

Course Syllabus: Mathematics of Marine Strategy (MMS301)

Semester: [Insert Semester]

Course Description

Mathematics of Marine Strategy (MMS301) explores complex mathematical concepts through the lens of marine life, particularly focusing on whales. The course covers advanced topics in combinatorics, graph theory, topology, and differential equations, applying them to theoretical marine scenarios.

Instructor

Dr. Marina Calcus

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Office Hours: By appointment, tide-dependent

Course Objectives

- Apply advanced combinatorics to theoretical marine population models.
- Explore complex graph theory in the context of marine ecosystems.
- Utilize topology to understand the spatial dynamics of marine life.
- Solve differential equations related to oceanic environmental changes.

Required Text

"Calculus of the Currents: A Deep Dive into Marine Mathematics" by Prof. Wave T. Crest.

Grading Policy

- Advanced Combinatorial Assignments: 30%
- Midterm Exam: 25%
- Topological Research Project: 20%
- Final Exam: 25%

Course Schedule

Week 1-3:	Advanced Combinatorics in Marine Strategy
Week 4-6:	Graph Theory in Marine Ecosystem Analysis
Week 7-9:	Topology in Marine Spatial Dynamics
Week 10-12:	Differential Equations and Oceanic Environments
Week 13:	Research Project Presentations
Week 14:	Review and Integration of Concepts
Week 15:	Final Exam Preparation

Course Policies

- Attendance is mandatory, especially for the underwater seminars.
- Late submissions will incur a penalty unless accompanied by a note from a marine biologist.
- Academic integrity is crucial; violations will lead to disciplinary action.

Final Exam

The final exam will be comprehensive and include problem-solving, advanced theoretical questions, and applications to marine strategy.