology	1	_____	COMP 303	Critical Reading and Writing	3
_____	HPE ___	HPE Activity	0.5	_____	HUM ___	Humanities Elective	3
_____	Prepare for Summer Internship Program		0	_____	HPE ___	HPE Activity	0.5
			12.5				15.5

\*Biochemistry is recommended prior to taking the MCAT in April-August.

**CHEMISTRY INTERNSHIP DURING THE SUMMER**

<b>SENIOR Semester 7</b>				<b>SENIOR Semester 8</b>			
_____	CHE 499	Individual Research and Senior Paper (F)	3	_____	CHE 452	Seminar (S)	1
_____	THE 103	Spirit-Empowered Living	3	_____	CHE ___	Concentration Elective	3
_____	BIO ___	Biology Field Course Lecture	3	_____	HUM ___	Humanities Elective	3
_____	BIO ___	Biology Field Course Laboratory	1	_____	___	General Elective	2
_____	HIS 101	American History	3	_____	___	General Elective*	2
_____	___	Social Sciences Elective	3	_____	GOV 101	Government	3
_____	HPE ___	HPE Activity	0.5	_____	HPE ___	HPE Activity	0.5
			16.5				14.5

\*See pre-med advisor and recommendations on back page.

**KEY**  
 (F) Offered in Fall Only  
 (S) Offered in Spring Only

# Biomedical Chemistry

## Research Concentration

F=Fall Semester    S=Spring Semester

\*F=Alternating Fall Semesters    \*S=Alternating Spring Semesters

<b>GENERAL EDUCATION REQUIREMENTS</b>					<b>MAJOR REQUIREMENTS</b>						
57 Credit Hours Required					25 Credit Hours Required						
For the Spirit				Credit	Hours					Credit	Hours
	BLT	110	Survey of Old Testament Literature	3			CHE 211	Organic Chemistry I Lecture (F)		3	
	BLT	120	Survey of New Testament Literature	3			CHE 211	Organic Chemistry I Laboratory (F)		1	
	THE	103	Spirit-Empowered Living	3			CHE 212	Organic Chemistry II Lecture (S)		3	
<b>For the Mind</b>							CHE 212	Organic Chemistry II Laboratory (S)		1	
	GEN	099	Whole Person Assessment	0			CHE 300	Quantitative Analysis Lecture (S)		2	
	CHE	111	General Chemistry I Lecture	3			CHE 300	Quantitative Analysis Laboratory (S)		2	
	CHE	111	General Chemistry I laboratory	1			CHE 303	Physical Chemistry I Lecture (F)		3	
	CHE	112	General Chemistry II Lecture	3			CHE 303	Physical Chemistry I Laboratory (S)		1	
	CHE	112	General Chemistry II Laboratory	1			CHE 400	Chemical Instrumentation Lecture (F)		2	
	CHE	112	General Chemistry II Honors Lab	1			CHE 400	Chemical Instrumentation Laboratory (F)		2	
	COM	101	Oral Communication	3			CHE 449	Chemistry Research (S)		1	
	COMP	102	Reading and Writing in the Liberal Arts	3			CHE 452	Seminar (S)		1	
	COMP	303	Critical Reading and Writing (S Junior Year)	3			CHE 499	Individual Research and Senior Paper (F)		3	
	GOV	101	American Government	3							
	HIS	101	American History	3							
	MAT	201	Calculus I	4							
	HUM	101	Introduction to Humanities	3							
	HUM	301	Christian Worldview and Culture	3							
			Humanities Electives (2 required)	6							
			HUM 222								
			HUM 233								
			HUM 244								
			HUM 233								
			HONR 102								
			Social Sciences Elective (1 required)	3							
			BUS 101 Principles of Economics (F)								
			FIN 244 Personal Financial Planning								
			MUS 208 Music in World Cultures								
			PSY 201 Introduction to Psychology								
			SOC 101 Introduction to Sociology								
			SOC 201 Marriage and the Family								
			SOC 323 Child and Family in the Social Context								
			SWK 202 Introduction to Social Work								
<b>For the Body</b>											
<b>Freshman</b>											
	HPE	001	Health Fitness I	1							
	HPE	002	Health Fitness II	1							
	PRF	070	Swimming Course or Proficiency								
<b>Sophomore</b>											
			HPE Activity	0.5							
			HPE Activity	0.5							
<b>Junior</b>											
			HPE Activity	0.5							
			HPE Activity	0.5							
<b>Senior</b>											
			HPE Activity	0.5							
			HPE Activity	0.5							
<b>GENERAL ELECTIVES</b>					<b>RESEARCH CONCENTRATION</b>						
5 Credit Hours Required					9 Credit Hours						
<b>Choose two from the following courses:</b>					<b>Choose one or two from the following courses:</b>						
	CSC	111	Introduction to Computing			<b>Organic</b>					
	MAT	211	Differential Equations			CHE 454 Recombinant DNA (S)		3			
	MAT	312	Linear and Matrix Algebra			CHE 455 Oncological Chemistry (S)		3			
	MAT	332	Introduction to Biostatistics*			CHE 459 Biochemistry Lecture (F)*		3			
			*Human Anatomy, Pre-Health Professions Seminar, Human Physiology, Bioethics, and/or Human Cadaver Dissection are recommended for medical school.			CHE 459 Biochemistry Laboratory (S)*		1			
						CHE 473 Synthesis (F)		3			
						<b>Choose one or two from the following courses:</b>					
						<b>Analytical/Inorganic/Physical</b>					
						CHE 304 Physical Chemistry II (S)		3			
						CHE 456 Inorganic Chemistry (S)		3			
						CHE 474 Environmental Analysis (F)		3			
						*Highly recommended by medical schools					
<b>GENERAL ELECTIVES</b>					<b>COGNATE REQUIREMENTS</b>						
5 Credit Hours Required					12 Credit Hours Required						
<b>Choose two from the following courses:</b>					<b>Choose one from the following pairs:</b>						
						MAT 202 Calculus II		4			
						<b>Choose one from the following pairs:</b>					
						PHY 101 General Physics I Lec and Lab (F)		4			
						PHY 102 General Physics II Lec and Lab (S)		4			
						or					
						PHY 111 Physics I Lec and Lab (Calculus Based) (S)		4			
						PHY 112 Physics II Lec and Lab (Calculus Based) (F)		4			
<b>GENERAL ELECTIVES</b>					<b>BIOLOGY MINOR REQUIREMENTS</b>						
5 Credit Hours Required					21 Credit Hours Required						
						BIO 111 Introduction to Biology I Lec and Lab		4			
						BIO 112 Introduction to Biology II Lec and Lab		4			
						BIO 312 Ecology or Biology field course Lec and Lab		4			
						BIO 370 Methods in Biotechnology		1			
						<b>Choose two from the following courses:</b>					
						BIO 310 Microbiology Lec and Lab		4			
						BIO 311 Genetics Lec and Lab		4			
						BIO 411 Molecular Cell Biology Lec and Lab		4			
						BIO 421 General and Comparative Physiology Lec and Lab		4			
						BIO 431 Developmental Biology Lec and Lab		4			
						BIO 457 Principles of Immunology Lec and Lab		4			