**NIH Filariasis Research Reagent Resource Center (FR3)**

**Experimental Techniques in Filariasis Research**

**19-23 June, 2017**

**University of Georgia, College of Veterinary Medicine**

**Class Schedule**

**Instructors:**

Andy Moorhead, DVM, MS, PhD University of Georgia

Steven Williams, MS, PhD Smith College/Task Force for Global Health

Susan Haynes, BS Smith College

Jessica Grant, MS Smith College

Shelly Michalski, MS, PhD University of Wisconsin - Oshkosh

Corine McCarthy, MS University of Wisconsin - Oshkosh

Nafeesa Rahman, MS University of Wisconsin - Oshkosh

Mike Dzimianski, MS, DVM University of Georgia

John McCall, MS, PhD University of Georgia

Leanne Alworth, DVM, MS University of Georgia

Molly Savadelis, BS (Course Coordinator) University of Georgia

**Locations:**

**Lectures:** Room 150 in Vet School

**Labs:** Room G5 in the Wildlife Health Building, Room 1112 in Vet School

**Break room:** Room G2 in the Wildlife Health Building

**Day Time Event Location**

**Monday** 8:30-8:45 Welcome and Introductions 236

8:45-10:00 **Lecture** (Moorhead): 236

FR3 parasite resources available/introduction to

filarial worms.

10:00-10:15 Break

10:15-10:45 **Lab** (Dzimianski): 1112

Use cat blood with *B. malayi* microfilariae

to set up membrane-feeders and infect mosquitoes

10:45-11:15 **Lab** (Dzimianski): 1112

Collect L3 from mosquitoes, examine L3

under microscope

11:15-11:45 **Lecture** (Williams): 150

PCR Amplification for Diagnostics

11:50-12:15 **Lab** (Haynes/Grant): G5

DNA extraction

12:15-1:15 Lunch

1:15-2:00 **Lab** (Dzimianski):G5

Necropsy *B. malayi* infected jirds;

Collect L4 and microfilariaefrom peritoneal

cavity and examine under microscope

2:00-3:00 **Lab** (Haynes/Grant): G5

Set up PCR reaction for differential parasite diagnostics

Set up miniPCR DNA diagnostic reaction

3:00-4:00 **Lecture** (Moorhead): 150

Vector and definitive host of *Brugia spp.*

4:00-4:15 Break

4:15-5:15 **Lab** (Haynes/Grant): G5

Load PCR and HDA Gels

Test Strip Detection of diagnostic PCR products

**(Meet in Insectary)**

**Tuesday**  8:30-9:00 **Lab** (Dzimianski): 1112

Collect adult worms and microfilariae

from peritoneal cavity. Identify and

sort male and female worms.

9:00-10:15 **Lecture** (Williams): 150

PCR, ELISA and sequencing to identify

filarial nematodes

10:15-10:30 Break

10:30-11:15 **Lab** (Haynes/Grant): G5

Setup DNA sequencing reactions

11:15-12:00 **Lab** (Haynes/Grant): G5

DiroCHEK® ELISA Experiment

12:00-1:00 Lunch

1:30-4:00 **Lab** (McCarthy/Rahman):

Anti-*Wolbachia* surface protein G5

Immunohistochemistry

4:00-5:00 **Lecture** (Joy): 150

NIH funding

**(Meet in Insectary)**

**Wednesday**

8:30-9:00 **Lab** (Dzimianski): 1112

Pick mosquito pupae; put mosquito

eggs in water for hatching into larvae

9:00-10:00 **Lecture** (Williams): 150

qRT-PCR for gene expression studies

10:00-11:00 **Lecture** (Michalski): 150

Evolution of filarial nematodes

11:00-12:00 **Lab** (Haynes/Grant): G5

qRT-PCR experiment

12:00-1:15 Lunch

1:15-2:15 **Lecture** (McCall): 150

*Wolbachia*

2:15-3:15 **Lecture** (McCall): 150

*D. immitis* mosquito vector phase

*D. immitis* vertebrate host phase

3:15-5:00 **Lab** (Michalski/McCarthy/Rahman): G5

Morphology demonstration/Dissect mosquitoes

**(Meet in Insectary)**

**Thursday** 8:30-9:00 **Lab** (Dzimianski): 1112

Set up mosquito larval cultures

9:00-10:00 **Lab** (Dzimianski/Supakorndej): 1112

Necropsy of *Brugia* sp. infected jirds

with lymphatic infection

10:00-10:15 Break

10:15-12:15 **Lecture** (Lammie): 150

Immunology and the global effort to

eliminate lymphatic Filariasis

12 12:15-1:30 Lunch

1:30-2:30 **Lecture** (Williams/Grant): 150

Next-Gen Seq & Gene expression analysis (RNAseq)

2:30-3:30  **Lecture** (McCarthy/Rahman): 150

*Acanthocheilonema viteae* lecture

3:30-3:45 Break

3:45-4:45 **Lecture** (Alworth): 150

Using gerbils in biomedical research

6:00-10:00 Dinner sponsored by Merial

Location to be announced

**(Meet in 150)**

**Friday** 9:00-10:00 **Lecture** (Williams/Grant): 150

Finish molecular lectures/Bioinformatics

10:00-10:15 Break

10:15-11:15 **Lecture** (Michalski): 150

Nematode transcriptome analysis

11:15-12:15 **Lab** (Haynes/Grant): 150

qRT-PCR Data Analysis

12:15-1:30 Lunch 150

1:30-3:30 **Lecture** (Williams): 150

ELISA diagnostics, Basic bioinformatics

Wrap-up and evaluations