2019 Schedule for AQUAVET® I

Locations:
Marine and Natural Sciences Building = MNS
Lecture rooms: MNS 200, MNS 210, MNS 213
Labs: MNS 103, MNS 107, MNS 203

Sunday, 26. May 2019

12:00–13:30 Registration – Check-In
Bayside Apartments

14:00 Orientation
MNS 200 Directors

15:00 RWU Required Safety Lecture
MNS 200 Caitlin Conley

16:00 Ecology, Natural History, Physiology, Anatomy of Marine Invertebrates
MNS 210 Dr. Robert Maze – Marinetics, Inc.
AQUAVET® Associate Director

18:30 Ecology, Natural History, Physiology, Anatomy of Marine Invertebrates
MNS 210 (continued)
Dr. Maze

19:30 Welcome to AQUAVET Party
Dorm Courtyard Area (weather permitting)

Monday, 27. May 2019 – Memorial Day

8:00 Rocky Intertidal Invertebrate Collecting  LOW TIDE 8:45
leave from MSN 103  (dress appropriately – will be outside and in water)

10:00 Ecology, Natural History, Physiology, Anatomy of Marine Invertebrates
MNS 210 (continued)
Dr. Maze

13:00 Ecology, Natural History, Physiology, Anatomy of Marine Invertebrates
MNS 210 (continued)
Dr. Maze

15:00 Invertebrates – WET LAB – (need dissection kit, lab coats)
MNS 103  Dr. Maze
2019 Schedule for AQUAVET® I

18:00  
MNS 103  
Invertebrates – WET LAB – (continued)  
Dr. Maze  
NOTE: re-starting lab at 6pm – instead of 6:30pm

Tuesday, 28. May 2019

8:00  
MNS 210  
History of Fishes: Taxonomy from an Evolutionary and Ecological Perspective  
Dr. Roy Yanong – U FL – Tropical Aquaculture Laboratory

10:00  
MNS 210  
Fish Anatomy – Structure and Function  
Dr. Yanong

13:00  
MNS 210  
Fish Anatomy – Structure and Function (continued)  
Dr. Yanong

14:00  
MNS 103  
Fish Diagnostics and Techniques WET LAB  
(need dissection kit, lab coats)  
Dr. Yanong  
Dr. Rod Getchell – Cornell University  
AQUAVET® Associate Director

15:00  
MNS 103  
Fish Anatomy – Structure and Function WET LAB  
(need dissection kit, lab coats)  
Drs. Yanong and Getchell

18:30  
MNS 210  
Anatomy, Diseases and Zoonotic Implications of Marine Invertebrates  
Dr. Roxanna Smolowitz – Roger Williams University

Wednesday, 29. May 2019

8:00  
MNS 210  
Fish Anatomy – Structure and Function  
Dr. Yanong

10:30  
MNS 103  
Invertebrates – WET LAB – (need dissection kit, lab coats)  
Dr. Maze

13:00  
MNS 103  
Invertebrates – WET LAB – (continued)  
Drs. Smolowitz and Maze

18:00  
MNS 103  
Invertebrates – WET LAB – (continued)  
Drs. Smolowitz and Maze  
NOTE: re-starting lab at 6pm – instead of 6:30pm
2019 Schedule for AQUAVET® I

Thursday, 30. May 2019

8:00  Water Quality
MNS 210  Dr. Laurie Landeau – Marinetics, Inc.
         AQUAVET® Associate Director

10:30  Fish Physiology
MNS 210  Dr. Lysa Posner – NC State University

13:00  Historical Aspects of the AQUAVET® Program
MNS 210  Dr. Donald Abt – AQUAVET® Founding Director

14:30  Tides
MNS 210  Dr. Abt

15:00  Fish Physiology (continued)
MNS 210  Dr. Posner

18:30  Fish Physiology (continued)
MNS 210  Dr. Posner

Friday, 31. May 2019

8:00  Using Aquatic Animals in Research and the Role of IACUC
MNS 200  Dr. Neil Lipmann – Memorial Sloan Kettering Cancer Center

10:00  Life Cycles of Aquarium Raised Fish
MNS 210  Dr. Andy Rhyne – Roger Williams University

13:00  Aquatic Immunity
MNS 210  Dr. Erin Bromage – University of Massachusetts Dartmouth

16:00  Student Seminars (all Cornell today or tomorrow)
MNS 210

   1 Xanth El-Sayed – Lionfish Invasion in the Caribbean; How It Started and Current Status
   2 Amanda Vegter – Life History, Current Status and Conservation Efforts of Carcharodon carcharias

18:30  Regulations in Aquaculture
MNS 210  Dr. Kathleen Hartmann – USDA APHIS Veterinary Services
2019 Schedule for AQUAVET® I

Saturday, 1. June 2019

0:00  Microbiology Lab Set Up (lab coats and dissection kits)
MNS 203  Dr. Lester Khoo – Mississippi State University
          AQUAVET® Director Emeritus

9:00  Microbiology – Specimen Necropsy (lab coats and dissection kits)
MNS 203  Dr. Khoo

13:00  Selected Bacterial and Viral Pathogens of Fishes
MNS 210  Dr. Lester Khoo

15:00  off

Sunday, 2. June 2019  - OFF

8:30  leave campus for OPTIONAL Whale Watch – Barnstable, MA
10:00  check in for Whale Watch
11:00  OPTIONAL Whale Watch $40 per person
          Barnstable, MA

18:00  AQUAVET® Joint Class Picnic
          courtyard

Monday, 3. June 2019

8:00  Selected Bacterial and Viral Pathogens of Fishes
MNS 203  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)
MNS 103  Dr. Landeau

13:00  Life Cycles of Aquarium Raised Fish – facilities visit (repeat)
MNS 210  Dr. Rhyne

15:00  Normal Fish Histology
MNS 210  Dr. Sal Frasca – U FL Aquatic, Amphibian, and Reptile Pathology
          Program, College of Veterinary Medicine
2019 Schedule for AQUAVET® I

Tuesday, 4. June 2019

8:00  Pathology and Histopathology of Fish
MNS 210  Dr. Frasca

11:00  Pathology and Histopathology of Fish – Microscope Lab
MNS 103  Dr. Frasca

13:00  Pathology and Histopathology of Fish – Microscope Lab (cont)
MNS 103  Dr. Frasca

14:00  Harmful Algal Blooms
MNS 210  Dr. Chris Gobler – Stonybrook Southampton

16:00  Student Seminars
MNS 210

3 Daniel Ruvolo – Slingshot Feeding Mechanism of the Goblin Shark
4 Vince Nicoletta – Captive Marine Mammal Reproduction

18:30  Introduction to Fish Hematology
MNS 210/103  Jill Arnold – Zooquatic Lab

Wednesday, 5. June 2019

8:00  Disease Investigations and Case Reports for Coldwater Fishes
MNS 210  Dr. Lovy – NJ Div of Fish & Wildlife, Office of Fish & Wildlife

9:00  Environmental/Nutritional Disease of Coldwater Fishes
MNS 210  Dr. Lovy

10:00  Student Seminars
MNS 210

5 Annie Clift – Affects of Climate Change on Olive Ridley Nesting Beaches in the Southern Nicoya Peninsula of Guanacaste, Costa Rica
6 Matt Sullivan – The Life Cycle and Reproductive Strategies of Mussel Species
7 Kristina Kelley – Aquaponics: Implications for Future Growth
8 Michelle Barnett – Toxoplasmosis? Get Otter Here!

13:00  Viral Diseases of Coldwater Fishes
MNS 210  Dr. Tom Loch – MSU-AAHL, Colleges of Agriculture & Natural Resources and Veterinary Medicine
2019 Schedule for AQUAVET® I

Thursday, 6. June 2019

8:00  Aquatic Birds
MNS 210  Dr. Cindy P. Driscoll – Maryland Department of Natural Resources

11:00  Diseases of Warmwater Aquaculture Fishes – Infectious Diseases
MNS 210  Dr. Sherman Jack – Mississippi State University, CVM

13:00  Diseases of Warmwater Aquaculture Fishes – Infectious Diseases (con’t)
MNS 210  Dr. Jack

14:00  Diseases of Warmwater Aquaculture Fishes – Non-Infectious Diseases
MNS 210  Dr. Jack

16:00  Culture and Health Concerns of Baitfish and Hybrid Striped Bass
MNS 210  Dr. Jack

18:30  Aquatic Birds Anatomy Lab – WEB LAB – (dissection kits, lab coats)
MNS 103  Dr. Driscoll

Friday, 7. June 2019

6:00  leave RWU for Sandwich, MA
breakfast on the way

8:00  Sandwich Fish Hatchery visit
Adam Davies – Manager – but Tim may give tour

9:15  return to RWU

11:00  Corals
MNS 210  Dr. Ilze Berzins – One Water, One Health, LLC

13:00  Corals (continued)
MNS 210  Dr. Berzins
2019 Schedule for AQUAVET® I

14:00   Penguins!  
MNS 210  Dr. Donald W. Stremme – Cornell University  
         AQUAVET® Director

15:00   Resource Assessment  
MNS 210  Dr. Russell Brown – National Marine Fisheries Service

18:30   Aquaculture Systems  
MNS 210  Dr. Rhyne

Saturday, 8. June 2019

8:00    Shrimp Industry  
MNS 210  Dr. Bob Bullis – Florida Keys Community College  
         Dr. Arun Dhar – University of AZ, Aquatic Pathology Laboratory

13:00   Student Seminars  
MNS 210  9 Tommy Burdette – Sea Anemone Reproduction  
         10 Stephanie Bellinghausen – General Principles and Challenges in  
         Pinniped Anaesthesia  
         11 Lyndsy Gazda – Amphibians: The Next Big Extinction  
         12 Nicole Copeland – Case Study of the First CSF Tap Performed on a  
         Live Bottlenose Dolphin

15:00   Oyster Culture, Environment, Disease and Nutrition  
MNS 210  Dr. Maze

17:00   OFF

Sunday, 9. June 2019

OPEN

Monday, 10. June 2019

6:00    leave RWU for New Bedford, MA  
        breakfast on the way

8:00    SeaFood Processing Plant visit  
        (possibly may change this)

9:15    return to RWU

10:00   Drugs used in Aquaculture – Regulations, labels, FDA, CVM and  
        Medicated Feeds  
        Dr. Emily Cornwell – Muddy Branch Veterinary Center
2019 Schedule for AQUAVET® I

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  Seafood Safety – The Risks of Eating Raw Seafood  
MNS 210  Dr. Maze

18:30  Economic Considerations in the Development of Aquaculture Operations  
MNS 210  Dr. Landeau

Tuesday, 11. June 2019

8:00  Student Seminars  
MNS 210

13 Danielle Scott – The Effects of Macro-plastic Pollution on Marine Animals and What You Can Do to Reduce Your Impact
14 Tara Needham – White Spot Syndrome Virus (WSSV) with Special Reference to the Queensland, Australian 2016/17 Outbreak

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 5pm)

17:15  Amphibians!  
NE AQ  Dr. Kathy Tuxbury
Dinner during presentation

Circa  drive back to RWU
18:30

Wednesday, 12. June 2019

8:00  Biology, Medicine and Surgery of Turtles Including Sea Turtles  
MNS 210  Dr. Charles Innis – New England Aquarium
2019 Schedule for AQUAVET® I

13:00  Turtle Necropsy Lab (lab coats, dissection kit)  
MNS 103  Drs. Innis

16:00  Fish Nutrition  
MNS 210  Dr. Dale Leavitt – Roger Williams University

18:30  Fish Nutrition (continued)  
MNS 210  Dr. Leavitt

Thursday, 13. June 2019

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

6:00  Leave RWU for Riverhead, Long Island, NY  
(breakfast on ferry)

7:30  Arrive New London Ferry Terminal  
they require arrival 30 minutes ahead of departure

8:00  Ferry to Orient Point, NY  
9:20 or so  arrive Orient Point – drive to Riverhead, NY

10:30  Atlantis Marine World Aquarium and  
Riverhead Foundation for Marine Research and Preservation

10:30  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

13:00  RFMRP – Clinical Techniques for Marine Mammals and Aquatic Animals –  
(continued)

18:30  Coral Biology, Husbandry and Propagation  
Joe Yaiullo – Atlantis Marine World

20:30  Hyatt Hotel – overnight
2019 Schedule for AQUAVET® I

Friday, 14. June 2019

6:30  Hyatt Hotel breakfast
7:30  pack, check out and load cars
7:45  Leave Riverhead for ferry
8:30  arrive at Orient Point, NY
9:00  Ferry leaves for New London, CT
10:20 arrive New London
10:30 arrive at Mystic Aquarium

10:30  Mystic Aquarium Tour
Dr. Allison Tuttle et al – Mystic Aquarium and Institute for Exploration

16:15  Leave Mystic for RWU
17:45  arrive on campus

Saturday, 15. June 2019

8:00  What is Unique about Eye Structure and Sight: From A (Avian) to Z (Zalophus or Zebrafish)
MNS 210  Dr. Carmen Colitz – Aquatic Animal Eye Care, LLC

11:00  Student Seminars
MNS 210

15 Melissa Wyzan – Elasmobranch Anaesthesia
16 Marley Chou – Acoustic Variation in Orcas

13:00  Student Seminars
MNS 210

17 Alec Colosi – Diving and Foraging Energetics of Sea Otters
18 Katharine Hausmann – The Succession of Coral Recruitment to Coral Reefs
19 Grace White – Neoplasia in California Sea Lions
20 Jessica Sprando – Marine Mammal Zoonoses
21 Kathryn Ziegner – Sealpox Virus: Implications for Wildlife Management
22 Alexis DeMong – Resident and Transient Orcas of the Pacific Northwest

Sunday, 16. June 2019

OPEN
2019 Schedule for AQUAVET® I

Monday, 17. June 2019

8:00  Marine Mammals
MNS 210  Dr. Allison Tuttle et al – Mystic Aquarium
Dr. Inga Sidor – University of New Hampshire
Dr. Paul Calle – Zool. Health Program, Wildlife Conservtn. Society
Dr. Brent Whitaker – Zoquatic Lab
Dr. Cara Field – The Marine Mammal Center

8:00  Marine Mammals – Taxonomy, Anatomy, Physiology, Reproduction
MNS 210  Dr. Field

9:45  Marine Mammal Diseases I (Bacterial, Viral)
MNS 210  Dr. Tuttle

11:00  Marine Mammal Diseases II (Fungal, Parasitic, Toxins, Misc.)
MNS 210  Dr. Tuttle

13:00  Important Marine Mammal Legislation, Regulatory Agencies, and Member Organizations
MNS 210  Dr. Tuttle

13:45  Marine Mammal Water Quality/Life Support/Environmental Considerations
MNS 210  Dr. Field

15:00  Marine Mammals – Clinical Cases
MNS 210  Dr. Tuttle

16:00  Student Seminars
MNS 210

23 Sungbin Lee – Finless Porpoise: Past, Present and Future
24 Lindsay Francis – The Giant Pacific Octopus – Captive Husbandry and Welfare

18:30  Large Display Aquaria
MNS 210  Dr. Whitaker

20:15  Ethics of Keeping Marine Mammals Under Human Care (discussion)
MNS 210  Dr. Whitaker

Tuesday, 18. June 2019

8:00  Marine Mammals – Husbandry and Aquarium/Zoo Management
MNS 210  Dr. Calle

9:30  Marine Mammal Clinical Techniques
MNS 210  Dr. Calle
2019 Schedule for AQUAVET® I

10:45  Marine Mammal Special Topics from the Marine Mammal Center  
   MNS 210  Dr. Field

13:00  Marine Mammal Stranding Cases  
   MNS 210  Dr. Whitaker

14:15  Marine Mammal Clinical Cases  
   MNS 210  Dr. Calle

15:45  Marine Mammal Stranding Cases  
   MNS 210  Dr. Sidor

18:30  Marine Mammals – Pathology, Principals of Necropsy, Forensics – “How To”  
   MNS 210  Dr. Sidor

Wednesday, 19. June 2019

6:00   Iv RWU for Woods Hole

7:30   Required OSHA training to be in the necropsy lab  
   Carriage House  Misty Niemeyer – Woods Hole Oceanographic Institution  
   Breakfast during this training

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, Field, Calle  
   Dr. Melissa Joblon – New England 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 Strandings and Mass Strandings  
   Carriage House  Dr. Sarah Sharp – Woods Hole Oceanographic Institution (WHOI)

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, 20. June 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Overview of Pet Fish Medicine Including LSS and Water Quality</td>
<td>MNS 210</td>
<td>Dr. Jessie Sanders – Aquatic Veterinary Services</td>
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<tr>
<td>10:00</td>
<td>Pet Fish Medicine – Common Diagnostic Techniques</td>
<td>MNS 210</td>
<td>Dr. Sanders</td>
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<tr>
<td>11:00</td>
<td>Aquarium World Diagnostics and Selected Aquarium Cases</td>
<td>MNS 210</td>
<td>Dr. Shane Boylan – South Carolina Aquarium</td>
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<tr>
<td>13:00</td>
<td>Treatments for Fish Diseases in Warmwater Pet Fish: Goiter, Gas Saturation, Trauma, Infectious Diseases, etc.</td>
<td>MNS 210</td>
<td>Dr. Boylan</td>
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<tr>
<td>15:00</td>
<td>Selection of Pet Fish Cases</td>
<td>MNS 210</td>
<td>Dr. Geoffrey Groocock – Transit Animal Hospital</td>
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<tr>
<td>16:00</td>
<td>Selection of Pet Fish Cases (continued)</td>
<td>MNS 210</td>
<td>Dr. Sanders</td>
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<tr>
<td>18:30</td>
<td>Fish Anaesthesia and Surgical Techniques</td>
<td>MNS 210</td>
<td>Dr. Groocock</td>
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Friday, 21. June 2019

<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>8:00</td>
<td>Fish Surgery Lab – HALF of CLASS</td>
<td>MNS 103</td>
<td>no special equipment needed by students wear scrubs or tshirt</td>
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<td>Drs. Groocock, Boylan and Sanders</td>
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<tr>
<td>8:00</td>
<td>RWU Shellfish Facility Visit (half of the class)</td>
<td>MNS 103</td>
<td>Dr. Dale Leavitt – Roger Williams University</td>
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<td>Robbie Hudson – Roger Williams University</td>
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<tr>
<td>10:00</td>
<td>Both halves switch</td>
<td></td>
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<tr>
<td>13:00</td>
<td>Paths to Success in Aquatics</td>
<td>MNS 210</td>
<td>Dr. Ari Fustukjian – The Florida Aquarium</td>
</tr>
<tr>
<td>14:00</td>
<td>The Ornamental Fish Industry</td>
<td>MNS 210</td>
<td>Dr. Nick Saint–Erne – Certified Aquatic Veterinian</td>
</tr>
</tbody>
</table>
2019 Schedule for AQUAVET® I

15:00  Common Koi Problems
       MNS 210
       Dr. Saint–Erne

18:30  AQUAVET® Clambake

Saturday, 22. June 2019

By 10:00 check out – back to reality