

## ACVR Residency Training Program Application

<b>Submission Date</b>	02-22-2018 10:30:42
<b>Institution Name:</b>	NC State University
<b>Email</b>	gsseiler@ncsu.edu
<b>Succinctly state the objectives of the training program.</b>	To provide training in large and small animal radiology, ultrasound, nuclear medicine, computed tomography and magnetic resonance imaging to fulfill the requirements of the American College of Veterinary Radiology (ACVR), and be able to perform successfully in either an academic, specialty practice or teleradiology environment.
<b>What is the total length of the training program?</b>	36 months
<b>What are the responsibilities of the resident in the remaining non-clinical portion of the program?</b>	The 6 months off-clinics is spent preparing for the ACVR board examinations, completing a research project, vacation (12 days per year), and on externships (optional).
<b>Who is the Director of Residency training?</b>	Gabriela S. Seiler, Dr.Med.Vet., DACVR, DECVDI, Cert. Clin. Res.
<b>What percentage of this individual's time is committed to clinical service and teaching of residents?</b>	50%
<b>Roentgen diagnosis</b>	Ian Robertson 50%
<b>Diagnostic ultrasound</b>	Gabriela Seiler 50%
<b>Computed Tomography</b>	Eli Cohen 60%
<b>Magnetic Resonance Imaging</b>	Erin Keenihan 40%
<b>Nuclear Medicine</b>	Nathan Nelson 60%
<b>List the names and percentage clinical commitment of additional imaging faculty in the program, and their area(s) of instructional responsibility.</b>	Nicholast Petrivitch, 60% Maria Evola, 70%
	<a href="#">One page CVs combined.pdf</a>
<b>ACVIM</b>	Adam Birkenheuer
<b>ACVIM</b>	Shelly Vaden
<b>ACVS</b>	Simon Roe

**ACVS**

Kyle Mathews

**ACVP**

Keith Linder

**ACVP**

Devorah Marks Stowe

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

Small Animal Radiology

- Room 1: Siemens Optitop, Ceiling mounted unit. 80KW generator with Canon CXDI 50G Flat panel digital system.
- Room 2: Siemens Digital Fluoroscopy. 80 KW generator and Canon CXDI 50G flat panel digital system.
- Room 3: Siemens Optitop, Ceiling mounted unit. 80KW generator with Canon CXDI 50G Flat panel digital system.
- Siemens Neurostar Biplanar Fluoroscopy/Digital Angiography with Infimed digital image acquisition, storage and processing

Large Animal Radiology

- Ceiling mounted x-ray tube with mechanical and electric interlocking to an autotracking image plate holder and Canon CXDI 50G digital flat panel.
- Ceiling mounted x-ray tube with extension capabilities to floor level with Canon CXDI 31 digital flat panel.
- MinX-ray portable generator interfaced with either CXDI 50G or CXDI 31 digital flat panel.

Ultrasonographic equipment:

- Two GE Logiq E9 Ultrasound Machines
- One Toshiba Aplio 500 Ultrasound System
- One Mylab Twice Ultrasound System

CT equipment:

- Siemens Somatom Perspective 64, Multislice helical scanner
- Siemens Sensation 16, Multislice helical scanner
- Siemens Wizard CT workstation
- Philips Extended Brilliance Workspace

Nuclear medicine equipment:

- Technicare camera retrofitted with digital imaging chain interfaced with PC based Mirage software

MRI equipment:

- 1.5T Siemens Symphony MRI suite available on-site through AnimalScan Imaging Center.

Radiology Information System and PACS

- Web based Empiric RIS fully integrated with Merge PACS
- Merge eFilm workstations
- Voxar 3D workstation
- Multiple workstations with NEC 3MP monochrome monitors.

Miscellaneous

- Kodak M6A-N automatic film processor for student teaching.
- Duplication/subtraction unit for services to regional veterinarians.
- Fuji CR System

<b>Indicate the approximate number of patients seen annually by the home institution?</b>	33,500
<b>What is the annual imaging caseload?</b>	17,025
	Small Animals (canine, feline): 85% Large Animals (equine and food animals): 13% Exotic Animals: 2%
	Small Animal Radiology: 7500 Large Animal Radiology: 1100 Abdominal Ultrasound: 3400 Computed Tomography: 700 Nuclear Medicine: 355 Magnetic Resonance Imaging: 740 Other (specify): 2600 (exotics, non-abdominal ultrasound, interventional procedures)
<b>Please check which of the following types of imaging cases the residents will have exposure to during the residency:</b>	Small Animal Echocardiography Large Animal Ultrasound Nonabdominal Small Animal Ultrasound (i.e. cervical, musculoskeletal) Food Animal Exotics Teleradiology/Referral Imaging
<b>What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form?</b>	99%
<b>Of the preliminary reports generated from the imaging caseload what percentage are initially produced by the resident?</b>	95%
<b>What percentage of the resident reports are reviewed by the imaging faculty prior to finalization of the report?</b>	100%
<b>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?</b>	75%

Small Animal Radiology: 7500  
Large Animal Radiology: 800  
Abdominal Ultrasound: 2000  
Computed Tomography: 700  
Nuclear Medicine: 180  
Magnetic Resonance Imaging: 650  
Elective (any of above): 1300  
Required elective (specify): 50 (Echocardiography)  
Total: 13,180

**Radiobiology**

Radiology Resident Physics Course - offered at UNC- Chapel Hill 2 Credits (Residents audit course)

**Nuclear Medicine**

Radiology Resident Physics Course - offered at UNC- Chapel Hill School of Medicine 2 Credits (Residents audit course)

**Ultrasonography**

Radiology Resident Physics Course - offered at UNC- Chapel Hill School of Medicine 2 Credits (Residents audit course)

**CT**

Radiology Resident Physics Course - offered at UNC- Chapel Hill School of Medicine 2 Credits (Residents audit course)

**MRI**

Radiology Resident Physics Course - offered at UNC- Chapel Hill School of Medicine 2 Credits (Residents audit course)

**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.**

MRI is also taught in the form of weekly rounds. At this rounds session, faculty radiologists discuss cases evaluated by the AnimalScan Imaging Center. Generally 6-7 cases are reviewed and imaging protocols as well as differential diagnoses and image interpretation are discussed. Residents write reports for all 6-7 cases prior to rounds. The Neurology service joins these rounds once a month to provide additional input. Once weekly rounds are also held to discuss all board objectives as outlined in the study guide. Attending faculty (typically 1-3 faculty present depending on student rounds schedule) and senior residents quiz junior residents on the topic of the week and difficult topics are reviewed and discussed.

**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?**

10/faculty

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

at least one peer-reviewed publication

**If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting?**

95%

<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>Each resident is expected to present the findings of his or her research project at the ACVR annual scientific meeting during their third year of training. Each resident is also required to give 2 presentations over the course of their training to house officers and faculty on topics relating to diagnostic imaging. Additionally, the residents routinely give two lectures on physics and digital imaging to veterinary students on clinical rotation, and occasional lectures to the veterinary students in the RadVets radiology student club.</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 is involved in semi-annual review. Each resident has an additional mentor outside radiology:          Katelyn Cordle: Karyn Harrell, Internal Medicine          Rudy Rivas: Chris Mariani, Neurology          Ryan Appleby: Karen Tefft, Internal Medicine          Bennett Deddens: Lauren Schnabel, LA Surgery          Jody Lawver: Alex Lynch, ECC          Chris Piscitelli: Sarah Musulin, ECC          Christine Gremillion: Sandra Tou, Cardiology</p>
<p><b>List the internal mechanisms in place to protect your resident if conflicts arise.</b></p>	<p>All residents successfully completed their semi-annual evaluations. Evaluations are performed twice a year in December and April and are submitted to the Student Services at North Carolina State University College of Veterinary Medicine. Any instance where a resident "does not meet standards" in any of the evaluation criteria the Faculty Committee of House Officer Programs and Resources (FCHOPR) is notified. Each resident is evaluated by the radiology faculty and has a faculty mentor outside the radiology group. This mentor, as well as the FCHOP committee are possible points of contact for the residents should conflicts arise. There are also two psychologists on staff who can provide support if needed.</p>
<p><b>What is the nature and scope of the teaching file available to residents?</b></p>	<p>Clinical images from 2002 to present are in a digital format and available through the Radiology Information System (RIS). These cases are indexed by keywords that can be searched in the RIS. Searches in the RIS can be filtered using the report assessments, descriptions, patient signalment and exam type parameters. These cases are directly linked to the PACS system for web-based image retrieval and to the electronic medical record. A limited film archive of interesting cases and artifacts is also available on-site.</p>
<p><b>How is it maintained/updated?</b></p>	<p>The RIS teaching file is updated by faculty and residents by adding keywords during report generation and finalization. The artifact files are maintained by the residents. The film archive is maintained by technologists.</p>
<p><b>On average how many Known Case Conferences are conducted annually?</b></p>	<p>49</p>

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

The William Rand Kenan, Jr. Library of Veterinary Medicine is on-site.

**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.**

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

[SAMPLE SCHEDULE.xlsx](#)