

Locations:

Marine and Natural Sciences Building = MNS

Lecture rooms: MNS 200, MNS 210, MNS 213

Labs: MNS 103

**Monday, 26. May 2025 – Memorial Day**

11:00-12:00 Registration – Check-In

Bayside

Apartments

12:30 Orientation

MNS 200 Dr. Donald W. Stremme – Cornell University

AQUAVET® Director

13:30 RWU Required Safety Lecture

MNS 200 Caitlin Conley

14:30 History of AQUAVET®

MNS 200 Dr. Laurie Landeau – Marinetics, Inc.

AQUAVET® Associate Director

16:00 An Overview of the Primary Marine Invertebrate Phyla we are Likely to

MNS 210 Encounter

 Dr. Robert Maze – Marinetics, Inc.

AQUAVET® Associate Director

17:30 dinner

18:30 An Overview of the Primary Marine Invertebrate Phyla we are Likely to

MNS 210 Encounter (continued)

 Dr. Maze

19:30 **Welcome to AQUAVET Party**

Dorm Courtyard Area (weather permitting)

**Tuesday, 27. May 2025**

8:00 Anatomy of Bilvalvia, Crustaceanss, Cephalopoda and Echinodermata as

MNS 210 they Pertain to our Lab

 Dr. Maze

10:00 Marine Metazoan Parasites and an Introduction to Public Health Issues

MNS 210 (e.g. Anisakiasis), those Parasites likely to be seen in AQUAVET (a plethora, including those of Limulus, Dorytheuthus and in our Marine Mammals labs) and have been researched by AQUAVET students in the past

 Dr. Maze

13:00 Important Diseases of Marine Invertebrates

MNS 210 Dr. Alisa Newton – OCEARCH – ZooQuatic Laboratory

15:00 History of Fishes: Taxonomy from an Evolutionary and Ecological

MNS 210 Perspective

Dr. Roy Yanong – U FL – Tropical Aquaculture Laboratory

18:30 History of Fishes: Taxonomy from an Evolutionary and Ecological

MNS 210 Perspective (continued)

Dr. Yanong

**Wednesday, 28. May 2025**

**8:00** **Invertebrates - WET LAB - (need dissection kit, lab coats)**

**MNS 103** Drs. Maze, Dill and Newton

**13:00** **Invertebrates - WET LAB - (continued)**

**MNS 103** Drs. Dill and Maze

14:30 **Rocky Intertidal Invertebrate Collecting LOW TIDE 14:40**

leave from MSN 103 (dress appropriately – will be outside and in the water)

**16:00 Invertebrates (Collected Animals) - WET LAB**

**MNS 103** Drs. Dill and Maze

**18:30 Invertebrates (Collected Animals) - WET LAB (continued\_**

**MNS 103** Drs. Dill and Maze

After Lab AQUAVET® I T-shirt LOGO contest

MNS 210 Dr. Landeau

**Thursday, 29. May 2025**

8:00 Fish Anatomy - Structure and Function

MNS 210 Dr. Yanong

13:00 Fish Physiology

MNS 210 Dr. Lysa Posner – NC State University

**18:30** **Invertebrates - WET LAB - (continued)**

**MNS 103** Drs. Dill, Newton and Maze

**Friday, 30. May 2025**

8:00 **Fish Diagnostics and Techniques LAB**

MNS 103(need dissection kit, lab coats)

 Drs. Yanong, Getchell, Dill, Newton

9:30 **Fish Anatomy - Structure and Function WET LAB**

MNS 103(need dissection kit, lab coats)

 Drs. Yanong, Getchell, Dill, Newton

13:00 Fish Physiology (continued)

MNS 210 Dr. Posner

15:00 Using Aquatic Animals in Research and the Role of IACUC

**MNS 200** Dr. Lisa Abbo - Marine Biological Laboratory

18:30 Life Cycles of Aquarium Raised Fish

MNS 210 Dr. Andy Rhyne – Roger Williams University

**Saturday, 31. May 2025**

8:00 Aquatic Birds

MNS 210 Dr. Cindy P. Driscoll - University of Maryland

**12:45**  **Microbiology – Specimen Necropsy** (lab coats and dissection kits)

MNS 103 Dr. Lester Khoo – Mississippi State University

 AQUAVET® Director Emeritus

14:15 **Aquatic Birds Anatomy Lab – WEB LAB –** (dissection kits, lab coats)

MNS 103 (NOTE: due to HPAI need special PPE this year)

 Dr. Driscoll

 Dr. Tuxbury

18:30 Water Quality

MNS 210 Dr. Laurie Landeau – Marinetics, Inc.

AQUAVET® Associate Director

**Sunday, 1. June 2025**

8:00 Selected Bacterial and Viral Pathogens of Fishes

MNS 210 Dr. Lester Khoo

10:00 **Microbiology Lab Set Up** (lab coats and dissection kits)

MNS 103 Dr. Khoo

13:00 Oyster Culture, Environment, Disease and Nutrition

MNS 210 Dr. Maze

15:00 Elasmobranchs (Optional) – VIRTUAL

Virtual Dr. Frasca and Newton

19:00 **AQUAVET® Joint Class Picnic**

courtyard

**Monday, 2. June 2025** – OFF

Morning OPTIONAL Whale Watch

 Barnstable, MA

**Tuesday, 3. June 2025**

**7:30** **Selected Bacterial and Viral Pathogens of Fishes**

MNS 103 Micro Lab (lab coats and dissection kits)

 Dr. Khoo

10:00 **Water Quality Lab** (half of the class)

MNS 103 Dr. Landeau

10:00 Life Cycles of Aquarium Raised Fish – facilities visit (other half of class)

MNS 210 Dr. Andy Rhyne – Roger Williams University

13:00 **Water Quality Lab** (repeat – other ½ of class)

MNS 103 Dr. Landeau

13:00 Life Cycles of Aquarium Raised Fish – facilities visit (repeat - other ½)

MNS 210 Dr. Rhyne

15:00 Normal Fish Histology

MNS 210 Dr. Sal Frasca – ZooQuatic, LLC

18:30 **Normal Fish Histology** – Microscope Lab

MNS 103 Dr. Frasca

 Dr. Emily Reinhardt - University of Connecticut

**Wednesday, 4. June 2025**

8:00 Pathology and Histopathology of Fish

MNS 210 Dr. Frasca

11:00 **Pathology and Histopathology of Fish –** Microscope Lab

MNS 103 Drs. Frasca and Reinhardt

13:00 **Pathology and Histopathology of Fish –** Microscope Lab (cont)

MNS 103 Drs. Frasca and Reinhardt

14:30 Student Seminars (Cornell today)

MNS 210 **1 Amy Yang -** Lumpfish (*Cyclopterus lumpus*) Anatomy, Health, and

 Management

 **2 Abbie Lee -** Feeds and Feeding of Common Aquaculture Fish

 **3 Ishita Monga -** Lungfish Physiology

 **4 Madelyn Walters -** the anatomy/histology of cephalopod color change

 mechanisms,　including neural control mechanisms (with a focus

 on cuttlefish)

 **5 Kuirong Sun -** Musculoskeletal Adaptations of Teleost

18:30 Introduction to Fish Hematology

MNS 210/103 Jill Arnold – Zooquatic Lab

19:30 **Fish Hematology –** Microscope Lab

MNS 103 Jill Arnold

**Thursday, 5. June 2025**

8:00 Disease Investigations and Case Reports for Coldwater Fishes

MNS 210 Dr. Lovy - USGS Western Fisheries Research Center

9:00 Environmental/Nutritional Disease of Coldwater Fishes

MNS 210 Dr. Lovy

10:00 Amphibians!

MNS 210 Dr. Kathy Tuxbury – New England Aquarium

13:00 Viral Diseases of Coldwater Fishes

MNS 210 Dr. Tom Loch – MSU-AAHL, Colleges of Agriculture & Natural

 Resources and Veterinary Medicine

15:00 Parasitic and Fungal Diseases of Coldwater Fishes

MNS 210 Dr. Lovy

18:30 Seafood Safety – The Risks of Eating Raw Seafood

MNS 210 Dr. Maze

**Friday, 6. June 2025**

8:00 Drugs used in Aquaculture - Regulations, labels, FDA, CVM and

MNS 210 Medicated Feeds - VIRTUAL

 Dr. Emily Cornwell – Food and Drug Administration

10:00 Student Seminars

MNS 210 **6 Clare Wang -** Photophores and Bioluminescence

 **7 Keertti Sinnan -** The Labyrinth Organ in *Betta Splendens*

 **8 Aubrey Schrimsher -** Environmental Adaptations of Stingrays

 **9 Katherine Johnson -** Horseshoe Crab biology and Conservation

13:00 Diseases of Warmwater Aquaculture Fishes - Infectious Diseases

MNS 210 Dr. Sherman Jack – Mississippi State University, CVM

15:00 Diseases of Warmwater Aquaculture Fishes – Non-Infectious Diseases

MNS 210 Dr. Jack

18:30 Culture and Health Concerns of Baitfish and Hybrid Striped Bass

MNS 210 Dr. Jack

**Saturday, 7. June 2025**

8:00 Fish Nutrition

MNS 210 Dr. Allen Davis – Auburn University

11:00 Student Seminars

MNS 210 **10 Jack Welsh -** The Plight of the Eastern Hellbender: Conservation

 Efforts and Issues with Cryptobranchus allegiansis

 **11 Siobhan Meadows -** Conservation Conversation: The legal

 harvesting of olive ridley (Lepidochelys olivacea) eggs at Playa

 Ostional, Costa Rica

13:00 Student Seminars

MNS 210 **12 Aaron Langerberg -** Elasmobranch Reproduction

 **13 Trevor Richardson -** The History of Marine Mammal Surgery

 **14 Elena Gräbener -** Decompression Sickness in Marine Mammals/

 Sea Turtles

 **15 Cole Lim -** Southeast Asian Otters

15:00 Coral Reef Health and Disease

MNS 210 Dr. Michelle Dennis - University of Tennessee - CVM

18:30 Reptile Medicine

MNS 210 Dr. Jessica Lovstad – Roger Williams Park Zoo

**Sunday, 8. June 2025**

8:00 Shrimp Industry

MNS 210 Dr. Bob Bullis - Florida Keys Community College

Dr. Arun Dhar – University of AZ, Aquatic Pathology Laboratory

13:00 Marine Mammal Anaesthesia - VIRTUAL

MNS 210 Dr. James Bailey – National Marine Mammal Foundation

14:00 Zebrafish Husbandry and Use as Research Models - **VIRTUAL**

 Dr. Nick Saint-Erne – Certified Aquatic Veterinarian

15:00 OFF

**Monday, 9. June 2025**

OPEN

**Tuesday, 10. June 2025**

8:00 What is Unique about Eye Structure and Sight: From A (Avian)

MNS 210 to Z (Zalophus or Zebrafish) **- VIRTUAL**

 Dr. Carmen Colitz - Aquatic Animal Eye Care, LLC

10:00 Harmful Algal Blooms

MNS 210 Dr. Chris Gobler – Stony Brook University

13:00 Medical Aspects of HABs – and Aquatic Toxicology

MNS 210 Dr. Lisa Murphy – University of Pennsylvania

14:00 (Sea)food Safety – Emphasis on Toxins

MNS 210 Dr. Murphy

15:00 Other Aspects of Aquatic Toxicology and Selected Cases

MNS 210 Dr. Murphy

16:00 Student Seminars

MNS 210 **16 Anna Lank -** An introduction to disease testing and the health

 certificate in rainbow trout aquaculture

 **17 Carmen Peñas-Rodriguez -** Marine Mammal Dentistry: Principles and Clinical Cases

18:30 Economic Considerations in the Development of Aquaculture Operations

MNS 210 Dr. Landeau

**Wednesday, 11. June 2025**

**Today is overnight trip to Riverhead, NY. Take what you will need with you.**

8:00 Leave RWU for Mystic, CT

9:30 arrive at Mystic Aquarium

**9:30 Mystic Aquarium Tour**

**Dr. Allison Tuttle et al – Mystic Aquarium and**

**Institute for Exploration**

15:00 Leave Mystic for New London – must arrive by 15:30

15:30 Arrive New London Ferry Terminal

 they require arrival 30 minutes ahead of departure

**16:00**  Ferry to Orient Point, NY

17:30 or so arrive Orient Point – drive to Riverhead, NY

18:30 arrive Riverhead, NY

**18:30** Long Island Aquarium tour

19:30 Coral Biology, Husbandry and Propagation

 Joe Yaiullo – Atlantis Marine World

21:00 Dinner nearby – stay overnight at Hyatt (next to aquarium)

**Thursday, 12. June 2025**

6:30 Hyatt Hotel breakfast

7:30 pack, check out and load cars – save clean clothes for trip back

8:00 Aquarium Visit – Training Demo – Penguin Exams

Long Island Aquarium and

 Riverhead Foundation for Marine Research and Preservation

 Dr. Robert Pisciotta

 Dr. Richard Hanusch

 Maggie Seiler

 Candyce Paparo

 Maxine Montello

12:00 lunch on own

13:00 RFMRP - Clinical Techniques for Marine Mammals and Aquatic Animals - WET LAB – Bring Old Clothes or Clothing Covers

 Dr. Robert Pisciotta

 Dr. Richard Hanusch

 Maggie Seiler

 Candyce Paparo

 Maxine Montello

By 16:30 Leave Riverhead for ferry

17:30 arrive at Orient Point, NY

**18:00** Ferry leaves for New London, CT

19:20 arrive New London – Dinner somewhere – drive to campus

**Friday, 13. June 2025**

8:00 Aquatic Immunity

MNS 210 Dr. Erin Bromage – University of Massachusetts Dartmouth

13:00 Student Seminars

MNS 210 **18 Serena George -** 2,4-Dichlorophenoxyacetic acid wound healing impacts in the fathead minnow

 **19 Noëlle Tubbs -** Climate Change and Its Impacts on Endangered Seabirds

 **20 Sarah Hofmann -** Zebra fish as a genetic model

 **21 Heather Smith -** Fusariosis in Leatherback sea turtles

15:00 Regulations in Aquaculture - **VIRTUAL**

MNS 210 Dr. Kathleen Hartmann – USDA APHIS Veterinary Services

16:00 Aquaculture Systems

MNS 210 Dr. Rhyne

18:30 Aquaculture Systems (continued)

MNS 210 Dr. Rhyne

**Saturday, 14. June 2025**

8:00 Biology, Medicine and Surgery of Turtles Including Sea Turtles

MNS 210 Dr. Charles Innis – New England Aquarium

13:00 **Turtle Necropsy Lab (lab coats, dissection kit)**

MNS 103 Dr. Innis

16:30 Penguins!

MNS 210 Dr. Stremme

18:30 Challenging Aquarium Cases

MNS 210 Dr. Stremme

**Sunday, 15. June 2025**

OPEN

**Monday, 16. June 2025**

8:00 Marine Mammals

MNS 210 Dr. Inga Sidor – University of New Hampshire

Dr. Cara Field – The Marine Mammal Center

Dr. Molly Martony – Mystic Aquarium

Dr. Eric Anderson – Mystic Aquarium

Dr. Tatiana Weissbrod - Mystic Aquarium

Dr. Allison Tuttle - Mystic Aquarium

Dr. Melissa Joblon - New England Aquarium

8:00 Important Marine Mammal Legislation, Regulatory Agencies, and Member

MNS 210 Organizations

Dr. Tuttle

9:00 Marine Mammals – Taxonomy, Anatomy, Physiology, Reproduction

MNS 210 Dr. Field

10:45 Marine Mammals – Husbandry and Aquarium/Zoo Management

MNS 210 Dr. Weisbrod

**12:45**  Student Seminars

MNS 210 **22 Jaclyn Cubillas -** Update on HPAI H5N1 in Marine Mammals

 23 **Kadi Sizemore** - Cuttlefish Medical Problems

14:15 Marine Mammal Clinical Techniques

MNS 210 Dr. Weisbrod

15:30 Marine Mammal Diseases I (Bacterial, Viral)

MNS 210 Dr. Field

18:30 Marine Mammal Diseases II (Fungal, Parasitic, Toxins, Misc.)

MNS 210 Dr. FIeld

19:15 Ethics of Keeping Marine Mammals Under Human Care (discussion)

MNS 210 Marine Mammal Group

**Tuesday, 17. June 2025**

8:00 Marine Mammal Research & Conservation: Advancing Clinical Medicine for MNS 210 the Application to Wildlife

 Dr. Martony

9:15 Marine Mammal Water Quality/ Life Support/ Environmental

MNS 210 Considerations

 Dr. Martony

10:00 Manatee Medicine

MNS 210 Dr. Martony

11:00 Marine Mammal Clinical Cases

MNS 210 Dr. Field

13:00 Marine Mammals – Clinical Cases

MNS 210 Dr. Martony

14:30 Marine Mammal Special Topics from the Marine Mammal Center

MNS 210 Dr. Field

15:45 Marine Mammal Stranding Cases

MNS 210 Dr. Sidor

18:30 Marine Mammals – Pathology, Principals of Necropsy,

MNS 210 Forensics – “How To”

Dr. Sidor

**Wednesday, 18. June 2025**

6:00 lv RWU for Woods Hole

7:30 Required OSHA training to be in the necropsy lab

Carriage House Breakfast during this training

 Sarah Sharp and Nicole Hunter - International Fund for Animal

 Welfare

8:00 **Marine Mammal Necropsy Lab WET LAB**

WHOI **(need dissection kit – protective clothing will be provided)**

 **Consider bring change of clothes for after this lab**

 Drs. Sidor and Field

 Dr. Melissa Joblon - New England Aquarium

Dr. Eric Anderson – Mystic Aquarium

12:30 Students Present Results of Necropsies for the Group

Carriage House Dr. Sidor leading discussion

13:00 lunch

Carriage House

13:30 Stranding & What We Can Learn from Strandings, Including Large Whale

Carriage House Strandings and Mass Strandings

 Dr. Sarah Sharp – International Fund for Animal Welfare

16:00 leave MBL by this time or earlier

16:15 arrive at MBL and park

16:30 meet at MRC entrance

**16:30 Tour of MBL and MRC Facilities**

 **Dr. Lisa Abbo, MBL Veterinarian**

17:30 approx Group Photo and time to explore town

18:30 Dinner at Captain Kidd

20:30 approx depart for RWU

22:00 approx arrive RWU

**Thursday, 19. June 2025**

8:00 Student Seminars

MNS 210 24 **Nicoly Moraes** - Small dolphin, Big threat: The uncertain future of

 the Franciscana (*Pontoporia blainvillei*)

circa

10:00 leave RWU for Boston – New England Aquarium

12:00 estimated arrival time – lunch Faneuil Hall

**13:00 New England Aquarium – Behind the Scenes Tours**

 **Dr. Tuxbury and staff**

15:00 open time to visit NEAQ on own

 (aquarium closes at 6pm)

18:00 dinner on own - suggest Faneuil Hall - open until 19:00

19:15 board bus to drive back to RWU

**Friday, 20. June 2025**

8:00 Overview of Pet Fish Medicine Including LSS and Water Quality

MNS 210 Dr. Jessie Sanders – Aquatic Veterinary Services

10:00 Pet Fish Medicine – Common Diagnostic Techniques

MNS 210 Dr. Sanders

11:00 Aquarium World Diagnostics and Selected Aquarium Cases

MNS 210 Dr. Shane Boylan – Georgia Sea Turtle Center

13:00 Treatments for Fish Diseases in Warmwater Pet Fish: Goiter, Gas

MNS 210 Saturation, Trauma, Infectious Diseases, etc.

 Dr. Boylan

15:00 Selection of Pet Fish Cases

MNS 210 Dr. Geoffrey Groocock – Transit Animal Hospital

16:00 Selection of Pet Fish Cases (continued)

MNS 210 Dr. Sanders

18:30 Fish Anaesthesia and Surgical Techniques

MNS 210 Dr. Groocock

**Saturday, 21. June 2025**

8:00 **Fish Surgery Lab - HALF of CLASS**

**MNS 103** no special equipment needed by students

 wear scrubs or tshirt

Drs. Groocock, Boylan and Sanders

8:00 **RWU Shellfish Facility Visit** (half of the class)

Meet MNS 103 Kristen Savastano - Roger Williams University

10:00 Both halves switch

14:00 Large Display Aquaria

MNS 210 Dr. Boylan

15:00 Common Koi Problems

MNS 210 Dr. Sanders

17:00 OPEN

19:00 **AQUAVET®I Clambake**

**Sunday, 22. June 2025**

By 10:00 check out – back to reality