

Degree and Study Plan

College: Science
 Department: Physics
 Cohort: 2016-2017
 Degree: Bachelor of Science
 Major: Physics
 Minor: Medical Physics⁺⁺
 Specialization:

Summary of Credits:

University Requirements (UR)	6
Foundation Program	NC ⁺
Arabic	3
Contemporary Omani Society	1
Oman & Islamic Civilization or Islamic Culture	2
University Electives (UE)	6
See List A	
College Requirements (CR)	3
See list B	
College Electives (CE)	16
See list C	
Departmental Requirements (DR)	62
See list D	
Departmental Electives (DE)	
See list E	
Major Requirements (AR)	
See list F	
Major Electives (AE)	10
See list G	
Specialization Requirements (SR)	
See list H	
Specialization Electives (SE)	
See list I	
Minor Requirements (IR)⁺⁺	19
See list J	
Minor Electives (IE)	
See list K	
TOTAL	122

⁺ Not credited

⁺⁺ Minor is mandatory.

For reference contact **Dr. Zach Ioannou**

Ext.1440

HoD: **Prof. Issam Ali**

Date: 1st April, 2019

Dean's Office: **Prof. Salma Al-Kindy**

Date:

21/4/2019

Admission and Registration:

Date:



**Department of Physics - Physics Degree Plan with a Minor in Medical Physics for
Cohort 2016-2017**

Categories	CR
University Requirements (UR)	6
University Electives (UE)	6
College Requirements (CR)	3
College Electives (CE)	16
Departmental Requirements (DR)	62
Major Electives (AE)	10
Minor Requirements (IR)	19
Total	122

	Course Code	Course Title	Cr.	Pre-Requisite/Co-Requisite*	Cat.
Semester 1 Fall	ARAB1001	Arabic	3		UR
	LANC2058	Communication in Science	3	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604	CR
	MATH2107	Calculus I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)	CE
	PHYS2101	General Physics I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)	CE
		University Elective	2		UE
	Total		16		

Semester 2 Spring	BIOL2101	General Biology I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604	IR
	HIST1010 or ISLM1010	Oman & Islamic Civilization or Islamic Culture	2		UR
	MATH2108	Calculus II	3	MATH2107	DR
	PHYS 2102	General Physics II	4	PHYS2101 / MATH2107*	DR
		University Elective	2		UE
	Total		15		

Semester 3 Fall	COMP2101	Introduction to Computer Science	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and FPMT0105 or FPMT0109	DR
	MATH3171	Linear Algebra & Multivariate Calculus for Engineers	3	LANC2058 and MATH2108	DR
	PHYS3103	Physics III	3	LANC2058 and PHYS2102 and MATH2107	DR
		Major Elective	3		AE
		Major Elective	3		AE
	Total		16		

**Department of Physics - Physics Degree Plan with a Minor in Medical Physics for
Cohort 2016-2017**

Categories	CR
University Requirements (UR)	6
University Electives (UE)	6
College Requirements (CR)	3
College Electives (CE)	16
Departmental Requirements (DR)	62
Major Electives (AE)	10
Minor Requirements (IR)	19
Total	122

	Course Code	Course Title	Cr.	Pre-Requisite/Co-Requisite*	Cat.
Semester 1 Fall	ARAB1001	Arabic	3		UR
	LANC2058	Communication in Science	3	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604	CR
	MATH2107	Calculus I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)	CE
	PHYS2101	General Physics I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)	CE
		University Elective	2		UE
	Total		16		

Semester 2 Spring	BIOL2101	General Biology I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604	IR
	HIST1010 or ISLM1010	Oman & Islamic Civilization or Islamic Culture	2		UR
	MATH2108	Calculus II	3	MATH2107	DR
	PHYS 2102	General Physics II	4	PHYS2101 / MATH2107*	DR
		University Elective	2		UE
	Total		15		

Semester 3 Fall	COMP2101	Introduction to Computer Science	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and FPMT0105 or FPMT0109	DR
	MATH3171	Linear Algebra & Multivariate Calculus for Engineers	3	LANC2058 and MATH2108	DR
	PHYS3103	Physics III	3	LANC2058 and PHYS2102 and MATH2107	DR
		Major Elective	3		AE
		Major Elective	3		AE
	Total		16		

Semester 4 Spring	BIOL2105	Human Physiology	4	BIOL2101	IR
	PHYS3005	Experimental Methods of Physics I	3	LANC2058 and PHYS2102	DR
	PHYS3100	Introductory Computational Physics	2	LANC2058 and COMP2101 and MATH2107 and PHYS2102 /MATH3171*	DR
	PHYS3101	Theoretical Methods of Physics	3	LANC2058 and MATH2108 /MATH3171*	DR
	PHYS3104	Modern Physics	3	LANC2058 and PHYS3103	DR
	Total		15		

Semester 5 Fall	PHYS3001	Dynamics	3	LANC2058 and PHYS2101 and PHYS3101	DR
	PHYS4030	Electromagnetic Theory	3	PHYS3101 and PHYS3103 and MATH3171	DR
	PHYS4105	Experimental Methods of Physics II	3	PHYS3005	DR
		Major Elective	3		AE
		Major Elective	3		AE
	Total		15		

Semester 6 Spring	MEDP3000	Ionizing Radiation	3	PHYS3104	IR
	PHYS3106	Electronics	4	LANC2058 and PHYS2102	DR
	PHYS4018	Thermal & Statistical Physics	4	PHYS3104	DR
	PHYS4101	Quantum Physics I	3	PHYS3101 and PHYS3104	DR
	SOCY1001	Omani Contemporary Society	1		UR
	Total		15		

Semester 7 Fall	MEDP4001	Non-ionizing Radiation	3	PHYS3012 and PHYS3104	IR
	MEDP4004	Project in Medical Physics I	3		IR
	PHYS4107	Computational Methods of Physics	3	PHYS3001 and PHYS3100 and PHYS4101	DR
	PHYS5003	Condensed Matter Physics I	3	PHYS4018	DR
	PHYS5106	Nuclear Physics	3	PHYS4101	DR
	Total		15		

Semester 8 Spring	MEDP4000	Biological Effects of Radiation	3	BIOL2105 and PHYS5106	IR
	MEDP4005	Project in Medical Physics II	3		IR
	PHYS4100	Optics & Lasers	3	PHYS4030	DR
	PHYS5105	Experimental Methods of Physics III	3	PHYS3106 and PHYS4105 and /PHYS4100* and PHYS5003*	DR
	PHYS5501	Physics Project	3		DR
	Total		15		

**Department of Physics – Physics Degree Plan with a Minor in Medical Physics
for Cohort 2016-2017**

	Course Title	Cr.	Pre-Requisite/Co-Requisite*
ARAB1001	Arabic	3	
HIST1010 or ISLM1010	Oman & Islamic Civilization or Islamic Culture	2	
SOCY1001	Omani Contemporary Society	1	
Total		6	

**Department of Physics – Physics Degree Plan with a Minor in Medical Physics for Cohort
2016-2017**

LIST A: UNIVERSITY ELECTIVES (UE) (6 Credits)

Please see the List of University Electives from Admission and Registration Web site

**Department of Physics – Physics Degree Plan with a Minor in Medical Physics for
Cohort 2016-2017**

LIST B: COLLEGE REQUIREMENTS (CR) (3 Credits)

Course Code	Course Title	Cr.	Pre-Requisite/Co-Requisite*
LANC2058	Communication in Science	3	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604
Total		3	

**Department of Physics – Physics Degree Plan with a Minor in Medical Physics for
Cohort 2016-2017**

LIST C: COLLEGE ELECTIVES (CE) (16 Credits)

Course Code	Course Title	Cr.	Pre-Requisite/Co-Requisite*
BIOL2101 [†]	General Biology I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604
CHEM2101	General Chemistry	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)
COMP2101	Introduction to Computer Science	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPCS0101 or FCS0102)
ERSC2101	Introduction to Geology I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604
MAH2107 [†]	Calculus I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)
PHYS2101 [†]	General Physics I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)
STAT2101	Introduction to Statistics	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)

[†]PHYS2101, BIOL2101 and MATH2107 are key pre-requisite courses for Physics major with a minor in Medical Physics. Credits taken in excess of 16 can be counted as Major Electives (List G).

**Department of Physics – Physics Degree Plan with a Minor in Medical Physics for Cohort
2016-2017**

LIST D: PHYSICS DEPARTMENTAL REQUIREMENTS (DR) (62 Credits)

Course Code	Course Title	Cr.	Pre-Requisite/Co-Requisite*
MATH2108	Calculus II	3	MATH2107
MATH3171	Linear Algebra & Multivariate Calculus for Engineers	3	LANC2058 and MATH2108
PHYS2102	General Physics II	4	PHYS2101 /MATH2107*
PHYS3001	Dynamics	3	LANC2058 and PHYS2102 and PHYS3101
PHYS3005	Experimental Methods of Physics I	3	LANC2058 and PHYS2102
PHYS3100	Introductory Computational Physics	2	LANC2058 and COMP2101 and MATH2107and PHYS2102 /MATH3171*
PHYS3101	Theoretical Methods of Physics I	3	LANC2058 and MATH2108 /MATH3171*
PHYS3103	Physics III	3	LANC2058 and PHYS2102 and MATH2107
PHYS3104	Modern Physics	3	LANC2058 and PHYS3103
PHYS3106	Electronics	4	LANC2058 and PHYS2102
PHYS4018	Thermal & Statistical Physics	4	PHYS3104
PHYS4030	Electromagnetic Theory	3	PHYS3101 and PHYS3103 and MATH3171
PHYS4100	Optics & Lasers	3	PHYS4030
PHYS4101	Quantum Physics I	3	PHYS3101 and PHYS3104
PHYS4105	Experimental Methods of Physics II	3	PHYS3005
PHYS4107	Computational Methods of Physics	3	PHYS3001and PHYS3100 and PHYS4101
PHYS5003	Condensed Matter Physics I	3	PHYS4018
PHYS5105	Experimental Methods of Physics III	3	PHYS3106 and PHYS4105 /PHYS4100* /PHYS5003*
PHYS5106	Nuclear Physics	3	PHYS4101
PHYS5501	Physics Project	3	
Total		62	

**Department of Physics – Physics Degree Plan with a Minor in Medical Physics for
Cohort 2016-2017**

LIST G: MEDICAL PHYSICS MAJOR ELECTIVES (AE) (29 Credits)

Code	Title	Cr	Pre-Requisite/Co-Requisite*
BIOL2101	General Biology I	4	FPEL0560 or FPEL0600 or FPEL0603 or FPEL0604
BIOL2102	General Biology II	4	BIOL2101
BIOL3005	Ecology	3	BIOL2102 and LANC2058
BIOL3009	Introduction to Environmental Science	3	BIOL2102 and LANC2058
BIOL3011	Plant Physiology	3	BIOL2102 and LANC2058
BIOL3023	Animal Physiology	4	BIOL2102 and LANC2058
BIOL3025	Invertebrates	3	BIOL2102 and LANC2058
BIOL3030	Population Genetics	3	BIOL2102 and LANC2058
BIOL3202	Molecular Biology	3	BIOL2101 and LANC2058
BIOL3410	Angiosperm Biology	3	BIOL2102 and LANC2058
BIOL3441	Introductory Microbiology	3	BIOL2101 and LANC2058
BIOL4000	Generic Skills for Biologists	3	BIOL2101
BIOL4009	Waste Management	3	BIOL3009
BIOL4021	Vertebrate Zoology	3	BIOL2102
BIOL4023	Entomology	3	BIOL2102
BIOL4030	Bacteriology	3	BIOL3441
BIOL4034	Biochemistry	3	BIOL2101 and CHEM3324
BIOL4041	Animal Histology	3	BIOL2102 or BIOL2105
BIOL4042	Parasitology	3	BIOL2102
BIOL4046	Fundamentals of Biotechnology	3	BIOL3202 and BIOL3441
BIOL4054	Marine Biology	3	BIOL3005
BIOL4432	Genetics	3	BIOL 2101
BIOL4500	Cell Biology	3	BIOL2101 or MEDI2108
BIOL4501	Principles of Toxicology	3	BIOL2101
BIOL4600	Biofuels	3	BIOL3441 or BIOL4030
BIOL4640	Environmental Pollution	3	BIOL4009
BIOL4700	Environmental Biotechnology	3	BIOL3441
BIOL5010	Ecotoxicology	3	BIOL3009
BIOL5021	Desert Biology	3	BIOL3005
BIOL5031	Enzyme Biochemistry	3	BIOL4034

BIOL5040	Genetic Engineering	3	BIOL3202
BIOL5042	Embryology	3	BIOL2102
BIOL5045	Economy Botany	3	BIOL2102
BIOL5052	Freshwater Biology	3	BIOL3005
BIOL5110	Special Topics in Biology	3	Instructor
BIOL5120	Microbial Biotechnology	3	BIOL3441 and BIOL4046
BIOL5132	Tissue Culture	3	BIOL4500
BIOL5133	Plant biotechnology	3	BIOL4046
BIOL5144	Applied Mycology	3	BIOL3441
BIOL5244	Cytogenetics	3	BIOL4432
BIOL5400	Bio-Informatics	3	BIOL3202
BIOL5401	Environmental microbiology techniques	3	BIOL3009 and BIOL3201
BIOL5402	Immunology	3	BIOL3441 and BIOL4500
BIOL5411	Fermentation Technology	3	BIOL4030
BIOL5501	Protein Production and Characterization	3	BIOL4034 and BIOL4046
BIOL5600	Techniques in Molecular Diversity	3	BIOL3202
BIOL5610	Environmental Impact Assessment	3	BIOL3009
CHEM2101	General Chemistry I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)
CHEM2102	General Chemistry II	4	CHEM2101 or CHEM1071
CHEM2350	Chemical Safety: Protecting ourselves and the environment	3	CHEM2101 or CHEM1071 or CHEM2110
CHEM3311	Inorganic Chemistry I	3	LANC2058 and CHEM2102 and MATH2107
CHEM3324	Organic Chemistry	4	(LANC2058 or LANC2161) and (CHEM1071 or CHEM2101)
CHEM3328	Green Chemistry	3	LANC2058 and (CHEM3322 or CHEM3324)
CHEM3333	Physical Chemistry I	3	LANC2058 and CHEM2101 and PHYS2101 and MATH2107
CHEM3337	Fundamentals of the Corrosion of Metals	3	LANC2058 and (CHEM2101 or CHEM1071)
CHEM3348	Introduction to Chemical and Instrumental Analysis	3	CHEM2102
CHEM3350	Environmental Chemistry	3	LANC2058 and CHEM2102
CHEM3400	Introduction to Chemical Process Industries	3	LANC2058 and CHEM2101 and CHEM3333*
CHEM3420	Petroleum Chemistry	3	LANC2058 and (CHEM3322 or CHEM3324)
CHEM4412	Inorganic Materials	3	CHEM3311
CHEM4414	Fundamentals of X-ray Crystallography	3	CHEM3311
CHEM4424	Introduction to Natural Products	3	CHEM3324 or CHEM4422
CHEM4429	Fundamentals of Medicinal Chemistry and Drug Design	3	CHEM3324 or CHEM4422

CHEM4433	Physical Chemistry II	3	CHEM3333 and MATH2108
CHEM4437	Electrochemistry: Fundamentals and Applications	3	CHEM3333
CHEM4445	Forensic Chemistry	3	CHEM3341 or CHEM3348
CHEM4472	Fine Chemicals	3	CHEM3324 or CHEM4422
CHEM4477	Essentials of Biological Chemistry	3	CHEM3324 or CHEM4422
CHEM5526	Essentials of Heterocyclic Chemistry	2	CHEM3324 or CHEM4422
CHEM5537	Surfactants: Principles & Applications in the Petroleum Industry	3	CHEM3333 or CHEM3102
CHEM5539	Chemical Sensors	3	CHEM3333 and (CHEM3348 or CHEM4441)
CHEM5591	Chemistry Seminar I	1	CHEM3322 or CHEM3324
COMP2101	Introduction to Computer Science	4	FPEL0560 or FPEL0600 or FPEL0603 or FPEL0604) and (FPCS0101 or PCS0102)
COMP2102	Problem Solving and Programming	3	COMP2101
COMP2105	Introduction to Problem Solving with Visual Basic	3	COMP2101
COMP2200	Fundamentals of Object Oriented Programming	3	COMP2101
COMP3203	Introduction to Data Structures and Algorithms	3	COMP2200 and MATH3340 and LANC2058
COMP3204	Advanced Java Programming	3	COMP2200 and LANC2058
COMP3205	Database Systems	3	COMP3203 and LANC2058
COMP3302	Introduction to Multimedia	3	COMP2200 and LANC2058
COMP3401	Introduction to Software Engineering	4	COMP2200 and LANC2058
COMP3501	Computer Organization & Assembly Language	3	COMP2200 and ECCE3206 and LANC2058
COMP3502	Computer Networks	3	COMP3501 and LANC2058
COMP3600	Intelligent Systems	3	COMP3203 and LANC2058
COMP3601	Bioinformatics Algorithms	3	BIOL2101 and COMP2101
COMP3700	Introduction to Web Computing	3	COMP3203 and LANC2058 / COMP3205*
COMP4100	Ethics and Skills for Computing Professionals	2	COMP3401
COMP4202	Database Development	3	COMP3205
COMP4204	Advanced Data Structures and Algorithms	3	COMP3203 and MATH3340
COMP4205	Competitive Programming	3	COMP3203
COMP4212	Introduction to Information Retrieval	3	COMP3203
COMP4300	Computer Graphics I	3	COMP3202 and MATH2202
COMP4402	Software Testing	3	COMP3401
COMP4404	Software Project Management	3	COMP3401
COMP4471	Computational Methods	3	COMP2200 and MATH2108 and MATH2202
COMP4501	Fundamentals of Operating Systems	3	COMP3203 and COMP3501
COMP4504	Wireless Networks	3	COMP3502

COMP4506	Systems and Networks Programming	3	COMP4501 and COMP3502
COMP4603	Machine Learning	3	COMP3600 and STAT2103
COMP4604	Digital Image Processing	3	COMP3600
COMP4701	Web Application Development	3	COMP3700 and COMP3205
COMP4704	Mobile Application Development	3	COMP3700 and COMP3205
COMP5101	Comparative Programming Languages	3	COMP3203 and COMP3501
COMP5400	Software Architecture and Design	3	COMP3401
COMP5401	Requirement Engineering	3	COMP3401
COMP5504	Distributed Systems	3	COMP4506
COMP5507	Cryptography and Network Security	3	COMP3203 and COMP3502
COMP5508	Interconnection Networks for Multiprocessor and Multicore Systems	3	COMP3502
COMP5509	Penetration Testing and Ethical Hacking	3	COMP4507
COMP5511	Computer Forensics	3	COMP4507
COMP5521	Finite Automata & Formal Languages	3	MATH3340
COMP5522	Compiler Construction	3	COMP3501 and COMP5521
COMP5603	Computer Vision	3	COMP4603
COMP5605	Mobile Robotics	3	COMP3600 and MATH2108
COMP5701	Web Services	3	COMP4701
COMP5702	Web Data Mining and Knowledge Discovery	3	COMP4701 and STAT2103
COMP5704	Semantic Web	3	COMP4701
ERSC2101	Introduction to Geology I	4	FPEL0560 or FPEL0600 or FPEL0603 or FPEL0604
ERSC2102	Introduction to Geology II	4	ERSC2101
ERSC2211	Palaeontology I	3	LANC2058 and ERSC2101
ERSC2101	Introduction to Geology I	4	FPEL 0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604
ERSC2102	Introduction to Geology II	4	ERSC2101
ERSC2112	Historical Geology	3	ERSC2101
ERSC3000	Environmental Geology	3	LANC2058 and ERSC2101
ERSC3002	Environmental Site Assessment and Remediation	3	LANC2058 and ERSC2102 and ERSC3000
ERSC3010	Mineralogy	3	LANC2058 and ERSC2102*
ERSC3021	Structural Geology	3	LANC2058 and ERSC2102
ERSC3041	Stratigraphy	3	LANC2058 and ERSC2102
ERSC3061	Introduction to Remote Sensing	3	LANC2058 and ERSC2102
ERSC3071	GIS and Geo-Spatial Applications	3	LANC2058 and ERSC2102
ERSC3210	Palaeontology II	3	LANC2058 and ERSC2211
ERSC3901	Sedimentary Petrology	3	ERSC2211 and ERSC3010
ERSC4031	Geochemistry	3	ERSC2102 and CHEM2101

ERSC4032	Environmental Geochemistry	3	ERSC2101 and CIEM2101
ERSC4041	Geological Interpretation of Well-logs	3	ERSC3041
ERSC4051	Hydrogeology	3	ERSC3000
ERSC4071	Economic Geology	3	ERSC3051
ERSC4311	Sedimentary Environments and Facies	3	ERSC3901
ERSC4321	Structural Geology II	3	ERSC3021
ERSC5011	Basin Analysis	3	ERSC3021 and ERSC4311
ERSC5012	Techniques in Sequence Stratigraphy	3	ERSC4311
ERSC5051	Petroleum Geology	3	ERSC3041
ERSC5061	Exploration Geophysics	3	GEOP3041
ERSC5071	Image Processing and GIS	3	ERSC3061
ERSC5900	Advanced Diagenesis and Sedimentary Geochemistry	3	ERSC3901
GEOP3000	Earthquakes and Society	3	LANC2058 and ERSC2101
GEOP3041	General Geophysics	3	LANC2058 and ERSC2101 and MATH2107 and PHYS2101
GEOP3042	Principles of Geophysical Well Logging	3	GEOP3041
GEOP4001	Applied Geophysics I	3	GEOP3041 and PHYS3100
GEOP4002	Applied Geophysics II	3	GEOP3041 and PHYS3103
GEOP4003	Gravity and Magnetic Exploration Methods	3	GEOP3041
GEOP4010	Fundamentals of Signal Processing	3	GEOP4001 and (MATH3171 or MATH3302)
GEOP4011	Geophysical Data Processing	3	GEOP4010 and MATH3171
GEOP5021	Engineering and Environmental Geophysics	3	GEOP3041
GEOP5060	Interpretation of Seismic Reflection Data	3	ERSC3041 and GEOP3041
MATH2107	Calculus I	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)
MATH2108	Calculus II	3	MATH2107
MATH2202	Linear Algebra I	3	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)
MATH2350	Foundations of Mathematics	3	MATH2107
MATH3110	Calculus III	4	LANC2058 and MATH2108
MATH3302	Ordinary Differential Equations	3	LANC2058 and MATH2108
MATH3303	Linear Algebra II	3	LANC2058 and MATH2202
MATH3360	Discrete Mathematics	3	LANC2058 and MATH2350
MATH3573	Graph theory	3	LANC2058 and MATH3360
MATH3730	Computer Algebra system I	2	LANC2058 and MATH2202 and MATH3302
MATH3744	Introduction to Mathematical Modelling	3	LANC2058 and MATH3110 and MATH3302
MATH4141	Numerical Analysis	3	MATH2202 and MATH3302
MATH4450	Real Analysis I	3	MATH2108 and MATH2350
MATH4452	Introduction to Complex Variables	3	MATH3110 or MATH3171
MATH4453	Abstract Algebra I	3	MATH2202 and MATH2350
MATH4455	Abstract Algebra II	3	MATH4453
MATH4473	Linear Programming	3	MATH2202 or MATH3171
MATH4474	Introduction to Partial Differential Equations	3	MATH3302
MATH4481	Introduction to Optimization	3	MATH2108 and (MATH2202 or MATH3171)

MATH4552	Logic and Set Theory	3	MATH2350 or MATH3340
MATH4599	Introduction to Topology	3	MATH2350
MATH5451	Real Analysis II	3	MATH4450
MATH5470	Integral Transforms	3	MATH4474 and MATH4452*
MATH5551	Fluid Dynamics	3	MATH4474
MATH5553	Differential Geometry I	3	MATH3110 and MATH3303
MATH5558	Introduction to Number Theory	3	MATH2350 or MATH3340
PHYS2901	Introductory Astronomy	3	
PHYS3601	Radiation Physics	3	LANC2058 and PHYS3104
PHYS3602	Fundamentals of Radiation Protection	3	LANC2058 and PHYS3601
PHYS3603	Operational Radiation Protection	3	LANC2058 and PHYS3602
PHYS3901	Mysteries of the Universe	3	LANC2058 and (PHYS2801 or PHYS2901)
PHYS3903	Introduction to Space Science	3	LANC2058 and (PHYS2801 or PHYS2901)
PHYS3905	Essentials of Meteorology	3	LANC2058 and PHYS2102 and (PHYS2801 or PHYS2901)
PHYS3907	Observational Techniques in Astronomy	3	LANC2058 and PHYS3901
PHYS4601	Ionizing Radiation Detection	3	PHYS3601
PHYS4602	Nuclear Applications	3	PHYS3601
PHYS4901	Stellar Evolution & Nucleosynthesis	3	PHYS3901
PHYS5601	Introduction to Nuclear Power	3	PHYS3601
PHYS5901	Image Processing & Data Analysis	3	PHYS3100 and PHYS3907
STAT2101	Introduction to Statistics	4	FPEL0560 or FPEL0600 or FPEL0601 or FPEL0602 or FPEL0603 or FPEL0604 and (FPMT0105 or FPMT0109)
STAT2102	Introduction to Probability	3	STAT1001 and MATH2108*
STAT3331	Operations Research I	3	LANC2058 and MATH2108 and STAT1001
STAT3334	Introduction to Inference	3	LANC2058 and STAT2102
STAT3335	Introduction to Sampling	3	LANC2058 and STAT2102
STAT3336	Computational Techniques in Statistics	3	LANC2058 and ENGR2216 and STAT2102
STAT3337	Introduction to Actuarial Science I	3	LANC2058 and STAT2102
STAT3338	Statistical Methods	3	LANC2058 and STAT3334
STAT4432	Regression Analysis	3	MATH2202 and STAT3334
STAT4433	Design and Analysis of Experiments	3	STAT3338
STAT4434	Non Parametric Statistics	3	STAT3334
STAT4436	Survey Design	3	STAT3335
STAT4533	Quality Assurance and Reliability	3	STAT2102
STAT4534	Simulation	3	STAT3336
STAT5521	Categorical Data analysis	3	STAT3338
STAT5522	Demographic and Health Care Statistics	3	STAT3334
STAT5536	Time Series Analysis	3	STAT3334
STAT5537	Multivariate Techniques	3	MATH2202 and MATH3110 and STAT3334

**Department of Physics – Physics Degree Plan with a Minor in Medical Physics for Cohort
2016-2017**

LIST J: MEDICAL PHYSIC MINOR REQUIREMENTS (IR) (19 Credits)

Course Code	Course Title	Cr.	Pre-Requisite/Co-Requisite*
BIOL2105	Human Physiology	4	BIOL2101
MEDP3000	Ionizing Radiation	3	PHYS3104
MEDP4000	Biological Effects of Radiation	3	BIOL2105 and PHYS5106
MEDP4001	Non-ionizing Radiation	3	PHYS3012 and PHYS3104
MEDP4004	Project in Medical Physics I	3	
MEDP4005	Project in Medical Physics II	3	
Total		19	

For reference contact: **Dr Zach Ioannou**

Approved by Dean of Science: **Prof. Salma Al-Kindy**

Office of Admissions & Registration:

Confirmed:

Ext. 1440

Date:

Date:

Date:



April 1, 2019