

## Requirements for Earth Systems Subplan: 2015-2016

### SECOND LANGUAGE REQUIREMENT

(Requirement can be met with proficiency exam):

Semester One		4
Semester Two	(completion with a grade of C or better)	4

### TIER ONE

**Traditions and Culture (xxxx160)** (6 units):

		3
		3

**Individuals and Societies (xxxx150)** (6 units):

		3
		3

### TIER TWO

**Arts** (3 units):

		3
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**Individuals and Societies** (3 units):

		3
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**Humanities** (3 units):

		3
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**Diversity Emphasis** (3 units) (gender, race, class):

(Can be fulfilled with qualified Tier One or Tier Two)		
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**English** (6 units):

ENGL 101	Composition	3
ENGL 102	Composition (grade of B or higher to meet MCWA)	3

**Mathematics** (9 units):

MATH 122A & 122B	(P: MATH 120R, or MATH 112 plus MATH 111, with a grade of C or higher)	5
MATH 129	Calculus II (P: MATH 122B or MATH 125 with grade of C or higher)	3

**Chemistry** (8 units):

CHEM 151	General Chemistry I (P: MATH 112 or Math Placement level, Calc 65+)	4
CHEM 152	General Chemistry II (P: CHEM 151)	4

**Physics** (8 units):

PHYS 102	Introductory Physics I (P: Math Placement level, Calculus 45+, or MATH 112)	3
PHYS 181	Introductory Laboratory I (CR: PHYS 102)	1
PHYS 103	Introductory Physics II (P: PHYS 102)	3
PHYS 182	Introductory Laboratory II (P: PHYS 181; CR: PHYS 103)	1

**Computer Science or Additional Math** (3 units)

(Course in programming, GIS, or remote sensing, or MATH 163)		
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**Biology** (4 units):

ECOL 182R	Intro Biology II (CR: MATH 112, CR: ECOL 182I)	3
ECOL 182L	Intro Bio Lab II (CR: 182R)	1

**Physical Geology** (4 units):

GEOS 251	Physical Geology (Fall and Spring)	4
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**ESS Core Courses** (Choose 4 out of 5 classes):

GEOS 302	Principles Stratigraphy and Sedimentation (P: GEOS 251, CHEM 151, PHYS 102 or 141) (Fall) (Writing Proficiency course)	4
GEOS 412A	Ocean Sciences (P: One year of science)	3
GEOS 450	Geomorphology (P: GEOS 251) (Spring)	4
GEOS 478	Global Change (P: junior standing)	3
GEOS 479	Climate Dynamics (P: MATH 122B) (Fall)	3

**Additional Systems** (Choose 2 out of 3 classes):

GEOS 308	Paleontology (P: GEOS 251) (Fall)	3
GEOS 322	Intro to Geophysics (P: GEOS 251, MATH 122B) (Spring)	3
GEOS 484	Coevolution of Earth and Biosphere (P: MATH 129) (Spring)	3

**Field or Research Units** (4 units):

GEOS 414/research	(Consult with Geos Faculty)	4
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**ESS Advisor Approved Emphasis Courses** (20 units)

Majority of courses should consist of GEOS 300 or 400 level		
Full list of approved classes on advisement report		
Up to 9 units of Research and Preceptor allowed with max 6 units Preceptor (GEOS 397A)		

\*This plan equals 103 units. An additional 17 units of elective credit are required for graduation

### Advisor Approved Emphasis Courses – Earth Systems

AIS 431A, ANTH 332, ANTH 431A, ANTH 439A, ECOL 302, ECOL 360, ECOL 404R, ECOL 406R, ECOL 438, ECOL 441, ECOL 450, ENVS 330, ENVS 420, ENVS 431A, ENVS 483, GEN 330, GEOG 304, GEOG 330, GEOG 416A, GEOG 420, GEOG 430, GEOG 431A, GEOG 438, GEOG 439A, GEOG 447, GEOG 461, GEOG 461-SA, GEOG 473, GEOG 483, GEOS 304, GEOS 306, GEOS 330, GEOS 415, GEOS 438, GEOS 439A, GEOS 447, GEOS 453, GEOS 462, GEOS 466, GEOS 489, GIST 483, HWRS 250, HWRS 461, LAS 461, PLG 461, PLG 483, RAM 431A, RNR 200, RNR 316, RNR 321, RNR 416A, RNR 420, RNR 427, RNR 431A, RNR 440, RNR 458, RNR 473, RNR 480, RNR 483, WFSC 431A, WFSC 441, WSM 330, WSM 431A, WSM 439A

Earth systems subplan: MATH 122 placement									
Year 1		Year 2		Year 3		Year 4			
<b>Fall</b>		<b>Fall</b>		<b>Fall</b>		<b>Fall</b>			
GEOS 251	4	PHYS 102	3	Earth Systems Core	3	ESS emphasis	9		
MATH 122A	1	PHYS 181	1	ESS emphasis	3	Earth Systems Core	3		
MATH 122B	4	CHEM 151	4	Tier II Individuals	3	Tier II Arts	3		
ENGL 101/107	3	Additional Systems	3	Free electives**	6				
Tier I gen. ed.	3	Tier I gen. ed.	3						
	<b>15</b>		<b>14</b>		<b>15</b>		<b>15</b>		
<b>Spring</b>		<b>Spring</b>		<b>Spring</b>		<b>Spring</b>			
ECOL 182R	3	Additional Systems	3	Earth Systems Core	3	ESS emphasis	8		
ECOL 182L	1	PHYS 103	3	Earth Systems Core	4	Tier II Humanities	3		
MATH 129	3	PHYS 182	1	Stats or CompSci	3	Free electives**	6		
ENGL 102/108	3	CHEM 152	4	Additional Systems	3				
Tier I gen. ed.	3	Tier I gen. ed.	3						
	<b>13</b>		<b>14</b>		<b>13</b>		<b>17</b>		
				<b>Summer</b>					
				GEOS 414/research		4			
<b>TOTAL UNITS</b>	<b>28</b>	<b>TOTAL UNITS</b>	<b>28</b>	<b>TOTAL UNITS</b>	<b>32</b>	<b>TOTAL UNITS</b>	<b>32</b>	<b>TOTAL UNITS</b>	<b>120</b>

Earth systems subplan: MATH 111/112 or 120 placement									
Year 1		Year 2		Year 3		Year 4			
<b>Fall</b>		<b>Fall</b>		<b>Fall</b>		<b>Fall</b>			
GEOS 251	4	PHYS 102	3	Earth Systems Core	3	ESS emphasis	9		
MATH 111	2	PHYS 181	1	ESS emphasis	3	Earth Systems Core	4		
MATH 112	3	CHEM 151	4	Tier II Individuals	3	Tier II Arts	3		
ENGL 101/107	3	Additional Systems	3	Free electives**	4				
Tier I gen. ed.	3	Tier I gen. ed.	3						
	<b>15</b>		<b>14</b>		<b>13</b>		<b>16</b>		
<b>Spring</b>		<b>Spring</b>		<b>Spring</b>		<b>Spring</b>			
ECOL 182R	3	Additional Systems	3	Earth Systems Core	3	ESS emphasis	8		
ECOL 182L	1	PHYS 103	3	Earth Systems Core	3	Tier II Humanities	3		
MATH 122A	1	PHYS 182	1	Stats or CompSci	3	Free electives**	3		
MATH 122B	4	CHEM 152	4	Additional Systems	3				
ENGL 102/108	3	Tier I gen. ed.	3	Tier I gen. ed.	3				
	<b>12</b>		<b>14</b>		<b>15</b>		<b>14</b>		
<b>Summer</b>				<b>Summer</b>					
MATH 129	3			GEOS 414/research		4			
<b>TOTAL UNITS</b>	<b>30</b>	<b>TOTAL UNITS</b>	<b>28</b>	<b>TOTAL UNITS</b>	<b>32</b>	<b>TOTAL UNITS</b>	<b>30</b>	<b>TOTAL UNITS</b>	<b>120</b>

Earth systems subplan: MATH 100 placement									
Year 1		Year 2		Year 3		Year 4			
<b>Fall</b>		<b>Fall</b>		<b>Fall</b>		<b>Fall</b>			
GEOS 251	4	PHYS 102	3	Earth Systems Core	3	ESS emphasis	9		
MATH 100	3	PHYS 181	1	ESS emphasis	3	Earth Systems Core	4		
ENGL 101/107	3	MATH 129	3	Tier I gen. ed.	3	Tier II Arts	3		
Tier I gen. ed.	3	CHEM 151	4	Free electives**	4				
	<b>13</b>	Additional Systems	3						
			<b>14</b>		<b>13</b>		<b>16</b>		
<b>Spring</b>		<b>Spring</b>		<b>Spring</b>		<b>Spring</b>			
ECOL 182R	3	Additional Systems	3	Earth Systems Core	3	ESS emphasis	8		
ECOL 182L	1	PHYS 103	3	Earth Systems Core	3	Tier II Humanities	3		
MATH 111	2	PHYS 182	1	Stats or CompSci	3	Tier II Individuals	3		
MATH 112	3	CHEM 152	4	Additional Systems	3				
ENGL 102/108	3	Tier I gen. ed.	3	Tier I gen. ed.	3				
	<b>12</b>		<b>14</b>		<b>15</b>		<b>14</b>		
<b>Summer</b>				<b>Summer</b>					
MATH 122A & B	5			GEOS 414/research		4			
<b>TOTAL UNITS</b>	<b>30</b>	<b>TOTAL UNITS</b>	<b>28</b>	<b>TOTAL UNITS</b>	<b>32</b>	<b>TOTAL UNITS</b>	<b>30</b>	<b>TOTAL UNITS</b>	<b>120</b>

\*\* Number of free electives varies depending on ESS course selection.