



## Degree and Study Plan

College: Agricultural & Marine Sciences  
Department: Soils, Water and Agricultural Engineering  
Cohorts: 2015  
Degree: Bachelor of Science  
Major: Water Technology

### Summary of Credits:

<b>University Requirements (UR)</b>	<b>6</b>
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>29</b>
See list B	
<b>College Electives (CE)</b>	<b>9</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>55</b>
See list F	
<b>Major Electives (AE)</b>	<b>21</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>15</b>
See list K	
<b>TOTAL</b>	<b>126</b>

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HoD: **Dr. Hemanatha Jayasuriya**  
Dean's Office: **Dr. Rashid Al Yahyai**  
Admission and Registration:

Date:  
Date:  
Date:

# DEPARTMENT OF SOIL, WATER AND AGRICULTURAL ENGINEERING

## WATER TECHNOLOGY

### Study Plan: for Cohort 2015

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

TWO SPRING	ARAB1001	Arabic	3		UR
	CAMS2000	Intro. CAMS	0		CR
	CAMS2003	Intro. to Food & Resource Economics	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR
	CHEM2101	General Chemistry I	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604), FPMT(0105 or 0109)	CR
	LANC2145	Communication in Agricultural Sciences	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR
		University Elective	2		UE
<b>TOTAL</b>		<b>15</b>			

THREE FALL	HIST1010	Oman & Islamic Civilization	2	=ISLM1010	UR
	LANC2146	Academic Writing in Science	3	LANC(2145 or 2142)	CR
	PHYS2101	General Physics I	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604), FPMT(0105 or 0109)	CR
		University Elective	2		UE
		University Elective	2		UE
		College Elective	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CE
<b>TOTAL</b>		<b>16</b>			

FOUR SPRING	SOCY1001	Contemporary Omani Society	1	= SOCI3320	UR
	BIOL2101	General Biology I	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR
	CAMS3000	Seminar & Presentation Skills	2	CAMS2000, FPMT(0105 or 0109), LANC2146	CR
	CAMS3001	Biometry & Experimental Design in AMS	3	CAMS2000, FPMT(0105 or 0109), LANC2146	CR
		College Elective	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CE
		College Elective	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CE
<b>TOTAL</b>		<b>16</b>			

FIVE FALL	MATH2107	Calculus I	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604), FPMT(0105 or 0109)	AR
	SWAE3303	Elements of Hydrology	3	PHYS2101, SWAE(2001 or 2201)	AR
	SWAE3308	Instrumentation & Control Systems	3	MATH2107, PHYS2101	AR
	SWAE3310	Fundamentals of Fluid Mechanics	3	MATH2107, PHYS(2101 or 2107)	AR
	SWAEXXX	Major Elective	3	Check pre-requisites	AE
<b>TOTAL</b>		<b>16</b>			

SIX SPRING	SWAE3001	GIS for Environmentalists	3	LANC 2146 or 2041 or 2052 or 2058	AR
	SWAE3304	Soil & Water Conservation	3	PHYS2101 , SWAE(2001 or 2201)	AR
	SWAE3305	Agro-climatology	3	PHYS2101	AR
	SWAE3315	Water Quality	3	CHEM2101, SWAE2201	AR
	SWAE3311	Environmental Soil Physics	3	PHYS2101 , SWAE2201	AR
<b>TOTAL</b>			<b>15</b>		

SEVEN FALL	SWAE3005	Land Surveying	3	MATH2107 and PHYS2101	AR
	SWAE3402	Irrigation Principles	3	SWAE2201	AR
	SWAE4325	Water Treatment	3	CHEM2101, MATH2107, SWAE3315 +	AR
	SWAEXXXX	Major Elective	3	Check pre-requisites	AE
	SWAEXXXX	Major Elective	3	Check pre-requisites	AE
<b>TOTAL</b>			<b>15</b>		

EIGHT SPRING	SWAE4217	Transport of Chemicals in Porous Media	3	SWAE(3303, 3311) + CR*	AR
	SWAE4305	Water Control & Supply	3	SWAE(2201, 3310) + CR*	AR
	SWAE4400	Ground Water Hydrology	3	SWAE3303 + CR*	AR
	SWAE4402	Design & Manage. Irrigation Systems	3	SWAE(3310, 3402) + CR*	AR
	SWAEXXXX	Major Elective	3	Check pre-requisites	AE
<b>TOTAL</b>			<b>15</b>		

SUMMER	SWAE4800	SWAE Internship	3	After 90 Credits, + CR*	AR
	<b>TOTAL</b>			<b>3</b>	

NINE FALL	CAMS4001	Management and Business Skills	3	CR*	CR
	SWAE4415	Water Res. Management & Legist.	3	MATH2107, SWAE3303 + CR*	AR
	SWAEXXXX	Major Elective	3	Check pre-requisites	AE
	SWAEXXXX	Major Elective	3	Check pre-requisites	AE
	SWAEXXXX	Major Elective	3	Check pre-requisites	AE
<b>TOTAL</b>			<b>15</b>		

\* CR - CAMS college requirements which are BIOL2101, CAMS2000, CAMS2003, CAMS3000, CAMS3001, CHEM2101, PHYS2101 or PHYS2107.

**DEPARTMENT OF SOIL, WATER AND AGRICULTURAL ENGINEERING**

**WATER TECHNOLOGY**

**LIST B: College Requirements (29 Credits)**

Course Code	Course Title	Cr.	Pre-Requisite	Equivalents
BIOL2101	General Biology I	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	
CAMS2000	Introduction to Agricultural and Marine Sciences	0		
CAMS2003	Introduction to Food and Resource Economics	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	
CAMS3000	Seminar and Presentation Skills	2	CAMS2000, (FPMT0105 or FPMT0109), LANC2146	
CAMS3001	Biometry and Experimental Design in AMS	3	CAMS2000, (FPMT0105 or FPMT0109), LANC2146	
CAMS4001	Management and Business Skills	3	CR*	
CHEM2101	General Chemistry I	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604), FPMT(0105 or 0109)	
LANC2145	Communication in Agricultural Sciences	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	
LANC2146	Academic Writing in Science	3	LANC 2145 or LANC2142	
PHYS2101	General Physics I	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604), FPMT(0105 or 0109)	

**LIST C: College Electives (9 Credits)**

Course Code	Course Title	Cr.	Pre-Requisite	Equivalents
ANVS2001	Principles of Animal Science	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	
ANVS2002	Introduction to Veterinary Technology	3		
CROP2510	Introduction to Crop Production	3		
FSHN2071	Principles of Food Science	3		
FSHN2301	Introduction to Human Nutrition and Dietetics	3		
MASF2003	Introduction to Marine Science and Fisheries	3		
SWAE2001	Introduction to Agricultural Engineering	3		
SWAE2201	Introduction to Soils and Water	3		

\* CR - CAMS college requirements which are BIOL2101, CAMS2000, CAMS2003, CAMS3000, CAMS3001, CHEM2101, PHYS2101 or PHYS2107.

**DEPARTMENT OF SOIL, WATER AND AGRICULTURAL ENGINEERING**

**WATER TECHNOLOGY**

**LIST F: Major Requirements (55 Credits)**

Course Code	Course Title	Cr.	Pre-Requisite	Equivalents
MATH2107	Calculus I	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604), FPMT(0105 or 0109)	
SWAE3001	GIS for Environmentalists	3	LANC 2146 or 2041 or 2052 or 2058	
SWAE3005	Land Surveying	3	MATH2107, PHYS2101	
SWAE3303	Elements of Hydrology	3	PHYS2101, SWAE2201	
SWAE3304	Soil & Water Conservation	3	PHYS2101, SWAE(2001 or 2201)	
SWAE3305	Agro-climatology	3	PHYS2101	
SWAE3308	Instrumentation & Control Systems	3	MATH2107, PHYS2101	
SWAE3310	Fundamentals of Fluid Mechanics	3	MATH2107, PHYS(2101 or 2107)	
SWAE3311	Environmental Soil Physics	3	PHYS2101, SWAE2201	
SWAE3315	Water Quality	3	PHYS2101, SWAE2201	
SWAE3402	Irrigation Principles	3	SWAE2201	
SWAE4217	Transport of Chemicals in Porous Media	3	SWAE(3303, 3311) + CR*	
SWAE4305	Water Control and Supply	3	SWAE(2201, 3310) + CR*	
SWAE4325	Water Treatment	3	CHEM2101, MATH2107, SWAE3315 + CR*	
SWAE4400	Ground Water Hydrology	3	SWAE3303 + CR*	
SWAE4402	Design & Management of Irrigation Systems	3	SWAE(3310, 3402) + CR*	
SWAE4415	Water Resources Management & Legislation	3	MATH2107, SWAE3303 + CR*	
SWAE4800	SWAE Internship	3	After 90 Credits + CR*	

**LIST G: Major Electives (21 Credits)\*\***

Course Code	Course Title	Cr.	Pre-Requisite	Equivalents
CHPE4302	Desalination	3	MEIE3141	
ERSC2101	Introduction to Geology	4	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)	
ERSC4031	Geochemistry	3	CHEM2101, CHEM2201, ERSC2102	
ERSC4041	Introduction to Geophysics	3	ERSC2101, PETR3246, PHYS2101	
MEIE3141	Thermodynamics	3	CHEM2101, MATH2107, PHYS(2101 or 2107)	
SWAE3002	Desertification & Land Restoration	3	SWAE2201	
SWAE3306	Computer Programming	3	MATH2107, PHYS(2101 or 2107)	
SWAE4006	Arid-zone Hydrology	3	SWAE3303 + CR*	
SWAE4111	Hydrogeology for Soil-Water-Landscape Interactions	3	SWAE(2201, 3303, 3311) + CR*	
SWAE4304	Modeling & Analysis of Biophysical Systems	3	PHYS2101 + CR*	
SWAE4401	Water & Nutrients in Soil-Plant Environments	3	SWAE2201 + CR*	
SWAE4412	Management of Salt-Affected Soils	3	SWAE2201 + CR*	
SWAE4902	Research Project in Soils, Water & Agricultural Engineering	3	Manual Registration, GPA≥2.5 + CR*	

\* CR - CAMS college requirements which are BIOL2101, CAMS2000, CAMS2003, CAMS3000, CAMS3001, CHEM2101, PHYS2101 or PHYS2107.

\*\* 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 SOIL, WATER AND AGRICULTURAL ENGINEERING****WATER TECHNOLOGY****LIST J: Minor Requirements (3 Credits)**

Course Code	Course Title	Cr.	Pre-Requisite
SWAE2201	Introduction to Soil and Water	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)

**LIST K: Minor Electives (15 Credits)**

Course Code	Course Title	Cr.	Pre-Requisite
SWAE3303	Elements of Hydrology	3	PHYS(2101 or 2107), SWAE(2201 or 2001)
SWAE3310	Fundamentals of Fluid Mechanics	3	MATH2107, PHYS(2101 or 2107)
SWAE3315	Water Quality	3	CHEM2101, SWAE2201
SWAE3402	Irrigation Principles	3	SWAE2201
SWAE4217	Transport of Chemicals in Porous Media	3	SWAE(3303, 3311) + CR
SWAE4305	Water Control and Supply	3	SWAE(2201, 3310)+ CR*
SWAE4325	Water Treatment	3	CHEM2101, MATH2107, SWAE3315 + CR*
SWAE4400	Ground Water Hydrology	3	SWAE3303 + CR*
SWAE4402	Design & Management of Irrigation Systems	3	SWAE(3310, 3402) + CR*

## LIST J: MINOR REQUIREMENTS

### Within CAMS (18 credits):

#### J1. Minor in Animal Science (18 credits)

Course Code	Course Title	Cr.	Pre-Requisite
ANVS2101	Introduction to Animal Science	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)
<b>Five courses from the following</b>			
ANVS3208	Veterinary Immunology	3	ANVS(2101 or 2201), BIOL2101
ANVS3101	Genetics and Animal Breeding	3	ANVS(2101 or 2201), BIOL2101
ANVS3102	Animal Health	3	ANVS2101, BIOL2101
ANVS3104	Anatomy and Histology	3	ANVS(2101 or 2201), BIOL2101
ANVS3105	Fundamentals of Nutrition	3	(ANVS(2101 or 2201), BIOL2101
ANVS3106	Systemic Physiology	3	ANVS(2101 or 2201), BIOL2101
ANVS3107	Animal Reproductive Physiology	3	ANVS(2101 or 2201), BIOL2101
ANVS4101	Dairy and Beef Production	3	ANVS(2101 or 2201) + CR*
ANVS4102	Poultry Production	3	ANVS(2101 or 2201) + CR*
ANVS4104	Camel Physiology and Husbandry	3	ANVS(2101 or 2201) + CR*
ANVS4106	Sheep and Goat Production	3	ANVS(2101 or 2201) + CR*
ANVS4107	Animal Nutrition	3	ANVS3105 + CR*
ANVS4108	Meat Science	3	ANVS(2101 or 2201) + CR*
ANVS4111	Horse Management and Care	3	ANVS(2101 or 2201) + CR*

#### J2. Minor in Crop Sciences (18 credits)

Course Code	Course Title	Cr.	Pre-Requisite
CROP2510	Introduction to Crop Sciences	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)
<b>Five courses from the following</b>			
CROP2011	Ornamental Horticulture	3	BIOL2101
CROP3502	Forages and Pastures	3	BIOL2101
CROP3512	Vegetable Production	3	CROP2510
CROP3514	Fruit Production	3	CROP2510
CROP3522	Plant Pathology	3	BIOL2101
CROP3526	General Entomology	3	BIOL2101
CROP4005	Field Crop Production	3	CROP2510 + CR*
CROP4514	Landscape Plant Management	3	CROP(2011, 2510) + CR*

#### J3. Minor in Food Science (18 credits)

Course Code	Course Title	Cr.	Pre-Requisite
FSHN2101	Principles of Food Science	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)
<b>Five courses from the following</b>			
FSHN3101	Properties of Food & Agricultural Materials	3	(FSHN2101 or SWAE2001), PHYS(2101 or 2107)
FSHN3103	Food Analysis	3	CHEM3323, FSHN2302
FSHN3104	Food Chemistry I	3	CHEM3323, FSHN2302
FSHN3105	Food Microbiology I	3	BIOL3441
FSHN3106	Food Processing I	3	FSHN2101 or SWAE2001
FSHN3107	Food Sanitation and Quality Control	3	BIOL3441, FSHN2101
FSHN3108	Food Packaging	3	(FSHN3102 + CR*) or PHYS2102
FSHN3109	Sensory Evaluation of Food	3	FSHN2101 + CR*

FSHN4107	Milk and Milk Products	3	FSHN(3104, 3105, 3106) + CR*
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#### J4. Minor in Human Nutrition (18 credits)

Course Code	Course Title	Cr.	Pre-Requisite
FSHN2301	Introduction to Human Nutrition and Dietetics	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)
<b>Five courses from the following</b>			
FSHN2302	Principles of Biochemistry	3	BIOL2101, CHEM2101
FSHN3305	Macronutrients in Human Nutrition	3	FSHN2301, (BIOL2101 or CHEM2101)
FSHN3306	Micronutrients in Human Nutrition	3	FSHN3305
FSHN3307	Nutrition Assessment and Planning	3	FSHN (2301, 3305)
FSHN3111	Public Sanitation****	3	BIOL3441, FSHN2101
FSHN3309	Life Cycle Nutrition	3	FSHN (2301, 3307)
FSHN4306	Community Nutrition	3	FSHN(2301, 3307) + CR*

\*\*\*\* Students who pass FSHN3075 cannot take FSHN3111

#### J5. Minor in Marine Science and Fisheries (18 credits)

Course Code	Course Title	Cr.	Pre-Requisite
MASF2003	Introduction to Marine Science and Fisheries	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)
MASFXXXX	Any MASF2000/3000/4000 level courses (excluding University Electives)	15	Check pre-requisites

#### J6. Minor in Natural Resource Economics (18 credits)

Course Code	Course Title	Cr.	Pre-Requisite
CAMS2003	Introduction to Food and Resource Economics	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)
<b>Five courses from the following</b>			
NREC3011	Economics of Fisheries Management	3	CAMS2003
NREC3101	Marketing of Agricultural and Fisheries Products	3	CAMS2003
NREC3106	Social Survey Design and Analysis	3	CAMS(2003, 3001)
NREC3107	Food Service Systems- Operations Management	3	FSHN2072 or NREC3101
NREC3300	Natural Resource and Environmental Economics	3	CAMS2003
NREC4103	Agribusiness Entrepreneurships	3	CR*
NREC4230	Agricultural Finance	3	CR*
NREC4430	Benefit Cost Analysis	3	CR*
NREC4500	Extension Methods and Techniques	3	CR*

#### J7. Minor in Soil Sciences (18 credits)

Course Code	Course Title	Cr.	Pre-Requisite
SWAE2201	Introduction to Soil and Water	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)
<b>Five courses from the following</b>			
SWAE3002	Desertification & Land Restoration	3	SWAE2201
SWAE3302	Environmental Soil Chemistry	3	CHEM2101, SWAE2201
SWAE3304	Soil and Water Conservation	3	PHYS2101, (SWAE2001or SWAE2201)
SWAE3311	Environmental Soil Physics	3	PHYS2101, (SWAE2001or SWAE2201)
SWAE3411	Environmental Soil Microbiology	3	BIOL2101
SWAE4111	Hydropedology for Soil-Water-Landscape Interactions Water-Landscape Interactions	3	SWAE(2201, 3303, 3311) + CR*
SWAE4401	Water and Nutrients in Soil-Plant Environments	3	SWAE2201 + CR*
SWAE4404	Soil Genesis and Classification	3	ERSC2101 or SWAE2201 + CR*
SWAE4412	Management of Salt-Affected Soils	3	SWAE2201 + CR*



**J8. Minor in Water Technology (18 credits)**

Code	Title	Cr.	Pre-Requisite
SWAE2201	Introduction to Soil and Water	3	FPEL(0560 or 0600 or 0601 or 0602 or 0603 or 0604)
<b>Five courses from the following</b>			
SWAE3303	Elements of Hydrology	3	PHYS(2101 or 2107), SWAE(2201 or 2001)
SWAE3310	Fundamentals of Fluid Mechanics	3	MATH2107, PHYS(2101 or 2107)
SWAE3315	Water Quality	3	CHEM2101, SWAE2201
SWAE3402	Irrigation Principles	3	SWAE2201
SWAE4217	Transport of Chemicals in Porous Media	3	SWAE(3303, 3311) + CR
SWAE4305	Water Control and Supply	3	SWAE(2201, 3310)+ CR*
SWAE4325	Water Treatment	3	CHEM2101, MATH2107, SWAE3315 + CR*
SWAE4400	Ground Water Hydrology	3	SWAE3303 + CR*
SWAE4402	Design & Management of Irrigation Systems	3	SWAE(3310, 3402) + CR*

**Minors outside CAMS (19 credits):****Minors from the College of Science****J9. Biology (19 credits)**

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

**J10. Chemistry (19 credits)**

Course Code	Course Title	Cr.	Pre-Requisite
CHEM2101	General Chemistry I	4	FPMT0105
CHEMXXXX	Any 2000/3000/4000 level courses in Chemistry ( <b>excluding University Electives</b> )	15	

**J11. Computer Science (19 credits)**

Course Code	Course Title	Cr.	Pre-Requisite
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

### J12. Earth Science (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite
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

### J13. Mathematics (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite
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.

### J14. Physics (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite
PHYS2101 or PHYS2107	General Physics I or Physics for Engineering I	4	FPMT0105
PHYSXXXX	Any 2000/3000/4000 level courses in Physics ( <b>excluding University Electives</b> )	15	

### J15. Statistics (19 credits)

Course Code	Course Title	Cr.	Pre-Requisite
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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

### J16. Minor from College of Commerce (18 credits)

Only Natural Resource Economics students are entitled for this minor. NREC students must successfully complete 6 from the following 9 courses

Code	Title	Cr.	Pre-Requisite
ACCT1112	Introductory Financial Accounting	3	
MNGT1515	Principles of Management	3	
MNGT2515	International Business	3	MNGT1515
ECON1211	Principles of Microeconomics	3	
ECON2221	Principles of Macroeconomics	3	
FINA3311	Principles of Finance	3	ACCT2121
POMG2710	Principles of management Science	3	STAT1811
POMG3711	Operations Management	3	POMG2710
MRKT3611	Principles of Marketing	3	ECON 1211 & ECON2221

