B.S. Marine Science curriculum

SMS Core

SMS 100 Introduction to Ocean Science (3)
SMS 108 Beaches and Coasts (3) - (or choose one, ERS 101, 102, 109)
SMS 201 Biology of Marine Organisms (3)
SMS 203 Intro to Integrative Marine Sciences I (1) (IMS)
SMS 204 IMS II: Chemistry & Physics (2)
SMS 230 Marine Policy (3)
SMS 302 Oceanography (3)
SMS 303 IMS III: Oceanography (2)
SMS 304 IMS IV: Comparative Physiology, Cell & Molecular Biology (2)
SMS 400 Senior Capstone (3)
SMS 402 Oceans and Climate change (3)
SMS 404 Senior Capstone Seminar (1)

NFA 117-Issues and opportunities **(P/F)**

Field Experience - All Students are required to complete 42 hours of field experience

Non - SMS Core

BIO 100 Basic Biology (4)
BMB 280 Intro to Molecular and Cellular Biology (3)
CHY 121 Introduction to Chemistry (3)
CHY 123 Introduction to Chemistry Lab (1)
CHY 122 The Molecular Basis of Chemical Change (3)
CHY 124 The Molecular Basis of Chemical Change Lab (1)

{PHY 111 General Physics I (4)
PHY 112 General Physics II (4)}

or

{PHY 121 Physics for Engineers & Physical Scientists I (4)
PHY 122 Physics for Engineers & Physical Scientists I (4)}

MAT 126 Calculus (4)
STS 232 Principles of Statistical Inference (3)

B.S. Marine Science degree with no concentration: All core classes and 15 credits of SMS upper level electives (300 and 400 level)

General Education Courses: 18 credits of Human Values and Social Context, 3 credits of Ethics, ENG 101 and 1 other writing intensive course **or** The Honors four-semester sequence (HON 111, 112, 211, 212) plus SMS 100 and SMS 230 satisfies the human values and social context requirement.

B.S. Marine Science degree with a Concentration in Marine Biology, Marine Physical Sciences or Aquaculture

Marine Biology
21 credits of SMS electives and Organic Chemistry I
(See reverse for full listing)

Marine Physical Sciences
21 credits of SMS electives and Calculus II
(See reverse for full listing)

Aquaculture Concentration
25 Credits of SMS Aquaculture related electives
(See reverse for full listing)

*Curriculum check sheet available in SMS main office. A total of 120 credit hours needed for degree.

Marine Science Electives			Credits	Marine Biology	Marine Physical Sciences	Aquaculture
SMS	211	Introduction to Aquaculture	3			✓
SMS	300	Marine Ecology	3	✓		
SMS	306	Field Marine Ecology	4	✓		
INT	308	Conservation & Ecology of Marine Mammals	3	✓		
SMS	309	Techniques in Shellfish Aquaculture	2			✓
SMS	321	Introduction to Fisheries Science	3	✓	✓	
SMS	322	Biology of Marine Vertebrates	3	✓		
SMS	325	Marine Geology	3		✓	
SMS	330	Descriptive Physical Oceanography	3		✓	
SMS	333	Applied Meteorology	3		✓	
SMS	354	Thinking about the Oceans	3	✓	✓	
SMS	373	Marine and Freshwater Algae	4	✓		
SMS	374	Deep Sea Biology	3	✓		
SMS	375	Intro to Marine Science Data Analysis and Computer Programming	3	✓	✓	
SMS	401	Critical Issues in Aquaculture	1			✓
SMS	410	Marine Physics	4		✓	
SMS	422	Biology of Fishes	3	✓		✓
SMS	425	Applied Population Genetics	3	✓		✓
SMS	449	Engineering in Aquaculture	4			✓
SMS	450	Field Experience in Marine Sciences	1 - 4	✓	✓	✓
SMS	460	Climate Change: Understanding the Forecast	3		✓	
SMS	475	Field Marine Ecology	4	✓		
SMS	350	**SBS**: Undergraduate Seminar	1	✓	✓	
SMS	352	**SBS**: Marine Ecology	4	✓		
SMS	409	Shellfish Aquaculture	3			✓
SMS	416	Marine Engineering Literacy	3	✓	✓	✓
SMS	420	Fish Aquaculture I	3			✓
SMS	421	Fish Aquaculture II	3			✓
SMS	467	Fish Nutrition and Feeding	3			✓
SMS	480	**SBS**: Biology of Marine Invertebrates	4	✓		
SMS	481	**SBS**: Design of Marine Organisms	4	✓		
SMS	482	**SBS**: Human Impacts on the Ocean	3	✓	✓	
SMS	484	**SBS**: Estuarine Oceanography	4	✓	✓	
SMS	490	**SBS**: Special topics (Appropriate topics)	1 - 4	✓	✓	
INT	441	**SBS**: Maritime History & Archaeology of New England	3	✓		
INT	484	**SBS**: Intro. Systems Modeling for Bio Sciences	2	✓		
SMS	485	Compar. Animal Physiology	3+1	✓		
INT	475	Field Studies in Ecology	Arr.	✓		
SMS	491	Problems in Marine Sciences (appropriate topics)	Arr.	✓	✓	
SMS	497	Independent Study in Marine Sciences(must be approved)	1 - 4	✓		

* All SMS Electives can be used for the 15 credits for the B.S. degree with no concentration

Biology and Ecology & Biology and Molecular & Biomedical Sciences

BIO	336	Developmental Biology	4	✓		
BIO	353	Invertebrate Zoology	4	✓		
BIO	354	Biology of Behavior	3	✓		
BIO	445	Plant Genetics	3	✓		
BIO	452 & 453	Plant Physiology & Plant Physiology lab	4	✓		
BIO	462	Principles of Genetics	3	✓		
BIO	465	Evolution	3	✓		
BMB	300 & 305	General Microbiology & General Microbiology lab	5	✓		
BMB	322 & 323	Biochemistry &Biochemistry lab	4	✓		
BMB	430 & 431	Bacterial Physiology & Bacterial Physiology lab	4	✓	✓	✓
BMB	490	Microbial Genetics	4	✓	✓	✓

Marine Physical Sciences other

Marine Physical Sciences concentration electives include courses from Chemistry, Computer Science, Earth Sciences, Engineering, Math and Physics with permission from the SMS Undergraduate Coordinator. Please see the UMaine undergraduate catalog for class titles and descriptions

Chemistry: CHY 242, CHY 251, CHY 252, CHY 371, CHY 372

Computer Sciences: COS 125, COS 225, COS 226, COS 211

Earth Sciences: ERS 200, ERS 201, ERS 312, ERS 314, ERS 315, ERS 316, ERS 317, ERS 330, ERS 408, ERS 420 ERS 460, ERS 323, ERS 350

Engineering: MEE 150, MEE 230, MEE 360, CIE 350

Math: MAT 228, MAT 258, MAT 262, MAT 434, MAT 453

Physics: PHY 238