

# **Carbon Neutral Sport Marina Management Competencies**

## **COURSE INFORMATION**

Master of Science Modules in Carbon Neutral Management of Sport Marinas  
Duration of course: 12 months

The Master of Science Modules in Carbon Neutral Sport Marinas Management is a 1-year MSc by coursework, and consists of full time study with assessment by course assignments, written examinations and a 15,000 (maximum) word dissertation.

### **Aims/Objectives**

Understanding Carbon Neutral Sport Marinas Management Concept

Responding to Environmental Change

Methods & Techniques in Sport Marinas Management

The programme aims to:

- Examine the nature, causes and impacts of major types of environmental change, and how these changes operate and interact on global, regional and local scales and in relation to critical social, physical, and ecological systems.
- Engage the economic, legal, cultural, and ethical underpinnings of environmental responsibility and systemic solutions, including mitigation, adaptation, remediation, enhanced resource stewardship and other sustainable responses to environmental change at different scales and within different organisational contexts.
- Facilitate a critical appreciation and understanding of the science underpinning carbon neutral sport marinas management and the social science and ethical roots that inform human behaviour.
- Empower Sport Marinas Managers with the analytical and practical skills, integrity and broad appreciation of management systems and societies in relation to carbon neutral concept necessary to address the world's most pressing environmental problems.
- Provide an entry-point for those who wish to go on to further advanced research, policy, academic business, NGO or other environmental leadership work.

Students will develop a knowledge and understanding of:

1. The key concepts of earth systems, ecosystems, and human systems in relation to environmental change (e.g., the Anthropocene).
2. The theoretical and practical basis for human adaptation, development, governance, sustainable decision-making, energy production and demand, natural resource management, and climate policy,
3. Techniques for understanding carbon neutral management of sport marinas through assessment, modelling, valuation, remote sensing, field studies and monitoring.

4. The key research skills and methods of analysis for integrated marinas management assessment, strategic planning, measuring sustainability, and evaluating policy in response to environmental change.
5. The intersecting issues involving climate, energy, biodiversity, water, and food security in the present and future.
6. Specialist topics consistent with candidate's particular interests and the expertise of the School.

The importance of interdisciplinary approaches in the solution of marinas management problems is a major theme in this course. We take a problem-based approach to *interdisciplinarity* through key environmental management issues. The course is structured to enable students to develop their own interdisciplinary thinking. At the Master level, it is appropriate that students are given the opportunity to explore diverse literatures, approaches, and issues concerning environmental change and management. Capstone and other integrative exercises within and across various modules provide students with opportunities to do this in groups as well as individually.

## **A. Understanding Environmental Change and the Impact on Sport Marinas**

### **A1. The Earth System**

Training students to understand and investigate the major processes and change drivers which contribute to particular climate conditions in the earth system at different scales. An understanding of the interdependencies between the grand cycles (water, carbon, nitrogen, phosphorus) in the Sport Marinas Management System. The policy, economic, and ethical dimensions of climate change – an exemplar of the controversies of responding to environmental change. Capacity to synthesise, model, and analyse key environmental data sets.

### **A2. Global Change and the Biosphere**

Analyses roles played by the biosphere in global and local environmental change: how is it affected by environmental change and how can changes in the biosphere affect global change? A macro-scale view of global biosphere function in Earth history and the global impact of humanity, putting contemporary environmental change into wider context. How ecologists explore biosphere responses to global change through field studies, satellite remote sensing and modelling, with examples from contemporary research in tropical biomes and local temperate woodlands.

### **A3. Human Systems and Environmental Change**

Examines human systems of knowledge, values, organization, technology, and behaviour in relation to environmental change in an evolutionary and social development context. What is the utility of viewing human societies as systems? How do the complexity, diversity, stratification, and resource management strategies of human societies shape their contributions and responses to critical environmental parameters and challenges? The module introduces relevant cognitive, social, economic, and human ecological concepts and theory to understand historical developments in social-ecological systems and address contemporary issues of sustainability and wellbeing in an increasingly populous and globalised society.

### **A4. Economics of the Environment**

Equips students with the foundational concepts, methods and analytical tools to examine the role and application of economic approaches to environmental and related policy issues across a range of contexts, scales and issues.

## **B. Responding to Environmental Change**

### **B1. Sport Marinas Systems and Mitigating Carbon**

Investigates the role of energy systems in causing and mitigating climate change for carbon neutral management of sport marinas. Debates and major trends in the role of technologies, economics, human behaviour, social change and governance in avoiding dangerous anthropogenic climate change. Developing analytical, problem solving and communication skills in the context of a major infrastructure system.

### **B2. Sustainable Responses to Environmental Change**

Analyses how to respond to environmental change, while dealing adaptively with risks, uncertainties, and contingencies for the future. How do we make sustainable decisions in such contexts to find the right trade-offs and viable solutions to environmental challenges?

### **B3. Governing the Sport Marinas**

Examines the complex challenges of governing Sport Marinas. The term “governance” reflects a growing awareness that not only governments but a wide range of non-governmental actors at multiple scales – from international NGOs to corporations and local communities – are involved in shaping environmental strategies and outcomes. Conceptual lenses to examine and critique this complex governance landscape: from common pool resource theory; to the political economy of trade and development; to integrative conceptions of “sport marinas system governance”. These concepts are applied across a range of substantive issue areas, including climate, forests, agriculture and coastal and marine systems.

## **C. Methods and Techniques in Sport Marinas Management**

Introduces cross-cutting, multidisciplinary methods and techniques for addressing environmental change issues, as introduced throughout the core lectures, readings, field courses, workshops and other media. Beyond the many methods and techniques introduced throughout the course, students are also encouraged to pursue innovative and mixed method approaches to sport marinas management and carbon neutral management of marinas problems through the elective programme, dissertation projects, and other outlets, as appropriate. A quantitative skills module is offered to ensure students have requisite techniques for interdisciplinary environmental science.

### **Dissertation**

The dissertation forms a significant part of the course in terms of student interest, learning and assessment. The end product is a dissertation of not more than 15,000 words. This is an opportunity for students to investigate in-depth a problem of their choice within the broad conspectus of carbon neutral management of sport marinas.

All dissertations will be judged on the degree to which they represent a logical, thorough, and intelligible report on a piece of original research, of a standard expected of a Masters student.

## **Competencies**

### **The Marina System**

The aim of this module is to deliver a holistic understanding of the processes of interaction and feedbacks within the marina management system, as well as an introduction to the methods used to monitor and understand past changes, and to predict how the management system might evolve in future. Students will receive hands on experience of data manipulation, environmental modelling and sensitivity analysis including working with a simple climate model, which will also deliver a more critical perspective on the evidence. The attribution game, a participatory exercise during which students will become boat owners, scientists, and policymakers, will deepen their understanding of the science and test their ability to apply scientific results to policy-making.

### **Human Systems and Environmental Change**

The module aims to assist students in gaining a critical understanding of the interactions between human society and environmental change in an interdisciplinary, social-ecological systems context. Major topics and methods include global trends in human and ecological systems, the role of worldviews and culture in defining the human-environment relationship, concepts of resilience, adaptation, development, transformation, power and identity, and evolving notions of human, economic, and sustainable development. Students will be expected to master a set of core concepts and skills for analysing the development, dynamics, and sustainability of complex social-ecological systems, drawing on both historical and contemporary examples. Students will additionally apply these skills to design innovative research, compose policy briefs, and engage in debates on contemporary social-ecological challenges.

### **Carbon Neutral Marina Management as Sustainable Responses to Environmental Change**

The course aims to equip students with the theories and tools to make decisions about management of marinas, taking into account costs, benefits, and risks. Students will learn about practical methods for analysing decisions, including multi-criteria and cost-benefit analysis. This will equip them to use these methods in decision making and to critique their use by others. Examples will be drawn widely from environmental management, but with a particular emphasis upon decisions about adaptation and mitigation. Master class workshop sessions will provide insights into practical decision making and sustainable assessment, including skills of advocacy and argumentation and verbal/written presentation skills.

### **Governing the Sport Marinas**

This course aims to assist students in gaining a critical understanding of governance theory and social science research methods and their relevance to major environmental and social problems.