ACVR Residency Training Program Application Form:

University of California Davis Equine Diagnostic Imaging Program

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:

1. To provide detailed and advanced resident training in equine diagnostic imaging, including radiology, ultrasound, magnetic resonance imaging (MRI), computed tomography (CT) and diagnostic nuclear medicine (NM) studies.
2. To integrate understanding of equine disease processes and sports and discipline related injuries/abnormalities with imaging analysis.
3. To promote research and development in the field of equine imaging by board-certified equine radiologists.
4. To promote the highest level of acquisition and interpretation of equine diagnostic imaging and provide high quality imaging support to equine practitioners and clients.

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 3rd 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? **Mathieu Spriet, DVM, MS, DACVR, DECVDI, DACVR-EDI**
What percentage of this individual's time is committed to clinical service and teaching of residents? **50%** Eight 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:

Roentgen diagnosis:

Faculty: Mathieu Spriet
Percentage clinical service: 50%

Diagnostic ultrasound:

Faculty: Betsy Vaughan
Percentage clinical service: 90%

Computed Tomography

Faculty: Mathieu Spriet
Percentage clinical service: 50%

Magnetic Resonance Imaging:

Faculty: Mathieu Spriet
Percentage clinical service: 50%

Nuclear Medicine:

Faculty: Mathieu Spriet
Percentage clinical service: 50%

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.

	Primary Res. Training Responsibility		**Approximate Time Commitment**				
	Clinical Training	Daily Rounds	Resident Lectures, Courses/Rds	Clinical Service	Formal Teaching	Research Supervision	Admin.
Mathieu Spriet* DVM, MS, DACVR, DECVDI, DACVR-EDI	LAR, LAUS, NM CT, MRI	LAR, NM CT, MRI	LAR, NM CT, MRI	50%	5%	35%	10%
Katie Phillips* DVM, DACVR, DACVR-EDI	SAR, LAR, US, NM CT, MRI	SAR, LAR, US, NM CT, MRI	SAR, LAR, US, NM CT, MRI	70%	5%	15%	10%

Betsy Vaughn DVM, DACVSMR	LAUS	LAUS	LAUS	90%	5%	2%	3%
Suzanne Brenner DVM	LAUS	LAUS	LAUS	20%			
Amy Norvall* DVM, DACVR, DACVR-EDI			LAR, LAUS, NM CT, MRI	TBD			
Ehren McLarty, DVM, DACVR	CT, MRI, LAR, NM	CT, MRI, LAR, NM	CT, MRI, LAR, NM	70%	5%	20%	5%
Allison Zwingenberger, DVM, DACVR, DECVDI	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	25%	5%	35%	35%
Rachel E. Pollard, DVM, PhD, DACVR	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	50%	5%	20%	25%
Eric G. Johnson DVM, DACVR	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	SAR, US, NM CT, MRI	25%	5%	60%	10%

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-LA

Pusterla, Nichola Magdesian, Gary Emily, Berryhill * Aleman, Monica * Chigerwe, Munashe Heller, Meera Depenbrock, Sarah

ACVS-LA

Galuppo, Larry * Dechant, Julie Lejeune, Sarah Katzman, Scott * Kilcoyne, Isabelle

ACVSMR-LA

Lejeune, Sarah * Vaughan, Betsy Morgan, Jessica *

ACVP

Affolter, Verena
Keel, Kevin
Murphy, Brian
Pesavento, Patricia
Woolard, Kevin
Vernau, William

The * mark the people who will be primarily responsible for the supervision of the residents during their other specialty training.

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.

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).

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.

Large Animal Radiology	Radiology Units: CPI Indico 150 kV,1000 mA Generator x-ray tubes x 2, Eklin DR detection systems (2 small portable, 2 in overhead support) Min-X 100 kV/30 mA portable Min-X 80 kV/15 mA portable
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	MRI Scanners: Halmarq 0.27Tesla magnet GE Sigma 1.5 Tesla, HDxT 16.0 software (small animal only)

Imaging	(Construction of a new imaging center with 3T equine MRI to break ground in Fall 2021)
Nuclear Medicine	Scintigraphy: Enhanced Technologies system, IS2 software, Mirage viewing system PET: MILEPET, BrainBiosciences (Equine PET) miniExplorer, United Imaging (Small animal PET)
Small Animal Radiology	Radiology Units: Two Summit Innovet high frequency radiographic units (install 1/14). Eklin DR detection systems for all units.
Small animal 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 1 Philips iE33 x 2
Other	Multistation AGFA PACS system Media and Computer lab
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? ~**5,000 equine cases**
What is the annual imaging caseload? **~2,500**

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

Small animals (canine, feline)	12,000
Large animals (equine and food animals)	2,500
Exotic animals	500

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

Large Animal Radiology: 1,650
Large Animal Ultrasound: 1,000
Equine Computed Tomography: 100

Equine Nuclear Medicine:	160 (60 scintigraphy, 100 PET)
Equine Magnetic Resonance Imaging:	70

VIII. Training content:

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

Please complete the table below

	Approximate number of cases in the 30 months clinical experience
Large Animal Radiology:	4000
Equine Ultrasound:	1200
Computed Tomography:	150
Nuclear Medicine:	200
Magnetic Resonance Imaging:	150
Elective (any of above)	n/a
Required elective (specify):	n/a
Total	5,150*

* Note: this does not include the cases seen during 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	
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.**

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 over 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	2/2	2/2	2/2	2/2	2/2
Passed prelim exam 2nd time					
Passed prelim after 2nd time					
Passed certifying exam 1st time	2/2	2/2	1/3	2/2	2/2
Passed certifying exam 2nd time			1/2		
Passed certifying exam after 2nd time				1/1	
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.

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.

Y1: 8 months LA-US
2 months LA- Rad

Y2: 4 months LA-Rad
2 months LA- CT/MR/NM
2 months SA-Rad
1 month SA-US
1 month externship LA Rad/CT/MR/NM

Y3: 4 months LA-Rad
2 months LA- CT/MR/NM
2 months SA-CT/MR/NM
1 month SA-US
1 month externship LA Rad/CT/MR/NM

Y4: 3 months LA-Rad
3 months LA- CT/MR/NM
4 months LA-US

The goal of the externships will be to exposed the residents to different working environments and to address the current lack of on-site high field MRI. Although exact externships might differ from one year to another, the externships will be organized with ACVR-EDI supervisors. Externship agreements have been made with Colorado State University (Drs Barrett and Selberg) and Animal Imaging, Irving Texas (Drs Neelis and Biscoe).

Our first resident entered the program in August 2020. Our goal would be to start a 2nd resident in August 2022, and keep the program going with bringing in a new resident every two years. As all the ACVR required supervised training will be achieved in the first 3 years of the program, we would alternate having two residents in training at the same time (Y1 and Y3) or a single resident in training (Y2). As the first year is mainly focused on US, which is different from Y2 and Y3, there would not be "case competition" between Y1 and Y3 residents.