

MARINE SCIENCE (MA IN MARINE SCIENCE)

Batten School Overview
M.A. Program Admission Requirements

Students enrolled in the Batten School of Coastal & Marine Sciences are students of William & Mary and must abide by academic and general policies set forth by the University. Students are also eligible for services provided by William & Mary on the main campus in Williamsburg.

The Master of Arts in Marine Science at the Batten School is a unique professional degree. It is designed to prepare students to enter the workforce as marine science professionals. Unlike other professional degree programs which are focused on courses taken virtually, M.A. students at the Batten School undertake experiential coursework and training alongside all other Batten School graduate students. This allows M.A. students to gain advanced knowledge and skills that will enhance their ability to translate, integrate, and apply marine science in a variety of professional settings and in partnership with other professionals, decision makers, and the public. In addition to required courses, students have flexibility to elect coursework in areas such as policy and law to fulfill degree requirements. They complete a capstone project and internship in lieu of a research thesis. For the capstone project, each student works with a Batten School faculty member and an external advisor to design and conduct a research project where integrated knowledge is used to address an idea, problem, or issue of consequence at the interface of marine science and environmental or natural resource management, policy, law, business, education, or other areas. The internship provides the opportunity for experiential learning with an organization that is engaged in marine or environmental science-oriented programs or activities. M.A. program students are advised by the M.A. Program Director.

M.A. Program Admission Requirements

Students interested in pursuing marine science as a profession should consult with their academic advisors, or the Office for Academic Affairs (admissions@vims.edu) at the Batten School, early in their college careers to identify an undergraduate academic program that will prepare them for graduate study in marine science. Applicants to the Master of Arts (M.A.) program should be able to demonstrate preparation for graduate-level courses in the sciences and mathematics, but do not need to have been science majors. Applicant review is holistic. We look for previous coursework, training, and experience that demonstrate preparedness for a rigorous science-focused curriculum, as well as an applicant's interest in pursuing a career path that will benefit from professional and advanced marine science training.

For matriculation as a regular degree-seeking graduate student, an applicant must have completed the requirements for a bachelor's degree (either a B.A. or B.S. are considered) from an accredited college, be recommended for admission by the M.A. Program Director, and be approved for admission by the Batten School Associate Dean for Academic Affairs.

In unusual circumstances, an applicant judged deficient in preparatory studies or other areas may be admitted as a provisional student. A provisional student may petition for regular student status after

successful completion of those requirements stipulated in their notification of admission. Petition for change in status shall be reviewed by the Batten School & VIMS Academic Council, using as criteria overall academic performance and performance standards previously specified on the student's notification of admission. If a change of status is recommended by the council, the petition must be approved by the associate dean. Graduate credit earned by a provisional student will be applied toward the graduate degree upon successful conversion to regular student status.

For additional Batten School admission information, important dates, and the on-line application, please visit our website (<https://www.vims.edu/academics/graduate/admissions/>).

Other Requirements
Milestones for the M.A. Program

Required Coursework

Batten School Core Curriculum for the M.A. Degree

Specific objectives of the Batten School core course curriculum are to:

- Educate students in the fundamentals of marine science in a way that fosters interdisciplinary and synthetic understanding of oceanic, coastal and estuarine systems;
- Provide students with an appreciation for the integration of marine science and its application to complex environmental problems;
- Ensure that students have the methodological, quantitative, communication, and professional skills needed to pursue successful careers in marine science.

Credit Requirement

At least (32) credit hours of graduate coursework, with a cumulative grade point average of 3.0 or better, are required for the M.A. degree.

Note: Students must pass all required Batten School core courses with a grade of B- or better. Students are required to choose courses as follows:

Code	Title	Hours
Fundamental Core Courses		
Select three of the following:		6
MSCI 501A	Fundamentals-Phys Oceanog	
MSCI 501B	Fundamentals-Chem Oceanog	
MSCI 501C	Fundamentals-Marine Geology	
MSCI 501D	Fundamentals Biological Ocean	
MSCI 501E	Fundamentals of Aquatic Health	
MSCI 501F	Fundamentals-Mar Fisheries Sci	
Quantitative Core Course		
Select at least one of the following:		3
MSCI 504	Stats Methods/Data Analysis	
MSCI 554	Principles Numerical Computing	
MSCI 556	Foundations of Stats & Data Sc	
Interdisciplinary Core Course		
MSCI 503	Interdis Res Estua/Coastal Sys	2
Science Communication Core Courses		
MSCI 505	Fundamentals of Science Comm	1
Select at least one of the following:		1-2

MSCI 506	Scientific Communication Skill
MSCI 508	College Science Teaching
MSCI 509	Comm Sci to Diverse Aud
MSCI 548	Spec Topics in Marine Science (Scientific Illustration)

Electives

Fulfill remaining credit hours with elective coursework (any Batten School graduate course applies, except courses used to fulfill the M.A. core curriculum requirement) 8-9

Internship in Marine Science

MSCI 597	Internship in Marine Science	4
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Capstone Research in Marine Science

MSCI 598	Capstone Research Mar Sci	6
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Note: With the permission of the M.A. Program Director and Associate Dean for Academic Affairs, up to (6) credit hours of relevant, non-Batten School graduate-level coursework, including courses on the Williamsburg campus or through cross-registration agreements with other institutions (e.g., Old Dominion University), may be counted as electives towards the degree.

Internship in Marine Science

The student will complete an internship with an organization that is engaged in clearly defined marine or environmental science-oriented programs or activities relevant to the student's preparation, capstone project, and individual development plan. The internship supervisor will provide mid-internship and final assessments of the student's professional performance to the M.A. Program Director.

Capstone Research in Marine Science

Students will conduct an independent research project that is designed to apply integrated marine science knowledge to an issue in management, policy, law, business, or education. Projects are co-advised by a Batten School faculty member and an individual from the relevant professional field.

Other Requirements**Enrollment & Registration**

Students in the M.A. program will normally register full-time with a minimum of nine credit hours of approved coursework each semester, for the first academic year (fall and spring semesters), and must be registered in the term of graduation. M.A. students are not required to register during the summer. Additional coursework that is not being used to meet marine science degree requirements and overload coursework are not covered by an assistantship award without permission of the Batten School Associate Dean for Academic Affairs. Continuous enrollment during fall and spring semesters is required unless a leave of absence has been granted. With permission from the M.A. Program Director and Associate Dean, an M.A. student may be granted part-time status. Full-time students are eligible to access services at the Student Health Center.

Milestones for the M.A. Program

In addition to completing degree requirements, M.A. students are expected to adhere to the following timeline for completion of milestones in the degree program.

Milestone	Date of Completion
Individual Development Plan	End of 1st Semester
Internship	Summer 1 or Year 2
Capstone	Summer 1 or Year 2
Completion of Degree Requirements	24 months

Individual Development Plan

By the end of the first semester, each student will be required to draft an individual development plan (IDP) to identify the professional skills the student wants to practice and gain during the program and the internship. The IDP will be reviewed with the M.A. Program Director prior to the end of the semester of matriculation (normally fall) and submitted to the Batten School Registrar. The plan will also facilitate planning for the internship and capstone.

Internship

The internship experience may be at the Batten School & VIMS, William & Mary, or with an external organization. The internship supervisor will provide mid-internship and final assessments of the student's professional performance to the M.A. Program Director. The internship course will be graded as pass/fail by the M.A. Program Director. A student must complete the internship to receive the degree. If a student does not pass the required internship, the student will have one additional opportunity to pass the internship. If the student does not pass the internship in the second attempt, the student will be dismissed from the degree program.

Capstone

The capstone project should be developed after consultation with the M.A. Program Director. It should be designed with the guidance of a Batten School faculty member and a professional mentor, and be of interest and relevant to the M.A. student's career aspirations. The capstone course requires a final project and a seminar style presentation. It will be graded as pass/fail. If significant changes to the submitted project are required, but revisions cannot be completed by the time grades are due for the semester, an Incomplete (I) may be assigned. The student will normally have one semester to complete revisions. A student must pass the capstone course to receive the degree. If a student does not pass the capstone, they will have one additional opportunity to pass the capstone. If the student does not pass on the second attempt, the student will be dismissed from the degree program.

Completion of Degree Requirements

The requirements for the degree must be completed within two years of matriculation unless the student has permission to complete the program in a part-time status.

Sub-concentration in Shellfish Aquaculture

Sub-concentration in Marine Policy

The sub-concentration, offered in collaboration with the College of Arts & Sciences Public Policy Program and the William & Mary Law School, exposes students to the tools and ideas that shape contemporary dialogue of coastal and marine policy. Through required coursework, students will first develop an understanding of policy structures and processes before exploring constructs, models, and methods commonly used to discuss and analyze coastal and marine policy. Completion of the sub-concentration also requires observation and reflection on coastal and

marine public policy in practice. Students may need to take additional coursework over that required for the degree in order to fulfill the sub-concentration requirements. The requirements for the sub-concentration are as follows:

Requirements:

Students will select courses from thematic areas (one area must be public policy; courses are subject to the availability of seats). In addition, a "capstone" course will provide the opportunity to observe and reflect on marine public policy in practice. Students must accrue at least 10 credit hours in total.

Pre-requisites for Public Policy courses (except MSCI 689 Pub Pol for Sci & Professions and PUBP 627 Law, Policy & Environment)

- Quantitative course - MSCI 504 Stats Methods/Data Analysis will fulfill requirement.
- Economics course - MSCI 557 Economies of the Coast will fulfill requirement.

Required - One Public Policy course:

- MSCI 689 Pub Pol for Sci & Professions

Required - Two additional courses from one or more of the following thematic areas:

The following course list is subject to availability of seats.

Economics

- MSCI 557 Economies of the Coast
- MSCI 687 Environmental Policy
- PUBP 604 Microeconomics Public Policy
- PUBP 605 Macroeconomics for Public Pol
- PUBP 606 Benefit-Cost Analysis

Law

- LAW 339 Natural Resources Law
- LAW 441 Admiralty Law
- MSCI 693 Environmental Law (cross-listed with LAW 424 Environmental Law)
- MSCI 694 Land Use (cross-listed with LAW 425 Land Use Control)
- MSCI 695 Administrative Law (cross-listed with LAW 453 Administrative Law)
- MSCI 698 Topics in Marine Science (cross-listed with LAW 679 Climate Change)

Other Courses

- OEAS 690 Topics in Marine Environmental Policy (offered by Old Dominion University through a cooperative agreement)

As additional courses become available at William & Mary, including the Batten School, or through an existing agreement with Old Dominion University or other future agreements with other universities, students may petition the Batten School Associate Dean for Academic Affairs to have a course included to fulfill the thematic area requirement. Courses from other thematic areas might include social sciences (e.g., anthropology, sociology), education, maritime or marine-related business or other disciplines.

Notes: (1) Instructor or School permission may be required to enroll in courses that do not have the MSCI prefix and is subject to the availability of seats. Procedures for cross-school registration are available from the

Batten School Registrar; (2) Seminar courses offered by the W&M Law School may be more appropriate than lecture courses for Batten School students; (3) Courses in the above list with the prefix LAW and PUBP are taught on the Williamsburg campus as are MSCI 687, 689, 693, 694, 695, 698: Climate Change.

Required - At least one credit of reflective practice

Taken as the last course in the marine policy subconcentration sequence, selected from:

- MSCI 688 Marine Policy & Mgmt Seminar (1-2 credits)
- MSCI 698 Topics in Marine Science (1-3 credits; course must be approved by the Batten School Associate Dean for Academic Affairs)

Supervised by a faculty member, students may self-identify opportunities to observe the coastal or marine public policy process in practice (e.g., public meetings of government commissions, agencies, or other decision-making bodies, at the local, regional, state, national or international level; policy shadowing experiences; internship; etc), and draft a 2-5 page synthesis paper, reflecting upon their observations of the policy process, integrating concepts from their prior course work, and discussing how the policy experience may relate to their science and research.

Subconcentration in Shellfish Aquaculture

The sub-concentration increases students' understanding and knowledge of the opportunities and challenges across the spectrum of shellfish aquaculture. Through required coursework, students will improve their comprehension of the types of shellfish aquaculture practiced locally and around the world. Students may need to take additional coursework over that required for the degree to fulfill the sub-concentration requirements. The requirements for the sub-concentration are as follows:

Requirements:

Students must accrue at least 10 credit hours in total.

Required - One Fundamentals course, from the following menu:

- MSCI 501E Fundamentals of Aquatic Health
- MSCI 501F Fundamentals-Mar Fisheries Sci

Required - All three modules of MSCI 560: Bivalve Shellfish Aquaculture

- MSCI 560A Shellfish Aquaculture: Bio&Prod
- MSCI 560B Shellfish Aquaculture: Env Int
- MSCI 560C Shellfish Aqua: Socioecon & Pol

Required - Five additional credit hours, from the following menu:

- MSCI 523 Human Dimensions of Marine Sci
- MSCI 534 Disease in Marine Systems
- MSCI 551 Directed Readings Shellfish Aq
- MSCI 552A Shellfish Aqua Practice: Ches
- MSCI 552B Shellfish Aqua Prac: New Persp
- MSCI 697 Advance Problem Marine Science; three course options, by arrangement:
 - Applied Breeding/Research Methods (2 credits)
 - Applied Farm Operations (2 credits)
 - Applied Hatchery & Nursery Operations (2 credits)

The above course list is subject to availability of seats. As additional courses become available at William & Mary, including the Batten School, or through an existing agreement with Old Dominion University or other future agreements with other universities, students may petition the

Batten School Associate Dean for Academic Affairs to have additional courses included.