

**Marine, Estuarine and Freshwater Biology (MEFB)
Checklist for Discovery, MEFB Core and Major Requirements**

Discovery Requirements

Category	Course	Semester	Credits	Grade
Writing	ENGL 401 (WI)		4	
Quantitative Reasoning	BIOL 528 ¹		core ²	
Biological Sciences ²	BIOL 412		core ²	
Physical Sciences ²	PHYS 401		core ²	
Fine and Performing Arts			4	
Humanities			4	
Historical Perspectives			4	
World Cultures			4	
Social Science			4	
Env. Tech. and Society				
Inquiry ²	BIOL 412 ²		core ²	
Capstone ³	"see below"		major	
			24	

¹Or BIOL 555 Experimental Design & Analysis Lab

²These Discovery requirements are fulfilled by Biological Sciences Core courses.

³Capstone Course should be fulfilled by a major requirement.

Biological Sciences Core Requirements

(All Core courses except CHEM, MATH and PHYS must be completed with a grade of C- or better)

Course	Semester	Credits	Grade
BIOL 412		4	
BIOL 411		4	
MATH 424B		4	
BIOL 541 (WI)		4	
BMS 503		5	
GEN 604		4	
CHEM 403		4	
CHEM 404		4	
CHEM 545/546		5	
BMCB 658/659		5	
BIOL 528 or BIOL 555		4	
PHYS 401		4	
PHYS 402		4	
		55	

Students must receive a C- or better in all courses dealing with biological sciences (Biology, Zoology, Microbiology, BMS, BMCB, Genetics, MEFB and Natural Resources) that are used to satisfy major requirements.

Writing Intensive Requirements (4 WI courses required)

ENGL 401	
BIOL 541 (in-major requirement)	
A WI course at 600 level or above	
Any additional WI course	

MEFB Requirement Courses

Take All of the Following Courses

	Semester	Credits	Grade
MEFB 401 Marine, Estuarine and Freshwater Biology Seminar		1	
MEFB 503 Introduction to Marine Biology		4	
MEFB 525 Introduction to Aquatic Botany		4	
MEFB 527 Aquatic Animal Diversity		4	

Choose One of the Following Freshwater Courses

MEFB 717 Lake Ecology		4	
MEFB 719 Field Studies in Lake Ecology		4	

Choose One of the Following Physiology/Function Courses

ZOOL 625/626 Principles of Animal Physiology/Lab		5	
ZOOL 773 Physiology of Fish		4	

Choose One of the Following Marine or Estuarine Courses

MEFB 725 Marine Ecology		4	
ZOOL 750 Biological Oceanography		4	

MEFB Electives

Choose any 3 additional courses from the attached MEFB Electives lists. Co-requisite lecture/lab count as only one course.

Course	Semester	Credits	Grade	Course	Semester	Credits	Grade

Capstone (may be an Internship, Independent Study, Senior Thesis or a course designated as a Capstone)- A capstone course may also serve as an elective

Course	Semester	Credits	Grade

Marine, Estuarine and Freshwater Biology Electives

MEFB Electives (Choose any 3 courses from those listed below. Bold courses are taught on a regular basis. Shoals Marine Lab courses (SML) taught only in the Summer. Courses that can be used to fulfill the Capstone Requirement are indicated with a (C).

1. Evolution, systematics and biodiversity

BIOL 566 Systematic Botany
GEN 713 Microbial Ecology and Evolution
MEFB 625 Introduction to Marine Botany
MEFB 722 Marine Phycology
ZOO 518 Vertebrate Morphology
ZOO 542 Ornithology
ZOO 628 Marine Invertebrate Evolution and Ecology
ZOO 690 Evolution
ZOO 710 Ichthyology
MEFB 510 Field Ornithology (3 cr) [SML]
MEFB 609 Biology of the Lobster (3 cr) [SML]
MEFB 630 Biodiversity and Biology of Marine Inverts (3 cr) [SML]
MEFB 723 Marine Botany (3 cr) [SML]
MEFB 734 Diversity of Fishes (3 cr) [SML]
MEFB 741 Sharks: Biology and Conservation (3 cr) [SML]
MEFB 754 Anatomy and Function of Marine Verts (3 cr) [SML]

2. Fisheries and Aquaculture

ZOO 610 Aquaculture
ZOO 710 Ichthyology
ZOO 750 Biological Oceanography
ZOO 772 Fisheries Biology
ZOO 773 Physiology of Fishes
MEFB 609 Biology of the Lobster (3 cr) [SML]
MEFB 702 Sustainable Marine Fisheries (3 cr) [SML]
MEFB 734 Diversity of Fishes (3 cr) [SML]

3. Marine, Estuarine and Freshwater Ecology

NR 744 Biogeochemistry
ESCI 501 Introduction to Oceanography
GEN 713 Microbial Ecology and Evolution
NR 504 Freshwater Resources
NR 703 Watershed Water Quality Management
NR 711 Wetland Ecology and Management
MEFB 625 Introduction to Marine Botany
MEFB 717 Lake Ecology
MEFB 719 Field Studies in Lake Ecology (C)
MEFB 725 Marine Ecology (C)
MEFB 732 Lake Management (C)
MEFB 747 Aquatic Plants in Restoration, Mgmt & Conservation
ZOO 628 Marine Invertebrate Evolution and Ecology

3. Marine, Estuarine and Freshwater Ecology (continued)

ZOO 708 Stream Ecology
ZOO 711 Zooplankton Ecology
ZOO 721 Aquatic Invasive Species (C)
ZOO 733 Behavioral Ecology (C)
ZOO 750 Biological Oceanography
MEFB 515 Introduction to Marine Conservation Biology (3 cr) [SML]
MEFB 615 Field and Experimental Oceanography (3 cr.) [SML]
MEFB 674 Ecology and the Marine Environment (3 cr) [SML]
MEFB 714 Field Animal Behavior (3 cr) [SML]
MEFB 751 Research in Marine Biology (3 cr) [SML] (C)

4. Physiology, Behavior and Cell Biology

ANSC 701 Physiology of Reproduction
BIOL 701 Plant Physiology
BMCB 605 Eukaryotic Cell and Developmental Biology
BMS 716 Public Health and Waterborne Diseases
MEFB 714 Field Animal Behavior (3 cr) [SML]
MEFB 727 Algal Physiology
ZOO 625 Animal Physiology
ZOO 626 Animal Physiology Lab
ZOO 733 Behavioral Ecology
ZOO 773 Physiology of Fish
ZOO 777 Neurobiology and Behavior

5. Research and Special Projects¹

(Most of these would fulfill the Capstone Requirement)
BIOL 600 Field Experience (C)
BIOL 795 Independent Investigations in Biology (C)
BMS 795 Investigations in Microbiology (C)
MEFB 732 Lake Management (C)
MEFB 730 Underwater Research (3 cr) [SML] (C)
MEFB 751 Research in Marine Biology (3 cr) [SML] (C)
TECH 797 Ocean Research Projects (F-S) (C)
ZOO 795 Special Investigations in Zoology (C)

¹Primary focus of the project must be Marine, Estuarine and/or Freshwater.