

## **Combined Residency/Ph.D. post-D.V.M. training program in Pathology**

### **VMRCVM Pathology Combined Residency/Graduate Program**

The VMRCVM Pathology Combined Residency/Ph.D. Program prepares graduates for careers in either Veterinary Clinical Pathology or Anatomic Pathology. The major objectives of the residency program are to provide sufficient pathology training for the resident to achieve competency as a diagnostic pathologist and to enable the resident to qualify for board certification by the American College of Veterinary Pathologists. The Ph.D. portion of the training program is intended to provide training in a research area so that the graduate may perform effective, independent research. The program will also provide for experience and training in teaching. Completion of the program requirements will prepare graduates for positions in academic institutions, industry or governmental agencies.

The combined Residency/Ph.D. program in veterinary pathology is designed as a 5 - 6 year program. The residency portion of the combined residency/graduate program will be completed during the first 3 years, with the majority of the service training accomplished in the first 2 years. A Residency Advisor will serve to guide the residents during the initial portion of the program. In addition, a Residency Advisory Committee will be appointed to help the Residency Advisor supervise the resident's program. An overall Residency Coordinator will track/supervise the progress of all residents. The Graduate Advisor will be identified during the second year. The Graduate Advisor will guide the resident in the latter, research intensive portion of the program. In addition, a Graduate Advisory Committee will be appointed within 15 weeks of identifying the Graduate Advisor. These 2 advisory committees will work together to facilitate progress of residents during the third or transition year. Each resident will meet with one or the other advisory committee at intervals no greater than 6 months.

### **Anatomic Pathology Resident Minimum Training Service Requirements**

- 3 years in residence at VMRCVM (total)
- 24 weeks of necropsy duty
- 24 weeks of biopsy duty
- 2 weeks of cytology/hematology/chemistry duty

### **Clinical Pathology Resident Minimum Training Service Requirements**

- 3 years in residence at VMRCVM (total)
- 2 weeks of necropsy duty-early in program
- 2 weeks of biopsy duty
- 40 weeks of cytology/hematology/chemistry duty
- Clinical Pathology Laboratory rotation:
  - 2 weeks hematology,
  - 2 weeks chemistry
  - 2 weeks clinical immunology/parasitology/bacteriology/toxicology

Clinical duty is intended to be performed in 1 or 2 week increments. It is expected that the majority of training duty will be completed during the first 2 years so that much of the third year may be devoted to identifying a research project and completing research-specific coursework.

The resident will meet with the Residency Advisor 4 weeks prior to the beginning of each semester. The Residency Advisor will schedule duty in concert with the attending pathologists, with considerations of course work and other academic commitments of the resident. The resident will enroll for one credit of Animal Pathology Residency for each 3 weeks of service duty. The resident will assume weekend emergency duty preceding assigned weeks of clinical duty.

### **Necropsy duty**

Initially, the anatomic pathology resident will conduct the daily necropsy duty under the supervision of the attending pathologist. The clinical pathology resident will likewise be supervised during the 2 weeks of necropsy duty. The senior veterinary students will perform the necropsies each day under the supervision of the resident. The attending pathologist will also be present for questions and will review the gross findings of each case at the end of each day.

The senior veterinary students will write a description of each necropsy in essay form to include gross description, gross findings and gross diagnosis. This information will be reviewed by the resident and attending pathologist for use in preparation of the necropsy report.

Gross necropsy rounds will be held on a weekly basis under the supervision of the resident and attending pathologist. Senior veterinary students and the resident will present the cases at rounds.

The resident will trim in the tissues for each of their necropsies, review the slides and write the necropsy report on the computer within 10 days following the necropsy. The resident and attending pathologist for the case will review the slides and written report within 4 days following completion by the resident. The resident will be instructed by the pathologist to edit the report accordingly. The attending pathologist may assign library readings for the resident according to the findings of the individual cases. The attending pathologist will sign the completed report.

At approximately six month intervals, the attending anatomic pathologists will meet as a group to discuss the progress of the anatomic pathology resident. If the pathologists agree that the resident has made adequate progress, she/he may begin to work independently, seeking second opinions from a faculty pathologist on difficult cases. At this time, the resident may sign the completed report without the signature of the attending pathologist.

### **Biopsy duty**

The resident will participate in a training session regarding the proper methods of cutting in tissues for processing during the first day of the first biopsy rotation. Once the resident is trained to the satisfaction of the duty pathologist, this activity will be completed independently by the resident.

The resident is given 24 hours to review the histopathology slides and compose a description of the microscopic findings using the histopathology computer program.

During the initial weeks of biopsy duty, the resident will sit at a multiheaded microscope with the attending pathologist to review the slide morphology and related microscopic description. The resident will be instructed by the pathologist to edit the microscopic findings accordingly. The attending pathologist may assign library readings for the resident according to the microscopic findings of the individual cases. The attending pathologist will sign the completed report.

At approximately six month intervals, the attending pathologists will meet as a group to discuss the progress of the resident. If the pathologists agree that the resident has made adequate progress, she/he may begin to work independently, seeking second opinions from a faculty pathologist on difficult cases. At this time, the resident may sign the completed report without the signature of an attending pathologist.

### **Cytology/hematology/chemistry duty**

During the initial weeks of cytology/hematology/chemistry duty, the resident will sit at a multiheaded microscope with the attending clinical pathologist to review the slide morphology and compose a description. At first the clinical pathologist will dictate a description for the resident to type into the cytology computer program. As the weeks progress, the resident will take on increasing amounts of responsibility for composing and typing the report. Instructions for final editing will be given by the clinical pathologist. The attending clinical pathologist may assign library readings for the resident according to the microscopic findings of individual cases. The attending clinical pathologist will sign the completed report.

At approximately six month intervals, the attending clinical pathologists will meet as a group to discuss the progress of the clinical pathology resident. If the clinical pathologists agree that the resident has made adequate progress, she/he may begin to work independently, seeking second opinions from a faculty pathologist on difficult cases. At this time, the resident may sign the completed report without the signature of an attending clinical pathologist.

The resident will review all of the laboratory data sheets from the previous day for abnormal data changes and to identify cases of educational interest. The resident will sort out appropriate cases for teaching veterinary students, as well as those for discussion with the attending pathologist. The pathologist may instruct the resident to retrieve the record for discussions and reading assignments on difficult or interesting cases.

The clinical pathology resident will rotate through the laboratory for instruction by the medical technologists concerning instrumentation, laboratory techniques and test methodologies. Two weeks will be devoted to hematology, 2 weeks to chemistry and 2 weeks in other services such as clinical immunology, parasitology and microbiology.

## Course Work for Residency Program

Course	Title	Course Leader	Credits	Required
BMVS 5014	Animal Pathology Residency	Residency Coordinator	18 max	AP, CP
BMVS 5124	Reproductive Pathology	D. Phillip Sponenberg	1	
BMVS 5144	Oncologic Pathology	Geoffrey Saunders	2	AP, CP
BMVS 5164	Veterinary Clinical Hematology	Kurt Zimmerman	4	CP
BMVS 5274	Systems Pathology	Geoffrey Saunders	3	AP
BMVS 5284	Cellular Pathology	Bernard Jortner	3	AP, CP
BMVS 5194	Clinical Micropathology*	Geoffrey Saunders	1	AP, CP
BMVS 5204	Advanced Veterinary Cytology**	Kurt Zimmerman	1	AP, CP
BMVS 5984	Clinical Biochemistry	Faculty	3	AP, CP
BMVS 5944	Seminar in VM Sciences	Faculty	4 max	AP, CP
BMVS 4054	Laboratory Animal Management	David Moore	3	AP*, CP*
BCHM 5124	Biochemistry for the Life Sciences	Faculty	3	AP, CP
Stat 5605	Biometry***	Faculty	3	AP, CP
	* required every semester ** should be in Year 1 *** may be waived if appropriate on petition to the Assoc Dean of Research & Graduate Studies.			

Appropriate transfer credits may apply to fulfill some of the above course requirements.

The above course work should be completed by end of 2nd year if scheduling is possible. Additional research specific course work may be required by the Ph.D. committee and should be completed by end of 3rd year if scheduling is possible.

Anatomic Pathology residents are expected to attend weekly Necropsy Rounds during years 1 – 3, whereas Clinical Pathology residents are expected to attend during year 1. Both anatomic and clinical pathology residents are expected to attend weekly Clinical Pathology and/or Histopathology Rounds/Seminar. The anatomic resident is urged to attend Neuropathology Seminar. Each resident will prepare 1 manuscript to submit for publication by a peer-reviewed journal during the 3 years of the Residency program. Case reports are appropriate publications for this purpose and should be guided by one of the attending pathologists. There is no maximum number of manuscripts set, but all such efforts must be overseen and coordinated by the Residency Advisor and Residency Coordinator. Each resident will present a case at a regional or national meeting each of the first 3 years. The residents may also make presentations at other seminar series and the VMRCVM Annual Research Symposium.

### **Teaching duties**

All residents may deliver up to 3 lectures per year. In addition, the clinical pathology resident will assist in the 15 Applied Laboratory Medicine labs, and may assist veterinary professional students with composition of problem lists in the Clinical Pathology course each year.

### **Service duties**

When residents have completed the training service requirements and are judged capable of performing diagnostic duty independently, they will be assigned a minimum of 6 service weeks per year.

### **Ph.D. Requirements**

Refer to the Biomedical and Veterinary Sciences [Graduate Program Handbook](#) for a complete description of College and University Requirements. Coursework specific for the Ph.D. program is expected to be completed during the third year of the residency program if possible. The research advisor will be identified by the end of the second year. A research topic should be identified during the third year.

The preliminary examination should be scheduled after the majority of coursework is completed early in the third year. The research proposal should be submitted to the graduate committee by the end of the third year.

### **Inquiries should be directed to:**

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