

## ACVR Residency Training Program Application

<b>Submission Date</b>	2018-01-11 08:25:01
<b>Institution Name:</b>	University of Tennessee College of Veterinary Medicine
<b>Email</b>	shecht@utk.edu
<b>Succinctly state the objectives of the training program.</b>	The objective of this program is to train the graduate veterinarian in the specialty of veterinary diagnostic imaging, including small and large animal diagnostic radiology, diagnostic ultrasound, computed tomography, magnetic resonance imaging and nuclear medicine. The ultimate goal is to enable the resident to successfully complete the ACVR board examination. The residency is a clinical training program ("pure" residency program) with no academic degree awarded.
<b>What is the total length of the training program?</b>	4 years
<b>If this is a four year program, during what year will the resident be eligible to take the ACVR Preliminary Exam?</b>	3
<b>If the resident is not eligible to take the exam during the beginning of the third year (September), please state the reason.</b>	N/A
<b>What are the responsibilities of the resident in the remaining non-clinical portion of the program?</b>	The majority of the time during the first 3 years will be dedicated to study time to prepare for the ACVR Preliminary Board Examination. The resident is also expected to develop and conduct an original research project under the supervision and guidance of one or more radiology faculty members; write a grant proposal (if applicable); submit an abstract for presentation at the ACVR Annual Scientific Meeting; and write a scientific paper that details the results of the project to be submitted to Veterinary Radiology and Ultrasound or other peer-reviewed journal. The 3rd year resident will be given the option of a 2 week out-rotation. The 4th year resident will primarily function as a clinical instructor. He/she be given 2 weeks off to prepare for the Certifying Examination and 8 weeks to allow for professional development (gain teaching experience, attend meetings, externships, pursue additional research activities etc.).
<b>Who is the Director of Residency training?</b>	Silke Hecht
<b>What percentage of this individual's time is committed to clinical service and teaching of residents?</b>	50%
<b>Roentgen diagnosis</b>	Silke Hecht 50%
<b>Diagnostic ultrasound</b>	Marie de Swarte 70%
<b>Computed Tomography</b>	Connie Fazio 50%

**Magnetic Resonance Imaging**

Silke Hecht 50%

**Nuclear Medicine**

Federica Morandi 40%

**List the names and percentage clinical commitment of additional imaging faculty in the program, and their area(s) of instructional responsibility.**

Adrien Hespel, DVM, MS, DACVR  
Shared responsibility with other faculty members for resident training in radiology, CT, MRI and US

[UTCVM CVs combined.pdf](#)

**ACVIM**

Jennifer Stokes

**ACVIM**

Dianne Mawby

**ACVS**

Karen Tobias

**ACVS**

Darryl Millis

**ACVP**

Linden Craig

**ACVP**

Mike Fry

**Briefly describe how the program meets the facility requirements.**

All modalities (small and large animal radiology, fluoroscopy, ultrasound, CT, MRI and Nuclear Medicine), an interventional radiology suite and a linear accelerator are on site.

#### Small Animal Diagnostic Room 1

- Philips Easy Diagnost RF System with
  - o Tri-mode 12"/9"/7" image intensifier
  - o 60 KW Generator

#### Small Animal Diagnostic Room 2

- Philips Easy Diagnost RF System with
  - o Tri mode 15"/12"/9" image intensifier
  - o Grid Controlled Fluoroscopy
  - o 80 KW Generator

#### Large Animal Diagnostic Radiology

- Philips CP Super 100 Generator
  - o 100 KW Generator
  - o Crane mounted tube and grid cabinet, servo controlled

#### Diagnostic Ultrasound

- Philips Epiq 5 with 5 transducers (radiology)
- Siemens Acuson Sequoia S512 with 3 transducers and the Image Arena Workstation (echocardiography)
- Siemens G60 (radiology)
- Siemens G20 (ICU)

#### Computed Tomography

- Philips Brilliance (40-slice) CT scanner
  - o DICOM interface
  - o Extended Brilliance workstation
  - o Small animal and equine accessible

#### Magnetic Resonance Imaging

- Siemens Espree 1.5T large bore magnet
  - o DICOM interface
  - o Small animal and equine accessible

#### Mobile C-Arm

- Philips BV 300 Plus Digital C-Arm
  - o Tri-mode 9"/7"/5" Image Intensifier
  - o High Resolution CCD-TV System
  - o 12-Bit Digital Processor
  - o DICOM Interface

#### Interventional cardiology/radiology suite equipped with Philips C-arm

##### Nuclear Medicine

- Small Animal GE Starport Gamma Camera with MiniStand Gantry System
- NuCam Large Animal Rectangular Gamma Camera with EquiStand II Gantry System
- Mirage acquisition software interfaced with a NuLear MAC Imaging Computer System for image analysis

#### Radiation Therapy

##### Linear Accelerator: Varian iX

- Dual photon energies (6 MV, 18 MV)
- 5 electron energies (range 6 - 20 MEV)
- Millenium 120 leaf multileaf collimator

#### Planning Software

- Elekta CMS XiO 3D IMRT

#### Film Processing and Printing

- Mini-Medical/90 Automatic X-Ray Film processor, AFP Imaging
- Kodak 8700 Dry Laser Imager

**Indicate the approximate number of patients seen annually by the home institution?**

Approximately 16,000

**What is the annual imaging caseload?**

Approximately 10,500

Small Animals (canine, feline): 85  
Large Animals (equine and food animals): 10  
Exotic Animals: 5

Small Animal Radiology: 6,000  
Large Animal Radiology: 850  
Abdominal Ultrasound: 1300  
Computed Tomography: 550  
Nuclear Medicine: 130  
Magnetic Resonance Imaging: 500  
Other (specify): 140; Exotic radiographs 300; US other than abdomen 200

**Please check which of the following types of imaging cases the residents will have exposure to during the residency:**

Small Animal Echocardiography  
Large Animal Ultrasound  
Nonabdominal Small Animal Ultrasound (i.e. cervical, musculoskeletal)  
Food Animal  
Exotics  
Teleradiology/Referral Imaging

**If the residents do NOT have exposure to any of the above types of imaging cases at your institution, please explain if/how they get the experience during the residency.**

For clarification of above answers: Large Animal Ultrasonographic Studies are being performed by Large Animal Clinicians at UTCVM. Even though radiology residents are not typically involved they are given opportunity to observe studies performed by large animal clinicians if interested and time permitting. While LA clinicians would welcome regular participation of radiology residents, we have not had a radiology resident with LA interest in many years and the small animal ultrasound caseload keeps them busy, so our residents typically elect to stay on the small animal side. LA US studies are being sent to PACS and are available for later review.

We do not have a teleradiology or referral imaging business. However, many cases referred to our institution will come with referral radiographs and residents are exposed to a variety of techniques and types of imaging performed in practice (including hardcopy films and contrast procedures). They will not generate written reports for those cases but will discuss them with in-house clinicians. We do offer CT and MRI outpatient services, and radiology residents are involved with interpreting the studies and drafting referral MRI and CT reports for the referring veterinarians.

**What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form?**

100

**Of the preliminary reports generated from the imaging caseload what percentage are initially produced by the resident?**

Approximately 60%

**What percentage of the resident reports are reviewed by the imaging faculty prior to finalization of the report?**

100% in first 27 months of training; depending on resident 70-100% after certifying exam

**When preliminary resident reports are reviewed and edited by the imaging faculty responsible for training, what percentage of the time are two or more faculty present?**

Approximately 20%

Small Animal Radiology: 3500  
Large Animal Radiology: 300  
Abdominal Ultrasound: 1000  
Computed Tomography: 400  
Nuclear Medicine: 60  
Magnetic Resonance Imaging: 300  
Elective (any of above):  
Required elective (specify): Echocardiography 50  
Total: 5610

**If your program does not offer formal courses in any or all of these topics please indicate how these educational objectives for each are met. Use the button below to upload additional information as necessary.**

The program is not associated with an advanced degree; therefore there are no formal classes that the residents are required to take for credit. The residents have assigned topics of focused learning during their residency training. A radiologist will supervise the learning in these areas and provide reading lists and guidance. The learning objectives follow the ACVR written objectives (now study guidelines), and rigorous written mock exams administered every 2 – 3 months assure the learning objectives are met. In addition to these assigned learning objectives weekly MRI rounds and biweekly Nuclear Medicine rounds are held which include review sessions on relevant physics topics as well as case based rounds. A schedule of topics and assigned faculty follows. A master schedule is attached showing timing of the individual mock exams.

Topic Assigned radiology faculty  
Physics Hecht  
Pathophysiology De Swarte  
Anatomy I and II Hecht/Hespel  
Radiation protection / biology Fazio  
Special procedures Morandi  
Ultrasound De Swarte  
CT Morandi  
MR Hecht  
Nuclear Medicine Morandi

[Resident schedule.doc](#)

**Over the last five years, what is the average number of peer reviewed publications, on which the IMAGING faculty listed under Direction and Supervision in IV, are included as authors?**

47 / 5 years = 9.6 / year

**What is the number of publications/submissions expected of a resident completing the program?**

1

<p><b>If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting?</b></p>	<p>100%</p>
<p><b>Is an advanced degree a requirement of the training program?</b></p>	<p>No</p>
<p><b>How many lectures or scientific presentations are expected of each resident during the course of their training?</b></p>	<p>Approximately 12</p>
<p><b>Did all of your current resident(s) adequately complete the last six months of training?</b></p>	<p>Yes</p>
<p><b>List the current members of the residents' review committee.</b></p>	<p>All radiology faculty members equally participate in the residents' evaluation; there is no separate review committee. The review process is structured as follows:</p> <ul style="list-style-type: none"> <li>o A preliminary evaluation is conducted by the resident mentor after consultation with radiology faculty after 3 months. In case of any problems the program director and other faculty may be asked to participate in the meeting.</li> <li>o A formal written evaluation is carried out every six months. All radiology faculty complete an evaluation form. In addition, input is solicited from small and large animal clinicians 3 times during the program (at 6, 18 and 24 months).</li> <li>o The resident mentor is responsible for compiling the results and meeting with the resident to discuss the evaluation (areas of positive performance, areas for improvement, and action plan). In case of any problems the program director and other faculty may be asked to participate in the meeting.</li> </ul>
<p><b>List the internal mechanisms in place to protect your resident if conflicts arise.</b></p>	<ul style="list-style-type: none"> <li>o The department head (Department of Small Animal Clinical Sciences) meets with all interns and residents as a group every 3 months and is available for individual meetings in case of any problems.</li> <li>o The department head solicits annual evaluations of faculty by residents; these are anonymous and form part of the annual evaluation materials for faculty.</li> <li>o A veterinary social work service is available to mediate interpersonal conflicts if needed.</li> <li>o In case of serious conflicts human resources may get involved (luckily that has never been necessary).</li> </ul>

**What is the nature and scope of the teaching file available to residents?**

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- An interesting case list is maintained in Microsoft Excel on a central server accessible through radiology and office computers. Interesting cases seen on clinics are entered into this database by residents and faculty and are grouped according to category (e.g. radiographs, ultrasound, etc.). There are currently more than 20,000 cases in this database. Imaging studies performed after July 2005 are digital and are accessible through PACS. Older interesting cases are available as hard copies and are being scanned into PACS over time.
- A teaching file for instruction of junior and senior veterinary students is available. These are typical case examples of a wide variety of radiographic diagnoses and focus mainly on survey radiography and contrast studies. Some of these cases are hard copy films, most are digital files prepared in Power Point format. These cases are provided along with signalment, history, and a key with list of roentgen signs, radiographic diagnosis, and final diagnosis/outcome. These cases are arranged according to subject, for example orthopedics, urogenital, large animal, cardiac etc.

Additionally, interesting case files are maintained by individual radiologists and residents in their area of interest.

**How is it maintained/updated?**

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- The teaching database is overseen by Dr. Hecht. Residents/faculty enter cases in separate sheets and submit lists to Dr. Hecht on a monthly basis. Dr. Hecht will check for accuracy, delete double entries etc.
- The student teaching files are updated annually by faculty in their respective areas of teaching.

Every radiologist and resident is responsible for maintaining their own interesting case list in their area of interest.

**On average how many Known Case Conferences are conducted annually?**

25 regular KCC (+weekly MRI rounds in KCC format; + 6-16 full length boot camp sessions in preparation for the certifying exam)

**What is the geographic relationship between the nearest medical library and the training program?**

The Pendergrass Agriculture and Veterinary Medicine Library is located in the College of Veterinary Medicine Teaching Hospital. The University of Tennessee John C. Hodges Library (the central campus library) is located within walking distance of the Veterinary Hospital. All residents have online access to databases and relevant veterinary and human medical journals.

**Provide the pass rate for first time, second time, etc for both the preliminary and certifying exams for your residents for the past 5 years. For example, for all residents finishing your program 5 years ago (Year 5): x number passed prelim 1st time, y number passed certifying exam 1st time, z number was unsuccessful.**

	Year 5	Year 4	Year 3	Year 2	Year 1
<b>Passed preliminary exam 1st time</b>	1	1	1	1	1
<b>Passed preliminary exam 2nd time</b>					
<b>Passed preliminary exam after 2nd time</b>					
<b>Passed certifying exam 1st time</b>	1		1	1	1
<b>Passed certifying exam 2nd time</b>		1			
<b>Passed certifying exam after 2nd time</b>					
<b>Unsuccessful in all attempts</b>					

[Spring 2018 - Dec22 FINAL.xls](#)