MASTER'S DEGREE

Influence, lead and provide decision making support for the management and planning of coastal and marine spaces.
PROGRAM DESCRIPTION

The first graduate program of its kind in Canada, the Master of Marine Studies (Marine Spatial Planning and Management) focuses on the governance, bio-ecological, socio-economic, cultural and technological elements of sustainable ocean and coastal zone development, planning and management.

For more information and to apply, www.mi.mun.ca/msp.

PROGRAM OBJECTIVE

Graduates will be equipped with a clear understanding of integrated coastal and ocean management and marine spatial planning concepts/processes and their relationship to ecosystem-based management approaches.

Graduates will also enter the sector with:

- A broad level of understanding of governance, policy/legislative, ecological, social, cultural and economic elements of coastal and ocean areas;

- Strong communication, conflict management and facilitation skills to effectively engage coastal and ocean regulators and stakeholders;

- Technical capabilities/skills and knowledge necessary to make technology-supported management decisions and recommendations incorporating consideration of these elements; and

- The ability to apply coastal and marine spatial planning knowledge and skills to provide decision support and analysis and bridge the technical and theoretical aspects of ICOM and MSP.
PROGRAM STRUCTURE

This program is offered primarily online. Several courses are offered on-campus, including one required (core) course during spring intersession. This program includes options for an internship or research project.

The program is structured to provide a balance between conceptual/theoretical background and practical applied skills. As such, students will develop a broad level understanding of planning processes and the governance, policy/legislative, ecological, social, cultural and economic elements of coastal and ocean areas complemented by practical and applied skills for stakeholder engagement, project management and utilization of geospatial technology to support planning efforts. Throughout the program, courses will be structured to introduce theoretical concepts and then examine real world examples of their application.

Students will complete seven core courses, an internship (MSTM 6019) or research project, and choose one of three options for elective course selection:

- Two Category A Electives plus one Category B Elective
- Two Category B Electives plus one Category A Elective
- Two Category C Electives plus one Category A or B Elective.

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**CORE COURSES**

- MSTM 6011: Introduction to Integrated Coastal and Ocean Management / Marine Spatial Planning
- MSTM 6012: Fundamentals of Geospatial Analysis
- MSTM 6013: Resource/Natural Environment and Ocean Use Characterization
- MSTM 6014*: Geospatial Analysis for Marine Spatial Planning
- MSTM 6022: Communication and Conflict Resolution in a Technical Environment
- MSTM 6027: Coastal and Ocean Environmental Policies
- MSTM 6034: Project Management in the Offshore, Health, Fisheries and Engineering Technology Environments

**ELECTIVES CATEGORY A: NATURAL ENVIRONMENT**

- ENVE/ENVS 6001*: Earth and Ocean Systems
- MSTM 6001: Fisheries Ecology
- MSTM 6015: Marine Protected Areas
- MSTM 6016: Coastal Geomorphology / Oceanography

**ELECTIVES CATEGORY B: HUMAN ENVIRONMENT**

- MSTM 6008: Social and Philosophical Issues in Sustainable Fisheries
- MSTM 6017: Social and Cultural Aspects of Coastal Communities
- MSTM 6018: Coastal and Ocean Economics

**ELECTIVES CATEGORY C: DECISION SUPPORT / GEOSPATIAL ANALYSIS**

- GEOG 6120*: Geospatial Modelling and Analysis
- GEOG 6821*: Advanced Computer Modelling / Habitat Mapping

**PROJECT OPTIONS**

- MSTM 6019: Internship
- RESEARCH PROJECT

* Delivered on-campus only
REQUIREMENTS

Admission to the program is on a limited and competitive basis.

To be considered for admission to the program, an applicant will normally possess a relevant second class or better undergraduate degree from a university of recognized standing.

Students intending to undertake electives in Decision Support / Geospatial Analysis (Category C) are required to have a background in mathematics, statistics and geographic information systems.

HOW TO APPLY

Applicants should submit their application to Memorial University’s School of Graduate Studies by the following deadline:

- FALL ADMISSION – MAY 15

For more information and to apply online, go to www.mun.ca/become/graduate/apply.
MSTM 6001 - FISHERIES ECOLOGY
This course is designed to give participants an understanding of fisheries science and ecology, focusing on global species of commercial value. Specifically, it will examine various species, how they interact with their biotic and abiotic environment, how we study them, and how human activities have affected their population structure and environment. It will also consider the impacts of commercial production technology for both wild and farmed species.

MSTM 6008 - SOCIAL AND PHILOSOPHICAL ISSUES OF FISHERIES MANAGEMENT
This course will explore the concepts of open access resource use from an historical perspective and the influence of capitalism on resource use, resource access and property regimes presently found in modern fisheries. Technology, resource partitioning and global economies will be explored in terms of impacts on communities, women and local economies. The emphasis of this course is the social and philosophical issues of resource use on individuals and the global community as we move into the 21st century.

MSTM 6022 - COMMUNICATION AND CONFLICT RESOLUTION IN A TECHNICAL ENVIRONMENT
This course provides participants with an understanding of the basic principles of conflict resolution, negotiation, and effective communication and interpersonal skills. The skills taught will enable students to diagnose, understand and accept a role in the negotiation and management of conflicts between individuals and groups in an organizational context; to investigate and solve problems and manage conflicts within the workplace.

MSTM 6027 - COASTAL AND OCEAN ENVIRONMENTAL POLICIES
This course provides a detailed review of environmental protection policies enacted by a number of national jurisdictions together with international conventions and the framework for governing ocean resources and the ocean environment outside the limits of these jurisdictions. It considers the strengths and weaknesses of these policies and of the legal frameworks in which they are enacted and the effectiveness of existing conventions, as well as their impact on the business of shipping.

MSTM 6034 - PROJECT MANAGEMENT IN THE OFFSHORE, HEALTH, FISHERIES AND ENGINEERING TECHNOLOGY ENVIRONMENTS
This course will include an overview of project management. It will include presentations, discussions, and case-based analysis around project planning and monitoring; resource planning, budgeting and cost controls; assessing and managing risks; managing team work; effective communications; quality control; and negotiations and contracts.

ENVE/ENVS 6001 - EARTH AND OCEAN SYSTEMS
This course covers topics including climate (energetic relationships; urban effects); quaternary (change and variation); dating techniques; proxy data (types and uses); periglacial and arctic environments; natural hazards; and coastal and marine environments (sea level).

MSTM 6011 - INTRODUCTION TO INTEGRATED COASTAL AND OCEAN MANAGEMENT / MARINE SPATIAL PLANNING
This course will address how Integrated Coastal and Ocean Management (ICOM) and increasingly Marine Spatial Planning (MSP) have been undertaken worldwide as a means to overcome the ineffectiveness of traditionally fragmented sector and single issue management. It will examine integrated approaches that are multi-disciplinary, area-based, comprehensive and participatory and reflect a move toward ecosystem-based management. The course will examine ICOM/MSP concepts, processes and associated best practices as well as the international, national and regional contexts including critical analysis of case studies.

MSTM 6012 - FUNDAMENTALS OF GEOSPATIAL ANALYSIS
Geographic information systems (GIS) and remote sensing technologies are essential to the realm of marine spatial planning. The understanding of geospatial data improves interoperability and decision making pertaining to social, economic and environmental priorities. This course addresses remote sensing and GIS principles and methods of coastal data acquisition, processing, analysis, dissemination, quality and management. Comprehension of these processes requires fundamentals pertaining to spatial data including geodesy, projection/coordinate geometry, data models, feature abstraction and map generalization.

MSTM 6013 - RESOURCE/NATURAL ENVIRONMENT AND OCEAN USE CHARACTERIZATION
The course will address identification and characterization of resource/natural environment features and the nature of ocean (including coastal) use patterns as a fundamental component of integrated coastal and ocean management/marine spatial planning. The course will examine key natural environmental features/processes of coastal and ocean areas, coastal and ocean resources, as well as how numerous sectors and interests utilize/value coastal and ocean space. Aspects such as ecologically and biologically significant areas, strategic environmental and risk assessment and planning related characterization efforts internationally, nationally and regionally will be included.
MSTM 6014 - GEOSPATIAL ANALYSIS FOR MARINE SPATIAL PLANNING
This course will examine the critical role and effective use of geospatial data for marine spatial planning purposes. It will provide students with the technological knowledge and ability to identify, manage and analyze geospatial data to address a number of MSP requirements such as habitat conservation, user conflict avoidance and optimization of coastal and ocean space. The course will examine the technological aspects of ICOM/MSP processes, data requirements and management, decision-support tools and associated best practices as well as examples from international, national and regional contexts including critical analysis of case studies.
PR: MSTM 6011, MSTM 6012, and MSTM 6013

MSTM 6015 - MARINE PROTECTED AREAS
The course will examine the planning and management of Marine Protected Areas (MPAs). It will address policy, principles and designs; the international, national and regional MPA contexts; issues associated with MPAs as well as the role of MPAs in fisheries management and biodiversity conservation. It will include their key role in meeting the conservation objectives established in integrated coastal and ocean management and spatial planning processes.

MSTM 6016 - COASTAL GEOMORPHOLOGY AND OCEANOGRAPHY
With approximately 40% of the world’s population living in coastal areas, enormous pressure is being placed on their industrial, recreational and habitable resources. In order to manage these resources in a sustainable manner, we must understand how marine and terrestrial processes interact at their interface; the coastal zone. This course is designed to educate students about the processes and forces which act upon coastlines, and the resistance factors of those coastlines. There is emphasis on how these forces and resistance factors combine to produce coastal landforms locally and globally. Discussion also examines how the interaction of these erosional factors and resistance factors result in the formation of dynamic coastal features. As coastal populations increase, there is a growing desire to try to stabilize the coastal area and protect the people who live there by constructing various coastal defense features. These features and their impacts on natural systems will be examined in this course. Oceanographic process that both impact shorelines and are themselves impacted by coastal defense features, such as waves, tides and currents will also be examined.

MSTM 6017 - SOCIAL AND CULTURAL ASPECTS OF COASTAL COMMUNITIES
The course will review the influence of the marine environment and the ocean on social structures within coastal communities. It will also examine cultural practices and ties to coastal life as well as the importance and utilization of aboriginal and traditional/local ecological knowledge in planning and managing coastal and ocean areas. Case studies from around the globe will be utilized to highlight issues such as technology, globalization, small scale fisheries, cultural and environmental sustainability, and organization of community groups as effective agents of change.

MSTM 6018 - COASTAL AND OCEAN ECONOMICS
This course will introduce students to the theoretical and practical economic forces influencing Integrated Coastal and Ocean Management. Building on micro- and macro economic science it will investigate a number of issues related to natural resource use and global marine commerce. Students with backgrounds or interests in Fisheries & Aquaculture, Seafood Industry, Coastal Development Land Use & Recreation, Offshore Oil & Gas, and Coastal Watershed Management, will use case studies to engage in critical discussion to examine policy and practice with regard to coastal economic potential and problems. This course will offer a conceptual framework of how Integrated Coastal Zone Management may be applied to steer study and policy of evolving economic practices towards sustainable development.

Project Options

MSTM 6019 - INTERNSHIP
Students will undertake a 12 week internship with a group/organization, business, government agency, research institute etc. with duties related to Integrated Coastal and Ocean Management/Marine Spatial Planning activities/requirements. Students will be required to produce a report documenting their internship activities.

RESEARCH PROJECT
Evaluation of the Research Project shall be carried out in accordance with Theses and Reports of the General Regulations governing all students in the School of Graduate Studies.
# Course Selection Chart

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Core Courses Complete</th>
<th>Internship Option</th>
<th>Research Project Option</th>
</tr>
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<tbody>
<tr>
<td>MSTM 6011 Introduction to Integrated Coastal and Ocean Management / Marine Spatial Planning</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>MSTM 6012 Fundamentals of Geospatial Analysis</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<tr>
<td>MSTM 6013 Resource/Natural Environment and Ocean Use Characterization</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<tr>
<td>MSTM 6014 Geospatial Analysis for Marine Spatial Planning</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<tr>
<td>MSTM 6022 Communication and Conflict Resolution in a Technical Environment</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<tr>
<td>MSTM 6027 Coastal and Ocean Environmental Policies</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<tr>
<td>MSTM 6034 Project Management in the Offshore, Health, Fisheries and Engineering Technology Environments</td>
<td>✓</td>
<td>✓</td>
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<thead>
<tr>
<th>Elective Courses Category A: Natural Environment</th>
<th>Choose 1 of 3 Elective Options</th>
<th>2 Category A Electives Plus 1 Category B Elective</th>
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<tbody>
<tr>
<td>ENVE/ENVS 6001 Earth and Ocean Systems</td>
<td>✓</td>
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<tr>
<td>MSTM 6001 Fisheries Ecology</td>
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<tr>
<td>MSTM 6015 Marine Protected Areas</td>
<td>✓</td>
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<tr>
<td>MSTM 6016 Coastal Geomorphology / Oceanography</td>
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<tr>
<th>Elective Courses Category B: Human Environment</th>
<th>Choose 1 of 3 Elective Options</th>
<th>2 Category B Electives Plus 1 Category A Elective</th>
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<tbody>
<tr>
<td>MSTM 6008 Social and Philosophical Issues in Sustainable Fisheries</td>
<td>✓</td>
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<tr>
<td>MSTM 6017 Social and Cultural Aspects of Coastal Communities</td>
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<tr>
<td>MSTM 6018 Coastal and Ocean Economics</td>
<td>✓</td>
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<thead>
<tr>
<th>Elective Courses Category C: Decision Support / Geospatial Analysis</th>
<th>Choose 1 of 3 Elective Options</th>
<th>2 Category C Electives Plus 1 Category A or B Elective</th>
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<tbody>
<tr>
<td>GEOG 6120 Geospatial Modelling and Analysis</td>
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<tr>
<td>GEOG 6821 Advanced Computer Modelling/Habitat Mapping</td>
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<tr>
<th>Project Options</th>
<th>Complete</th>
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<tbody>
<tr>
<td>MSTM 6019 Internship</td>
<td>✓</td>
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<tr>
<td>Research Paper</td>
<td>N/A</td>
</tr>
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**PROGRAM DELIVERY AND SUPPORT**

The overall structure of the program is course-based with courses offered online by the Fisheries and Marine Institute of Memorial University. This is fully supported by Centre for Innovation in Teaching and Learning (CITL). Desire2Learn (D2L) is used as the main content delivery method and provides a virtual classroom for each course in the program.

Students can avail of all the services and support offered by the Marine Institute and Memorial University including access to the extensive University Library System resources and to Help Desk support available through CITL for technical issues related to D2L.

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**ABOUT THE MARINE INSTITUTE**

As a campus of Memorial University of Newfoundland, the Fisheries and Marine Institute is Canada’s most comprehensive centre for education, training, applied research and industrial support for the ocean industries.

Located on the edge of the Atlantic Ocean, we are one of the most respected centres of marine learning and applied research in the world.

The Marine Institute provides more than 20 industry-driven programs ranging from technical certificates to master’s degrees. In addition to undergraduate and graduate degrees, the Institute offers advanced diplomas, diplomas of technology and technical certificates.

Students enjoy a learning environment where small class sizes are the rule, hands on instruction is a way of life and competitive tuition rates put an internationally-recognized education well within reach.

The Institute also runs a variety of short courses and industrial response programs. All programs and courses are designed to provide students with knowledge and skills required for success in the workforce.

The Institute has three Schools — the School of Fisheries, the School of Maritime Studies and the School of Ocean Technology — and within these Schools a number of specialized centres and units.

These centres and units lead the Institute, both nationally and internationally, in applied research and technology transfer and in the provision of training to a variety of industry clients.
CONTACT INFORMATION

GRADUATE STUDENT RECRUITMENT OFFICER
Division of Academic and Student Affairs
Fisheries and Marine Institute of
Memorial University of Newfoundland

Telephone: 709.778.0395
Toll-free: 1.800.563.5799, ext. 0395

recruitment@mi.mun.ca
www.mi.mun.ca/msp
www.mun.ca/become/graduate

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