



## Degree and Study Plan

College: Agricultural and Marine Sciences  
Department: Animal and Veterinary Sciences  
Cohort: 2006 - 2007  
Degree: Bachelor of Science  
Major: Animal Science  
Specialization:

<b><u>Summary of Credits:</u></b>	
<b>University Requirements (UR)</b>	<b>12</b>
English Requirements	6
Arabic	3
Contemporary Omani Society	1
Oman & Islamic Civilization or Islamic Culture	2
<b>University Electives (UE)</b>	<b>6</b>
See List A	
<b>College Requirements (CR)</b>	<b>34</b>
See list B	
<b>College Electives (CE)</b>	<b>6</b>
See list C	
<b>Departmental Requirements (DR)</b>	
See list D	
<b>Departmental Electives</b>	
See list E	
<b>Major Requirements (AR)</b>	<b>49</b>
See list F	
<b>Major Electives (AE)</b>	<b>22</b>
See list G	
<b>Specialization Requirements (SR)</b>	
See list H	
<b>Specialization Electives (SE)</b>	
See list I	
<b>Minor Requirements (IR)</b>	<b>3</b>
See list J	
<b>Minor Electives (IE)</b>	<b>12</b>
See list K	
<b>TOTAL</b>	<b>129</b>

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HoD: **Dr. Isam Kadim**  
Dean's Office: **Dr. S. A. Prathapar**  
Admission and Registration:

Date:  
Date:  
Date:

# DEPARTMENT OF ANIMAL AND VETERINARY SCIENCES

## ANIMAL SCIENCE

### Study Plan: for Cohort 2006-2007

Sem.	Course Code	Course Title	Cr.	Pre-req./Co-req.*	Cat.
ONE FALL		Intensive English	0		UR
	<b>TOTAL</b>		<b>0</b>		

TWO SPRING	ARAB1001	Arabic	3		UR
	LANC2040	English for Agriculture I	3	=LANC2140	UR
	CAMS2000	Intro. CAMS	1		CR
	CAMS2101	Computer Applications I	3		CR
	MATH1106	Pre-Calculus	4		CR
		University Elective	2		UE
<b>TOTAL</b>		<b>16</b>			

THREE FALL	HIST1010	Oman & Islamic Civilization	2		UR
	LANC2041	English for Agriculture II	3	LANC2040 or LANC2042 /=LANC2141	UR
	BIOL2101	General Biology I	4		CR
	NREC2003	Introduction to Natural Resource	3	LANC2040 or LANC2140 /=CAMS2003	CR
		University Elective	2		UE
		University Elective	2		UE
<b>TOTAL</b>		<b>16</b>			

FOUR SPRING	SOCI3320	Contemporary Omani Society	1	=SOCY1001	UR
	CAMS4002	Seminar & Presentation Skills	2	CAMS2001, LANC2041 /=CAMS3000	CR
	CHEM2101	General Chemistry I	4	MATH1106	CR
	CROP3001	Statistical Methods in Agriculture	3	CAMS2001, LANC2041, MATH1106	CR
	ANVS2001	Intro. to Animal Science	3	BIOL2101 or CHEM2101 or PHYS2101	CE
		College Elective	3	BIOL2101 or CHEM2101 or PHYS2101	CE
<b>TOTAL</b>		<b>16</b>			

FIVE FALL	CAMS3002	Computer Applications II	3	Defunct – Consult your advisor	CR
	PHYS2101	General Physics I	4	MATH1106	CR
	ANVS3001	Genetics and Animal Breeding	3	ANVS2001, BIOL2101	AR
	ANVS3002	Animal Health	3	ANVS2001, BIOL2101	AR
	FSHN2001	Agricultural Biochemistry	3	BIOL2101, CHEM2101	AR
<b>TOTAL</b>		<b>16</b>			

SIX SPRING	ANVS3003	Principles of Animal Diseases	3	ANVS2001, BIOL2101	AR
	ANVS3005	Fundamentals of Nutrition	3	ANVS2001, BIOL2101	AR
	ANVS3006	Systemic Physiology	3	ANVS2001, BIOL2101	AR
	ANVS4002	Poultry Production	3	ANVS2001, BIOL2101	AR
	ANVS4009	Disease of Livestock	3	ANVS2001, BIOL2101	AE
<b>TOTAL</b>		<b>15</b>			

SEVEN FALL	ANVS3004	Anatomy and Histology	3	ANVS2001, BIOL2101	AR
	ANVS3007	Animal Reproductive Physiology	3	ANVS2001, BIOL2101	AR
	ANVS4004	Camel Physiology and Husbandry	3	ANVS2001, BIOL2101	AR
	ANVSXXXX	Major Elective	3	Check pre-requisites	AE
	ANVSXXXX	Major Elective	3	Check pre-requisites	AE
<b>TOTAL</b>		<b>15</b>			

EIGHT SPRING	ANVS4001	Dairy and Beef Production	3	ANVS2001, BIOL2101	AR
	ANVS4006	Sheep and Goats Production	3	ANVS2001, BIOL2101	AR
	ANVS4008	Meat Science	3	ANVS2001, BIOL2101	AR
	ANVS4011	Horse Management and Care	3	ANVS2001, BIOL2101	AE
	ANVSXXXX	Major Elective	1	Check pre-requisites	AE
	ANVSXXXX	Major Elective	3	Check pre-requisites	AE
<b>TOTAL</b>			<b>16</b>		

SUMMER	ANVS 4800	Animal Science Internship	3	After 80 Credits, CAMS4002	AR
	<b>TOTAL</b>			<b>3</b>	

NINE FALL	CAMS4001	Management & Business Skills	3	BIOL2101, CHEM2101, CAMS4002, CROP3001, PHYS2101	CR
	ANVS4003	Animal & Veterinary Science Seminar	1	Defunct – Consult your advisor	AR
	ANVS4005	Farm Practicum	3	ANVS2001	AR
	ANVS4007	Animal Nutrition	3	ANVS3005	AR
	ANVSXXXX	Major Elective	3	Check pre-requisites	AE
	ANVSXXXX	Major Elective	3	Check pre-requisites	AE
<b>TOTAL</b>			<b>16</b>		

DEPARTMENT OF ANIMAL AND VETERINARY SCIENCES

ANIMAL SCIENCE

LIST B: College Requirements (34 Credits)

Course Code	Course Title	Cr.	Pre-Requisite / Comments	Equivalents
BIOL2101	General Biology I	4		
CAMS2000	Introduction to Agricultural and Marine Science	1		
CAMS2001	Computer Applications I	3		
CAMS3002	Computer Applications II	3	Defunct - replaced with a departmental elective	
CAMS4001	Managements and Business Skills	3	BIOL2101, CHEM2101, CAMS4002, CROP3001, PHYS2101	
CAMS4002	Seminar and Presentation Skills	2	CAMS2001, LANC2041	CAMS3000
CHEM2101	General Chemistry I	4	MATH1106	
CROP3001	Statistical Methods in Agriculture	3	CAMS2001, LANC2041, MATH1106	CAMS3001
MATH1106	Pre-calculus Math	4		
NREC2003	Introduction to Natural Resource Economics	3	LANC2040	CAMS2003
PHYS2101	General Physics I	4	MATH1106	

LIST C: College Electives (6 Credits)

Course Code	Course Title	Cr.	Pre-Requisite	Equivalents	
ANVS2001	Principles of Animal Science	3	BIOL2101 or CHEM2101 or PHYS2101 or PHYS2107		
ANVS2002	Introduction to Veterinary Technology	3			
CROP2201	Introduction to Agricultural Biotechnology	3			
CROP2510	Introduction to Crop Production	3			
FSHN2071	Principles of Food Science	3			
FSHN2301	Introduction to Human Diet	3			
MASF2001	Introduction to Fisheries	3			MASF2003
MASF2002	Introduction to Marine Science	3			MASF2003
SWAE2001	Introduction to Agricultural Engineering	3			
SWAE2002	Introduction to Agricultural Machinery	3			
SWAE2201	Introduction to Soils and Water	3			

DEPARTMENT OF ANIMAL AND VETERINARY SCIENCES

ANIMAL SCIENCE

LIST F: Major Requirements (49 Credits)

Course Code	Course Title	Cr.	Pre-Requisite	Equivalents
ANVS3001	Genetics and Animal Breeding	3	ANVS2001, BIOL2101	
ANVS3002	Animal Health	3	ANVS2001, BIOL2101	
ANVS3003	Principles of Animal Diseases	3	ANVS2001, BIOL2101	
ANVS3004	Anatomy and Histology	3	ANVS2001, BIOL2101	
ANVS3005	Fundamentals of Nutrition	3	ANVS2001, BIOL2101	
ANVS3006	Systemic Physiology	3	ANVS2001, BIOL2101	
ANVS3007	Animal Reproductive Physiology	3	ANVS2001, BIOL2101	
ANVS4001	Dairy and Beef Production	3	ANVS2001, BIOL2101	
ANVS4002	Poultry Production	3	ANVS2001, BIOL2101	
ANVS4003	Animal & Veterinary Science Seminar	1	Defunct – Consult your advisor	
ANVS4004	Camel Physiology and Husbandry	3	ANVS2001, BIOL2101	
ANVS4005	Farm Practicum	3	ANVS2001	
ANVS4006	Sheep and Goat Production	3	ANVS2001, BIOL2101	
ANVS4007	Animal Nutrition	3	ANVS3005	
ANVS4008	Meat Science	3	ANVS2001, BIOL2101	
ANVS4800	Animal Science Internship	3	After 80 credits, CAMS4002	
FSHN2001	Agricultural Biochemistry	3	BIOL2101, CHEM2101	FSHN2302

LIST G: Major Electives (22 Credits)\*

Course Code	Course Title	Cr.	Pre-Requisite	Equivalents
ANVS4009	Disease of Livestock	3	ANVS2001, BIOL2101	
ANVS4010	Veterinary Pathology & Necropsy Techniques	3	ANVS3004	
ANVS4011	Horse Management & Care	3	ANVS2001, BIOL2101	
ANVS4900	Animal Science Special Problem	3	Manual Registration; GPA>2.0; CAMS4002, CROP3001	
BIOL3441	Microbiology	3	BIOL2101	
CROP3502	Forages and Pastures	3	BIOL2101	
CROP4005	Field Crop Production	3	CROP3502	
FSHN3075	Food Sanitation and Quality Control	3	FSHN2071 or FSHN3073	
FSHN4074	Fish & Fish Products	3	BIOL3441, FSHN2001	
MASF2020	Marine Biology	3	MASF2001, MASF2002	
MASF4042	Fisheries Biology	3	MASF3040	
NREC3010	Production Economics	3	NREC2003 or CAMS2003	
NREC3101	Marketing Agricultural and Fisheries Products	3	NREC2003 or CAMS2003	
SWAE3305	Agro-climatology	3	PHYS2101	
SWAE3402	Irrigation Principles	3	SWAE2201	

\* Courses from any Department (preferably related to a Minor) of the College of Agricultural and Marine Sciences or another College, may be selected with the approval of Academic Advisor, Head of Department and Assistant Dean of Undergraduate Studies. **No course will be approved without filling the substitution form and getting all necessary approvals prior registering any course not listed in the above degree plan.**

DEPARTMENT OF ANIMAL AND VETERINARY SCIENCES

ANIMAL SCIENCE

LIST J: Minor Requirements (3 Credits)

Course Code	Course Title	Cr.	Pre-Requisite
ANVS2001	Principle of Animal Science	3	BIOL2101 or CHEM2101 or PHYS2101

LIST K: Minor Electives (12 Credits)

Course Code	Course Title	Cr.	Pre-Requisite
<b>One Course from the following</b>			
ANVS3002	Animal Health	3	ANVS2001, BIOL2101
ANVS 3003	Principles of Animal Diseases	3	ANVS2001, BIOL2101
<b>Three Courses from the following</b>			
ANVS3004	Anatomy and Histology	3	ANVS2001, BIOL2101
ANVS3005	Fundamentals of Nutrition	3	ANVS2001, BIOL2101
ANVS3006	Systemic Physiology	3	ANVS2001, BIOL2101
ANVS3007	Animal Reproductive Physiology	3	ANVS2001, BIOL2101
ANVS4001	Dairy and Beef Production	3	ANVS2001, BIOL2101
ANVS4002	Poultry Production	3	ANVS2001, BIOL2101
ANVS4004	Camel Physiology and Husbandry	3	ANVS2001, BIOL2101
ANVS4006	Sheep and Goat Production	3	ANVS2001, BIOL2101
ANVS4007	Animal Nutrition	3	ANVS3005
ANVS4008	Meat Science	3	ANVS2001, BIOL2101

## LIST J: MINOR REQUIREMENTS

### Within CAMS (15 credits):

#### J1. Minor in Agricultural Engineering (15 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
SWAE2201	Introduction to Agricultural Engineering	3	BIOL2101 or CHEM2101 or PHYS2101
<b>Four courses from the following</b>			
FSHN3102	Elements of Food Engineering	3	MATH1106, PHYS2101
SWAE3201	Power Units	3	MATH1106, PHYS2101, SWAE2001
SWAE3203	Postharvest Technology	3	MATH1106, PHYS2101, SWAE2001
SWAE3308	Instrumentation and Control Systems	3	MATH1106, PHYS2101
SWAE3402	Irrigation Principles	3	SWAE2002 or SWAE2201
SWAE4304	Modeling and Analysis of Biophysical Systems	3	MATH1106, PHYS2101
SWAE4402	Design and Management of Irrigation Systems	3	SWAE3402

#### J2. Minor in Animal Science (15 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
ANVS2001	Principle of Animal Science	3	BIOL2101 or CHEM2101 or PHYS2101
<b>One course from the following</b>			
ANVS3002	Animal Health	3	ANVS2001, BIOL2101
ANVS3003	Principles of Animal Diseases	3	ANVS2001, BIOL2101
<b>Three courses from the following</b>			
ANVS3004	Anatomy and Histology	3	ANVS2001, BIOL2101
ANVS3005	Fundamentals of Nutrition	3	ANVS2001, BIOL2101
ANVS3006	Systemic Physiology	3	ANVS2001, BIOL2101
ANVS3007	Animal Reproductive Physiology	3	ANVS2001, BIOL2101
ANVS4001	Dairy and Beef Production	3	ANVS2001, BIOL2101
ANVS4002	Poultry Production	3	ANVS2001, BIOL2101
ANVS4004	Camel Physiology and Husbandry	3	ANVS2001, BIOL2101
ANVS4006	Sheep and Goat Production	3	ANVS2001, BIOL2101
ANVS4007	Animal Nutrition	3	ANVS2001, BIOL2101
ANVS4008	Meat Science	3	ANVS3005

#### J3. Minor in Crop Sciences (15 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
CROP2510	Introduction to Crop Sciences	3	BIOL2101 or CHEM2101 or PHYS2101
<b>Four courses from the following</b>			
CROP2001	Genetics in Agriculture	3	BIOL2101
CROP2011	Ornamental Horticulture	3	-
CROP2201	Introduction to Agricultural Biotechnology	3	BIOL2101 or CHEM2101 or PHYS2101
CROP3512	Vegetable Production	3	CROP2510
CROP3514	Fruit Production	3	CROP2510
CROP3522	Plant Pathology	3	BIOL2101
CROP3526	General Entomology	3	BIOL2101
CROP4001	Crop Physiology	3	BIOL3101
CROP4005	Field Crop Production	3	CROP2510
CROP4006	Weeds and their Control	3	BIOL2101
CROP4526	Economic Entomology	3	CROP3526
CROP4542	Diseases of Economic Crops	3	CROP3522

#### J4. Minor in Food Science (15 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
FSHN2071	Principles of Food Science	3	BIOL2101 or CHEM2101 or PHYS2101
<b>Four courses from the following</b>			
FSHN3071	Food Chemistry I	3	CHEM2091, FSHN2001
FSHN3072	Food Analysis	3	CHEM2091, FSHN2001
FSHN3073	Food Microbiology I	3	BIOL3441
FSHN3075	Food Sanitation and Quality Control	3	FSHN2071 or FSHN3073
FSHN3076	Food Processing I	3	FSHN2071
FSHN4073	Food Microbiology II	3	BIOL4030 or FSHN3073
FSHN4171	Food Packaging	3	FSHN3102 or PHYS2102

#### J5. Minor in Human Nutrition & Dietetics (15 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
FSHN2301	Introduction to Human Diet	3	BIOL2101 or CHEM2101 or PHYS2101
<b>Four courses from the following</b>			
FSHN3301	Principles of Human Nutrition	3	FSHN2001 or FSHN2071 or FSHN2301
FSHN4303	Life Cycle Nutrition	3	FSHN2301
FSHN3303	Nutrition Assessment and Planning	3	FSHN2001, FSHN2301
FSHN3333	Micronutrients	3	FSHN2001, FSHN2301
FSHN3444	Macronutrients	3	FSHN2301
FSHN4502	Nutritional Toxicology	3	FSHN2301 or FSHN3071

#### J6. Minor in Marine Science and Fisheries (15 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
<b>a. Marine Sciences</b>			
MASF 2002	Introduction to Marine Sciences	3	BIOL2101 or CHEM2101 or PHYS2101
MASF3020	Oceanography	3	MASF2001, MASF2002
MASF 3026	Marine Biology	3	MASF2001, MASF2002
<b>Two courses from the following</b>			
MASF3100	Marine Tourism	3	MASF2001, MASF2020
MASF4020	Marine Ecology	3	MASF3022
MASF4100	Marine Natural Products	3	CHEM2101, MASF3026
MASF4110	Marine Ecosystem Modeling	3	MASF4020
MASF4200	Satellite Oceanography	3	MASF3001, PHYS2101
<b>b. Fisheries Science</b>			
MASF2001	Introduction to Fisheries Sciences	3	BIOL2101 or CHEM2101 or PHYS2101
MASF3040	Ichthyology	3	MASF2001
MASF4042	Fisheries Biology	3	MASF3040
<b>Two courses from the following</b>			
MASF3033	Coastal Navigation	3	MASF2001, PHYS2101
MASF3082	Seafood Quality	3	-
MASF3090	Fishing Gear & Vessel Technology	3	MASF2001
MASF4040	Fisheries Management I	3	MASF4042
MASF4064	Advanced Aquaculture	3	MASF3062
MASF4080	Pop Dynamics & Stock	3	MASF4042
NREC3011	Economics of Fisheries Management	3	NREC2003



### J7. Minor in Natural Resource Economics (15 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
CAMS2003	Introduction to Natural Resource Economics	3	LANC2040
<b>Four courses from the following:</b>			
NREC3010	Production Economics	3	NREC2003
NREC3011	Economics of Fisheries Management	3	NREC2003
NREC3101	Marketing of Agricultural and Fisheries Products	3	NREC2003
NREC3102	Agricultural and Food Policies	3	NREC2003
NREC3220	Agribusiness Management	3	NREC2003
NREC3300	Natural Resources and Environmental Economics	3	NREC2003
NREC4010	Applied Econometrics	4	CROP3001, NREC2003
NREC4230	Agricultural Finance	3	CROP3001
NREC4410	International Agricultural Trade	3	NREC2003
NREC4420	Economic Development	3	CROP3001, NREC2003
NREC4500	Extension Methods and Techniques	3	CAMS4002, CROP3001, NREC2003

### J8. Minor in Soil Science (15 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
SWAE2201	Introduction to Soil and Water	3	BIOL2101 or CHEM2101 or PHYS2101
<b>Four courses from the following</b>			
SWAE3302	Environmental Soil Chemistry	3	CHEM2101, SWAE2201
SWAE3304	Soil and Water Conservation	3	PHYS2101, (SWAE2001 or SWAE2201)
SWAE3311	Environmental Soil Physics	3	PHYS2101, (SWAE2001 or SWAE2201)
SWAE3411	Environmental Soil Microbiology	3	BIOL2101
SWAE4401	Water and Nutrients in Soil-Plant Environments	3	SWAE2201
SWAE4404	Soil Genesis and Classification	3	ERSC2101 or SWAE2201
SWAE4412	Management of Salt-Affected Soils	3	SWAE2201

### J9. Minor in Water Technology (15 credits)

Code	Title	Cr.	Pre-Requisite / Co-req. *
SWAE2201	Introduction to Soil and Water	3	BIOL2101 or CHEM2101 or PHYS2101
<b>Four courses from the following</b>			
SWAE3303	Elements of Hydrology	3	CHEM2101, PHYS2101
SWAE3315	Water Quality	3	CHEM2101, SWAE2201
SWAE3402	Irrigation Principles	3	SWAE2201
SWAE4305	Water Control and Supply	3	SWAE2201, SWAE3310
SWAE4325	Water Treatment	3	CHEM2101, MATH2107, SWAE3315
SWAE4400	Ground Water Hydrology	3	SWAE3303
SWAE4415	Water Resources Management and Legislation	3	MATH2107

## Minors outside CAMS (19 credits):

### Minors from the College of Science

#### J10. Biology (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
BIOL2101	General Biology I	4	
BIOLXXXX	Any 2000/3000/4000 level courses in Biology ( <b>excluding University Electives</b> )	15	Check Pre-requisites

#### J11. Biotechnology (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
BIOL2101	General Biology I	4	
BIOL2102	General Biology II	4	BIOL2101
BIOL3201	Molecular Biology I	3	BIOL2101
BIOL3441	Introductory Microbiology	3	BIOL2101
BIOL4045	Fundamentals of Biotechnology	3	BIOL3201
<b>One Course from the following</b>			
BIOL4030	Bacteriology	3	BIOL3441
BIOL4034	Biochemistry	3	BIOL2101, CHEM3321 or CHEM3327
BIOL4432	Genetics	3	BIOL3201
BIOL4500	Cell Biology	3	BIOL4034

#### J12. Chemistry (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
CHEM2101	General Chemistry I	4	MATH1106
CHEMXXXX	Any 2000/3000/4000 level courses in Chemistry ( <b>excluding University Electives</b> )	15	Check Pre-requisites

#### J13. Computer Science (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
COMP2101	Introduction to Computer Science	4	
<b>Five Courses from the Following</b>			
COMP2103	Introduction to OOP	3	COMP2101
COMP3314	Data Structures	3	COMP2103
COMP3518	Computer Org. & Assembly Lang.	3	COMP3314, MATH3316
COMP3316	Digital Logic & Switching Circuits	3	MATH3340
COMP4414	Database Management	3	COMP3314
COMP4471	Computational Methods I	3	COMP2101, MATH2108, MATH2202
COMP4511	Introduction to Computer Graphics	3	COMP3314, MATH2202
COMP4513	Artificial Intelligence	3	COMP3314, STAT2102
COMP4517	Design and Analysis of Algorithms	3	COMP3314

### J14. Earth Science (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
ERSC2101	Introduction to Geology I	4	
<b>Five Courses from the Following</b>			
ERSC2011	Palaeontology I	3	ERSC2101
ERSC2102	Introduction to Geology II	4	ERSC2101
ERSC3001	Mineralogy I	3	ERSC2102
ERSC3021	Structural Geology I	3	ERSC2102
ERSC3041	Stratigraphy	3	ERSC2011
ERSC3210	Palaeontology II	3	ERSC2011
ERSC3301	Mineralogy II	3	ERSC3001
ERSC4011	Igneous Petrology	3	ERSC3301
ERSC4012	Metamorphic Petrology	3	ERSC4011
ERSC4013	Sedimentary Petrography	3	ERSC3001, ERSC3301
ERSC4031	Geochemistry	3	CHEM2101, CHEM2201, ERSC2102
ERSC4041	Introduction to Geophysics	3	ERSC2101, PETR3246, PHYS2101
ERSC4051	Hydrogeology	3	CHEM3341, ERSC2101, PETR3246
ERSC4321	Structural Geology II	3	ERSC3021
ERSC5021	Marine Geology	3	ERSC2102

### J15. Mathematics (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
MATH1106	Pre-calculus	4	
<b>Five Courses from the Following</b>			
MATH2107	Calculus I	3	MATH1106
MATH2108	Calculus II	3	MATH2107
MATH2202	Linear Algebra I*	3	MATH1106
MATH3109	Calculus III*	4	MATH2108
MATH3171	Linear Algebra & Mult. Cal. for Eng.*	3	MATH2108
MATH3207	Math for Teachers I (Algebra)	3	MATH2107
MATH3210	Math for Teachers II (Geometry)	3	MATH2107
MATH3302	Ordinary Differential Equations	3	MATH2108
MATH3360	Discrete Mathematics for CSs	3	MATH2350
MATH3573	Graph Theory	3	MATH3340, MATH3350, MATH3357
MATH3744	Introduction to Mathematical Modeling	3	MATH3109, MATH3302

\* Students who pass MATH3171 cannot take MATH2202 or MATH3110 and vice versa.

### J16. Physics (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
PHYS2101 or PHYS2107	General Physics I or Physics for Engineering	4	MATH1106
PHYSXXXX	Any 2000/3000/4000 level courses in Physics (excluding University Electives)	15	Check Pre-requisites

### J17. Statistics (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite / Co-Req. *
STAT1001	Introduction to Statistics	4	English
<b>Five Courses from the Following</b>			
STAT2102	Introduction to Probability	3	STAT1001, MATH2108*
STAT3334	Introduction to Inference	3	STAT2102
STAT3335	Sampling Techniques	3	STAT3334
STAT3338	Statistical Methods	3	STAT3334
STAT3336	Computational Techniques in Statistics	3	COMP2216, STAT2102
STAT4432	Regression Analysis	3	STAT3334
STAT4433	Design and Analysis of Experiments	3	STAT3338
STAT4434	Nonparametric Statistics	3	STAT3334

### J18. Minor from College of Commerce (15 credits)

Only Natural Resource Economics students are entitled for this minor. NREC students must successfully complete 5 from the following 7 courses

Code	Title	Cr.	Pre-Requisite / Co-req. *
ACCT1111	Introductory Accounting I	3	MNGT1510
ACCT2112	Introductory Accounting II	3	ACCT1111
BCOM2911	Business Communications	3	LANC2070
MNGT2511	Fundamentals of Management	3	MNGT1510, LANC2070*
MRKT3611	Principles of Marketing	3	ECON1211, ECON2221
POMG2711	Introduction to Management Science	3	(MATH1062 or MATH1102), STAT1811, STAT2812*
POMG3712	Operations Management	3	POMG2711