

ACVR Residency Training Program Application Form:

Institution Name Iowa State University College of Veterinary Medicine Department of Veterinary Clinical Sciences

This document is to act as a guide for institutions desiring ACVR accreditation of their residency training program. It should be used in concert with the requirements set out in the ACVR Essentials of Residency Training document and it follows the headings of that document. It is intended to streamline the application process and help define what information the RSEC needs to evaluate the program. All terms used in this application have same definitions as defined in the Essentials.

II. Objectives:

Succinctly state the objectives of the training program. <ol style="list-style-type: none">1. to master the art and science of veterinary diagnostic image interpretation in all core areas, to be able to logically correlate all imaging findings and clinical data in order to formulate accurate conclusions which, in turn, may provide direction for case management and to appreciate the economic and emotional factors related to the health care of veterinary patients.2. to provide a firm understanding of the underlying radiation physics and anatomic basis of veterinary diagnostic imaging.3. to develop expertise in interpersonal communications for proper colleague and client relationships.4. to allow the resident an opportunity to develop teaching skills as they participate in the educational training of veterinary students.5. to constantly pursue academic enrichment.6. to complete a residency research project, to draft the results in a manuscript suitable for publication, to obtain instruction and guidance in manuscript writing and submission for publication in refereed journals and to present the research findings to an audience of peers in the second or third year of the program.7. to satisfy all requirements to sit both the written and oral examinations of the American College of Veterinary Radiology

III. Training period:

What is the total length of the training program in months? 36 Months
If this is a 4 year program, during what year will the resident be eligible to take the

ACVR Preliminary Exam? If the resident is not eligible to take the exam during the beginning of the 3 rd year (September), please state the reason. N/A
What is the total duration of supervised clinical training in the program? 30 Months
<p>What are the responsibilities of the resident in the remaining non-clinical portion of the program?</p> <ol style="list-style-type: none"> 1. to complete a residency research project, to draft the results in a manuscript suitable for publication, and to present the research findings to an audience of peers in the second or third year of the program. 2. to successfully complete course instruction in radiation physics and radiation biology. 3. to participate in instructional delivery of the normal anatomy of veterinary diagnostic imaging to first year veterinary students.

IV. Direction and Supervision:

Program Director:

Who is the Director of Residency training? Kristina Miles, DVM, MS, DACVR
What percentage of this individual's time is committed to clinical service and teaching of residents? Approx. 70 %

Faculty:

Please list the faculty member of the program accepting PRIMARY responsibility for training in each of the following core areas:

Roentgen diagnosis:

Faculty: Elizabeth Riedesel, DVM, DACVR
Percentage clinical service: 65 %

Diagnostic ultrasound:

Faculty: Kristina Miles, DVM, MS, DACVR
Percentage clinical service: 70 %

Computed Tomography

Faculty: Elizabeth Riedesel, DVM, DACVR
Percentage clinical service: 65 %

Magnetic Resonance Imaging:

Faculty: Elizabeth Riedesel, DVM, DACVR
Percentage clinical service: 65 %

Nuclear Medicine:

Faculty: Kristina Miles, DVM, DACVR
Percentage clinical service: 70 %

List the names and percentage clinical commitment of additional imaging faculty in the program, and their area(s) of instructional responsibility. For each imaging faculty in the program please provide a one page CV documenting their expertise in the area(s) of assigned responsibility.

For each of the specialty colleges listed below please list at least two Diplomates of these colleges who can be expected to regularly interact with radiology residents:

ACVIM

Albert Jergens, DVM, PhD, DACVIM
JoAnn Morrison, DVM, MS, DACVIM
Robert King, DVM, PhD, DACVIM
Leslie Fox, DVM, MS, DACVIM
Brett Sponseller, DVM, PhD, DACVIM (Equine)
David Wong, DVM, DACVIM (Equine)
Wendy Ware, DVM, DACVIM (Cardiology)
Krysta Dietz, DVM, DACVIM
Nick Jeffery, BVSc, PhD, DECVN, DECVS, FRCVS (Neurology)

ACVS

Karl Kraus, DVM, DACVS
Scott McClure, DVM, DACVS (Equine)
Cheryl Hedlund, DVM, DACVS
Kevin Kersh, DVM, DACVS (Equine)
Stephanie Caston, DVM, DACVS (Equine)
William Hoefle, DVM, DACVS

ACVP

Amanda Fales-Williams, DVM, PhD, DACVP
Jesse Hostetter, DVM, PhD, DACVP
Mark Ackerman, DVM, PhD, DACVP
Heather Flaherty, DVM, DACVP

V. Affiliation agreement:

If all of the training will not be accomplished on-site, please attach a copy of the affiliations agreement(s). Include the scope of the training and amount of time the resident will be away from the home institution.

1. Radiation Physics & Radiobiology – Iowa Health – Des Moines/Iowa Methodist Medical Center
 Contact: Dr. Suzanne Crandall, Ed.D., R.T.(R)
 Resident is away from home institute one half day each week for the Fall semester, first year. Affiliation agreement attached at end of submission.
2. Radiation Oncology & Nuclear Medicine – University of Missouri – Columbia
 Contact: Dr. Jimmy Lattimer, DACVR, DACVRO
 Duration: Three weeks. See email attachment at end of submission.

3. Large Animal Ultrasound – University of Pennsylvania, New Bolton Center
Contact: Dr. Virginia Reef, DACVIM
Duration: Three weeks. See email attachment at end of submission.
4. Nuclear Medicine Shortcourse – March 2009 - University of Tennessee

VI. Facilities:

Briefly describe how the program meets the facility requirements.

1. Philips Mult Diagnost Eleva with Flat Detector stationary C-arm (Small Animal Special Procedures) Unit: Purchased in 2011, this unit will be installed in a new suite in Spring 2011. To be used for procedures requiring the use of fluoroscopy, as well as some routine small animal radiography.
2. Summit Innovet X-ray Unit: This 2004 unit is a versatile, high volume small animal diagnostic X-ray machine. The unit has been modified to provide digital images with installation of a Sound-Eklin EDR-6 sensor. A second new Summit Innovet X-ray unit will be installed in March 2011 and will also be modified with an EDR-6 sensor.
3. Philips Overhead Tube & Grid System (Large Animal X-ray Unit): Purchased in 2003, this 1000 mA tube is linked to an overhead rail system and a wall mounted grid to obtain high quality images in large animals. This unit is linked with a Sound-Eklin Mark V digital sensor. Equine and bovine distal extremities are obtained with a portable MinXray HF 8015 unit
4. Elkin DR-3 digital radiography unit for imaging of equine extremities. Purchased in Sept 2006 and supported by an E-Film based mini-PAC system.
5. Toshiba 16-slice Aquilion Computed Tomography scanner: Purchased in 2010, this MDCT scanner provides both axial and spiral imaging for small animals, with a large animal specialty table with a weight limit of 1800 pounds. The MDCT scanner is will also interface with a Vital software 3D reconstruction workstation for advanced manipulation of images, such as virtual colonoscopy.
6. Philips iU-22 Ultrasound unit: Purchased in Sept. 2005, this unit is used for all small animal abdominal ultrasound exams. A separate Siemens Sequoia ultrasound unit has supports the Cardiology service.
7. Diagnostic Nuclear Scintigraphy unit provided by Enhanced Technologies has been relocated to a new suite with imaging performed using a custom gantry and linked to a Mirage dedicated nuclear imaging computer system.
8. MRI is available on-site utilizing a 1.5 Tesla GE Signa system with

EXCITE software for small animals. Utility of the unit is augmented with a non-ferrous Shanks pneumatic table for large animal patients.

9. A Philips Veradius mobile C-arm unit will be delivered in February 2011 to provide additional small animal post-operative and cardiology imaging support.
10. Dragon Naturally Speaking voice recognition software system allows dictation of imaging reports directly into the electronic medical record.
11. The Equine service operations of the ISU Lloyd Veterinary Medical Center (LVMC) have relocated into their new Phase I facility as of September 2008.
12. The Phase II building and renovation of the small animal operations is in progress, with the Pharmacy and Imaging services first to be completed. All LVMC Imaging services will be located in the new facility in Feb. 2011.

VII. Clinical resources:

Indicate the approximate number of patients seen annually by the home institution? 18,083
What is the annual imaging caseload? 9,165

Indicate the approximate breakdown of the patient population according to species.

Small animals (canine, feline)	12,593
Large animals (equine and food animals)	5,063
Exotic animals	427

What is the approximate annual imaging caseload of the program in:

Small Animal Radiology:	6,781
Large Animal Radiology:	1,099
Abdominal Ultrasound:	724
Computed Tomography:	272
Nuclear Medicine:	24
Magnetic Resonance Imaging:	158

Other (specify): I-131 Therapy 7 New Bolton LA Ultrasound 100 & ISU Cardiac Ultrasound
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VIII. Training content:

What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form? Preliminary report available in electronic medical record in 95 %+
If your answer is less than 75% please explain how reports are generated and how long it takes for the report to be available for review in typewritten form.
Of the preliminary reports generated from the imaging caseload what percentage are initially produced by the residents? 95 %
What percentage of resident reports are reviewed by the imaging faculty prior to finalization of the report? 100 %
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? 70 %

Please complete the table below

	Approximate number of cases in the 30 months clinical experience
Small Animal Radiology:	7,215
Large Animal Radiology:	1,008
Abdominal Ultrasound:	777
Computed Tomography:	222
Nuclear Medicine:	24
Magnetic Resonance Imaging:	222
Elective (any of above)	9
Required elective (specify):	150

UMC Nuc Med & Rad Onc combined with New Bolton Large Animal Ultrasound and ISU Cardiac Ultrasound	
Total	9,627

Please indicate the course number and unit assignment residents are required to take to meet the educational objectives for formal instruction as outlined in the Essentials in the following:

Topic	Course number	Units
Radiobiology:	<p>RAD114 <i>Radiation Protection and Biology</i> and Radiobiology, Radiation Protection, and Risks vs. Benefits Carl D. Elliston, David J. Brenner and Eric J. Hall</p> <p>World Wide Web-Based Education Program of the Radiological Society of North America (RSNA): Web-Rad-Train http://www.web-rad-train.org</p>	<p>Suzanne E. Crandall, Ed.D., MHA, R.T.(R) Professor/Program Chair Radiologic Technology Mercy College of Health Sciences 928 6th Ave. Des Moines, IA 50309</p> <p>Fall Semester, Year 1</p>

The Physics of:

Diagnostic Radiology:	<p>VCS 640 <i>Radiation Physics and Interactions of Radiation with Matter</i></p> <p>World Wide Web-Based Education Program of the Radiological Society of North America (RSNA): Web-Rad-Train</p>	<p>Suzanne E. Crandall, Ed.D., MHA, R.T.(R) Professor/Program Chair Radiologic Technology Mercy College of Health Sciences 928 6th Ave. Des Moines, IA 50309</p> <p>Fall Semester, Year 1</p>
Nuclear Medicine:	<ol style="list-style-type: none"> 1. Nuclear Medicine Short Course 2. 3 week external rotation University of 	<ol style="list-style-type: none"> 1. University of Tennessee Three day Short Course Contact Hours: Approx.

	Missouri-Columbia	17 2. Contact Director: Jimmy C. Lattimer, DVM, DACVR, DACVRO
Ultrasonography:	The Physics of Ultrasound	Kremkau, Frederick, PhD. Five disc short course series produced by Wake Forest University, Dept. of Radiology
CT:	CT Lecture Series (Six of thirty-eight lectures) at www.CTisus.com	CT Lecture Series (Six of thirty-eight lectures) at www.CTisus.com produced by the Advanced Medical Imaging Laboratory (AMIL). AMIL is a multidisciplinary team dedicated to research, education, and the advancement of patient care using medical imaging with a focus on spiral CT and 3D imaging. The AMIL is headed by Elliot K. Fishman, M.D.
MRI:	1. MRI Literature Review 2. MRI Shortcourse	Current Literature & Textbook reviews held every 3 weeks at ISU Textbook example: Gavin PR, Bagley RS. <i>Practical Small Animal MRI</i> . Wiley-Blackwell 2009 2. North Carolina State University (when available)
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 attached sheets if necessary.		

IX. Research Environment:

Over the last 5 years, what is the average number of peer reviewed publications, on which the IMAGING faculty listed under Direction and Supervision in IV above, are included as authors? 2/yr
What is the number of publications/submissions expected of a resident completing the program? One
If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting? 67 %
Is an advanced degree a requirement of the training program? No

X. Educational Environment:

How many lectures or scientific presentations are expected of each resident during the course of their training? Seven

XI. Evaluation:

During the program how often is resident performance evaluated in writing? Annually
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XII. Teaching File:

<p>What is the nature and scope of the teaching file available to residents?</p> <ol style="list-style-type: none">1. Teaching files for instruction of fourth year veterinary students. Classic case examples of a wide variety of radiographic & etiologic diagnoses. These film files contain all pertinent case information available, including case outcome or necropsy data.2. Current integrated electronic medical record allows imaging reports to be searched via numerous parameters. Imaging reports of special interest may also electronically designated to be grouped in the "Teaching File".3. "Do not discard" hard copy film files are categorized with an anatomic/radiographic coding system. The most recent case numbers, +/- a brief signalment & description, are recorded on an electronic list. Older cases are recorded on a typed index.
<p>How is it maintained/updated?</p> <ol style="list-style-type: none">1. Current imaging reports may be immediately tagged for "Teaching File" through the integrated electronic medical record, or tagged following daily radiology resident group rounds.2. Hard copy film files are selected for "Do not discard" teaching files through review of film archives as time permits.

XIII. Conferences:

On average how many Known Case Conferences are conducted annually?

Once every 3 week cycle (17/year)

Cycle consists of KCC, Resident Objectives review and General Literature review

XIV. Literature resources:

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

The primary medical collection for the ISU Library is located on-site (both paper and electronic collection). Additional materials are available through the main ISU Parks Library on campus (2 miles). Further materials can be obtained through interlibrary loan from the University of Iowa or other locations.

XV. Appendix:

(a) 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), check the appropriate box. Complete the table for residents finishing 4 years ago (Year 4), 3 years ago (Year 3), etc.

	Year 5	Year 4	Year 3	Year 2	Year 1
Passed preliminary exam 1st time				X	X
Passed prelim exam 2 nd time					
Passed prelim after 2 nd time					
Passed certifying exam 1 st time				X	
Passed certifying exam 2 nd time					
Passed certifying exam after 2 nd time					
Unsuccessful in all attempts					

(b) Provide a clinical schedule for your resident(s). This schedule should provide a weekly or monthly outline of the resident's clinical responsibilities. This may be in the form of a master schedule or duty roster for your entire radiology section if desired.

- **One ACVR Diplomate is always on general clinic floor duty with the residents, but is listed only once, in *either* the Clinics column or the MRI/US column.**

Clinic Duty = Diagnostic Radiography: Small & Large Animal and Computed Tomography

MRI/US = MRI studies, US & associated case radiographs, Nuclear Medicine studies

Mail-ins = Electronic & hard copy imaging cases are dictated by the ACVR Diplomates

EMERG = Emergency on-call

448 = Didactic teaching for first & third year veterinary students (VCS448, VCS 391)

SRS = Daily scheduled rounds activities with the fourth year veterinary students