

ACVR Residency Training Program Application Form:

University of California Davis

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:

To provide in depth, supervised training in diagnostic radiology of both large and small animals, using both routine and special procedures, and abdominal ultrasound of small animals.

To teach practical and theoretical application of nuclear medicine, CT, and MRI in clinical veterinary medicine.

To teach clinical skills in large animal ultrasound and echocardiology.

To teach the basics of radiobiology, radiation physics, radiation protection, radiation dosimetry, and radiation safety.

To provide experience in teaching radiological sciences to veterinary students.

To provide guidance in designing and conducting research and in preparing a publication of a clinically oriented research project.

To serve as a basis for future postgraduate research training with a goal of an M.S. or Ph.D. degree, dependent upon funding and acceptance into these programs.

To teach basic concepts of radiotherapy and its application in treatment of inflammation and cancerous lesions.

To teach mastery of digital image manipulation and presentation software to allow the resident to prepare high quality teaching and scientific materials from digital images.

III. Training period:

What is the total length of the training program in months? **48 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. 3rd year
What is the total duration of supervised clinical training in the program? 39.5
What are the responsibilities of the resident in the remaining non-clinical portion of the program? ACVR board exam preparation, lecture preparation, completion of resident research project, attending clinic rounds and known case conference.

IV. Direction and Supervision:

Program Director:

Who is the Director of Residency training? Allison Zwingenberger, DVM, MAS
What percentage of this individual's time is committed to clinical service and teaching of residents? 50%
Six board-certified radiologists actively participate in resident training and supervision. All radiology faculty are listed in Table 1, together with a description of primary residency training responsibilities and time commitments.

Faculty:

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

Multiple faculty have equal and significant input in resident training in the following areas. Please see table 1 below.

Roentgen diagnosis:

Faculty:
Percentage clinical service:

Diagnostic ultrasound:

Faculty:
Percentage clinical service:

Computed Tomography

Faculty:
Percentage clinical service:

Magnetic Resonance Imaging:

Faculty:
Percentage clinical service:

Nuclear Medicine:

Faculty:
Percentage clinical service:

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.

Table 1: Faculty/Areas of Interest

	Primary Res. Training Responsibility			Approximate Time Commitment			
	Clinical Training	Daily Rounds	Resident Lectures, Courses/Rd s	Clinical Service	Formal Teaching	Research Supervision	Admin.
Rachel E. Pollard, DVM, PhD, DACVR	SAR, LAR, US, NM CT, MRI	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	50%	5%	10%	10%
Erik R. Wisner, DVM, DACVR	SAR, LAR, US, NM CT, MRI	SAR, LAR, US, NM CT, MRI	SAR, LAR, US, NM CT, MRI	25%	5%	20%	10%
Sarah Puchalski DVM, DACVR	SAR, LAR, US, NM CT, MRI	LAR, NM CT, MRI	LAR, NM CT, MRI	50%	5%	10%	10%
Allison Zwingenberger, DVM, DACVR, EAVDI	SAR, LAR, US, NM CT, MRI	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	50%	5%	10%	10%
Eric G. Johnson DVM, DACVR	SAR, LAR, US, NM CT, MRI	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	70%	5%		
Mathieu Spriet DVM, DACVR, EAVDI	SAR, LAR, US, NM CT, MRI	SAR, LAR, US, NM CT, MRI	SAR, LAR, US, NM CT, MRI	70%	5%		
Alain P. Théon, Dr. Med Vet, MS. DACVR.	Radiation Oncology.		Radiation Oncology.	50%	5%	10%	
Michael S. Kent, DVM, DACVIM, DACVR, MAS	Radiation Oncology		Radiation Oncology	50%	5%	10%	
Mary-Beth Whitcomb DVM	LAUS	LAUS	LAUS	70%	5%		
Betsy Vaughn DVM	LAUS	LAUS	LAUS	90%	5%		

SAR = Small Animal Radiology, LAR = Large animal Radiology, US = Small Animal Ultrasound, NM = Nuclear Medicine, CT = Computed Tomography, MR = Magnetic Resonance Imaging, LAUS = Large Animal ultrasound

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

Cowgill, Larry D.
 Madigan, John
 Marks, Stanley
 Nelson, Richard W.

Westropp, Jodi Spier, Sharon J. White, Stephen D. Wilson, W. David Feldman, Edward Ihrke, Peter J. Johnson, Lynelle Kittleson, Mark LeCouteur, Richard A. Skorupski, Katherine Sykes, Jane E.

ACVS

Galuppo, Larry Mayhew, Philip Mayhew, Kelli Pascoe, John R. Culp, William Hunt, Geraldine Snyder, Jack R. Watson, Joie Vidal, Martin Kapatkin, Amy Hayashi, Kei

ACVP

Higgins, Robert J Lowenstine, Linda J. MacLachlan, N.J. Mohr, Charles Moore, Peter F. Osburn, Bennie I. Wilson, Dennis W. Borjesson, Dori Vernau, William

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. **NA**

VI. Facilities:

Briefly describe how the program meets the facility requirements.

The Radiology Residency Program utilizes the facilities and faculty of the VMTH at the University of California Davis (UCD). It also makes use of other UCD resources within the School of Veterinary Medicine, the Department of Radiology, School of Medicine; and the California Primate Research Center.

Special procedures of the gastrointestinal, urogenital, cardiovascular, respiratory and central nervous systems are routinely performed. Verification of diagnoses is provided by the large number of clinical cases which have surgical biopsy or necropsy confirmation. An overview of available equipment is listed in the table below. The Radiology Service provides limited consultation to the Primate Center, which offers an opportunity for a resident to become familiar with diagnostic radiology and ultrasound in primates.

Small Animal Radiology	Radiology Units: Summit Synergy high frequency radiographic unit. Sedecal Millenium high frequency radiographic unit. Eklin DR detection systems for all units.
Large Animal Radiology	Radiology Units: CPI Indico 150 kV,1000 mA Generator x-ray tubes x 2, Eklin DR detection systems Min-X 100 kV/30 mA portable Min-X 80 kV/15 mA portable
Special Procedures	R&F tables: CGR radiographic and fluoroscopy table : Philips Omni Diagnost Eleva
Small Animal Ultrasound	US Scanners: ATL HDI 5000 ultrasound units x 3
Large Animal Ultrasound	US Scanners: Vingmed (System V) ultrasound unit 2 x Biosound Technos
Computed Tomography	CT Scanner: General Electric Lightspeed 16 slice
Magnetic Resonance Imaging	MRI Scanners: Halmarq 0.31Tesla magnet (install 6/05) GE 1.5 Tesla Signa Horizon HiSpeed magnet
Nuclear Medicine	Enhanced Technologies system, IS2 software, Mirage viewing system
Radiation Therapy	Linear accelerator: Varian Clinac 4MV Varian Clinac 2100C
Other	Multistation PACS system Media and Computer lab Dragon Voice Dictation

Briefly describe how the program meets the facility requirements. The program has all required facilities with a high caseload, where residents acquire and interpret the majority of studies.

VII. Clinical resources:

Indicate the approximate number of patients seen annually by the home institution?
What is the annual imaging caseload? 13924

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

Small animals (canine, feline)	10636
Large animals (equine and food animals)	2838
Exotic animals	450

What is the approximate annual imaging caseload of the program in: (3 year averages)

Small Animal Radiology: 6318
Large Animal Radiology: 2244
Abdominal Ultrasound: 3267
Computed Tomography: 581
Nuclear Medicine: 200
Magnetic Resonance Imaging: 520
Other (specify): equine ultrasound: 794

VIII. Training content:

What percentage of imaging reports are typically available within 48 hours after
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the examination is conducted in typewritten or electronic form? 99%
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 resident? 75%
What percentage of resident reports are reviewed by the imaging faculty prior to finalization of the report? 100% of SA radiology, LA radiology, CT, nuclear medicine and MRI reports are reviewed by faculty. US case findings are verbally reviewed before reports are dictated.
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% (2 or more faculty are present in SA radiology rounds approximately 95% of the time. Usually one faculty member attends LA radiology, CT, MRI and nuclear medicine rounds).

Please complete the table below

	Approximate number of cases in the 30 months clinical experience
Small Animal Radiology:	3600
Large Animal Radiology:	1300
Abdominal Ultrasound:	1100
Computed Tomography:	350
Nuclear Medicine:	150
Magnetic Resonance Imaging:	325
Elective (any of above)	n/a
Required elective (specify):	n/a
Total	6825*

*Note: there is an additional 8 months of clinical experience in the 4th year.

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:	VSR 256A-B/VSR 465A-B	
The Physics of:		
Diagnostic Radiology:	Med 413	
Nuclear Medicine:	Med 413	
Ultrasonography:	Med 413	
CT:	Med 413	
MRI:	Med 413, BMI 241	
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? 3/year/faculty member
What is the number of publications/submissions expected of a resident completing the program? 1-2
If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting? 100%
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? Three or more.
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XI. Evaluation:

During the program how often is resident performance evaluated in writing? Once yearly starting at 6 months into the program.
Residents are formally reviewed every year throughout the residency training program. All faculty provide an analysis of the resident's

ability, capabilities, and productivity. Input is sought from our staff, faculty, and house officers from other services. The review is discussed with the resident in a formal meeting with the Residency Program Director. A comprehensive evaluation form is used to document aspects of performance that require improvement as well as those in which the resident excels. In addition, the residency program director and other faculty meet informally with residents on an as needed basis to provide additional guidance.

XII. Teaching File:

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

Our hospital medical record is fully searchable by radiographic report keyword, pathologic diagnosis, and other search criteria. Records can be searched with species, breed, age, and date filters, with the ability to create complex custom searches. The PACS system hosts the library of images searched by the medical record system, and contains approximately 100,000 studies.

How is it maintained/updated? Maintenance is automatic as the patient data and reports are entered into the medical record system. Reports from all services are generally available within 24 hours.

XIII. Conferences:

On average how many Known Case Conferences are conducted annually? **30**

XIV. Literature resources:

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

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	1	1	1	2	1
Passed prelim exam 2 nd time		1			

Passed prelim after 2 nd time					
Passed certifying exam 1 st time	1	2	1	2	1
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.

Summary:

Residents are scheduled in a service area for 1-4 week blocks of time. The weeks are evenly distributed during each quarter of the school year.

Year 1: 23 weeks SAR, 23 weeks US, 2 wk elective, 4 wk vacation

Year 2: 20 weeks CT/MR/NM, 20 weeks LAR, 8 wk elective, 4 wk vacation

Year 3: 12 weeks SAR, 12 weeks US, 12 weeks LAR, 10 weeks CT/MR/NM, 2 wk elective, 4 wk vacation

Year 4: 38 wk divided among above services with emphasis on resident areas of interest.