

ACVR Residency Training Program Application Form:

Institution Name

Washington State University

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.

1. *Interactive clinical diagnostic imaging training to prepare residents for success on the ACVR Board Certification Examination*
2. *Obtain a Master's of Science degree*

III. Training period:What is the total length of the training program in months? *36*

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.

What is the total duration of supervised clinical training in the program? *30 months*

What are the responsibilities of the resident in the remaining non-clinical portion of the program? *6 months*

1. *Study time for Preliminary ACVR Examination.*
2. *Graduate coursework*
3. *Research effort for residency project*
4. *Annual Vacation*

IV. Direction and Supervision:**Program Director:**Who is the Director of Residency training? *Dr. Tom Wilkinson Jr.*

What percentage of this individual's time is committed to clinical service and teaching of residents? *80% clinical service*

Faculty:

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

Roentgen diagnosis:

Faculty: <i>Ashley Hanna</i>
Percentage clinical service: 80%

Diagnostic ultrasound:

Faculty: <i>John Mattoon</i>
Percentage clinical service: 80%

Computed Tomography

Faculty: <i>Greg Roberts</i>
Percentage clinical service: 80%

Magnetic Resonance Imaging:

Faculty: <i>Tom Wilkinson</i>
Percentage clinical service: 80%

Nuclear Medicine:

Faculty: <i>Greg Roberts</i>
Percentage clinical service: 80%

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

<i>Dr. Jennifer Slovak</i>
<i>Dr. Jillian Haines</i>

ACVS

<i>Dr. Boel Fransson</i>
<i>Dr. Steve Martinez</i>

ACVP

<i>Dr. Gary Haldorson</i>
<i>Dr. Josh Ramsay</i>

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.

MRI (superconductive, both large and small animal patients accepted), Multidetector (16) CT (both large and small animal patients accepted), Ultrasound (multiple state-of-the-art console and portable units), Digital Radiology (CR, CCD, flat panel; two large animal suites and two small animal suites), Nuclear Medicine (both large and small animal). HIS, RIS and computer access to pathology and clinical pathology reports allow easy access of reports and teaching cases.

VII. Clinical resources:

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

10340

What is the annual imaging caseload?

2017-7321 imaging studies

2016-6803 imaging studies

2015-6481 imaging studies

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

Small animals (canine, feline)	80
Large animals (equine and food animals)	15
Exotic animals	5

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

Small Animal Radiology: 2017-3660; 2016-3233; 2015-3088
Large Animal Radiology: 2017-416; 2016-410; 2015-422
Abdominal Ultrasound: 2017-1145; 2016-1115; 2015-1012
Computed Tomography: 2017-930; 2016-895; 2015-919
Nuclear Medicine: 2017-24; 2016-16; 2015-21
Magnetic Resonance Imaging: 2017-397; 2016-348; 2015-383
Equine Ultrasound: 2017-70; 2016-71; 2015-74
Fluoroscopy: 2017-29; 2016-24; 2015-42
Small animal/Large animal referral cases: 2017-1124; 2016-975; 2015-948

VIII. Training content:

What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form? <i>100% in less than 24 hours</i>
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? <i>98%</i>
What percentage of resident reports are reviewed by the imaging faculty prior to finalization of the report? <i>98% (Occasionally, Y3 resident may sign reports)</i>
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? <i>90%</i>

Please complete the table below

	Approximate number of cases in the 30 months clinical experience
Small Animal Radiology:	3342
Large Animal Radiology:	483
Abdominal Ultrasound:	930
Computed Tomography:	694
Nuclear Medicine:	25
Magnetic Resonance Imaging:	259
Elective (any of above)	
Required elective (specify): LA Ultrasound	178
Fluoroscopy	21
Referrals	>1160

Total	>7092
--------------	-------

These numbers are based on a 3-year average of our caseload in each modality. The LA ultrasound number is likely an excessive estimate.

Topic	Course number	Units
Radiobiology:	VM 591	1
The Physics of:		
Diagnostic Radiology:	VM 591	1
Nuclear Medicine:	University of Tennessee/Virginia Tech short course	NA
Ultrasonography:	VM 586	2
CT:	VM 591	1
MRI:	VM 591	1
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. <i>Weekly resident and faculty meetings to discuss the above topics, in conjunction with ACVR Preliminary Objectives. These are formal courses (VM 591) and follow the old "6 section Written Objectives" schedule during the first 2 years of the residency.</i>		

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? <i>Wilkinson (7), Roberts (5), Mattoon (6), Hanna (1)</i> <i>Total-19, Average 3.8/year</i>
What is the number of publications/submissions expected of a resident completing the program? <i>One</i>
If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting? <i>75%</i>
Is an advanced degree a requirement of the training program? <i>Yes, Master's of Veterinary Science</i>

X. Educational Environment:

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

At least 6 lectures. They present 5 resident seminars during their 3 year program. They often present at the ACVR meeting.

XI. Evaluation 'Evaluation of residents and protection mechanisms':

- At the 6 months reviews did your resident(s) successfully complete their residency training or did any of your resident(s) not adequately complete the last 6 months of training?
- *Current residents have had successful reviews at all review periods. Within the last five years, there has been one resident that did not receive a good review, and following multiple additional reviews and meetings, that resident was excused. Another resident left the program within her first year.*
- List the current members of the residents' review committee.
- *Dr. Wilkinson, Dr. Roberts, Dr. Hanna, Dr. Mattoon*
- List the internal mechanisms in place to protect your resident if conflicts arise.
- *Requests for external review can take place at the level of the department head or Dean.*

XII. Teaching File:

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

Film cases are being recycled, with the exception of highly unusual cases and film-based artifacts as our digital store grows (since 2007).

How is it maintained/updated? *The case files are constantly updated on our RIS system, with reports attached digitally to each case. Good teaching cases are marked as such within the RIS by residents and faculty.*

XIII. Conferences:

On average how many Known Case Conferences are conducted annually?

Historically, this has been sporadic at WSU. Given our caseload, residents are more often placed in a KCC environment during daily case work, discussing cases with the attending clinician immediately after image acquisition. We perform formal KCC every month, but maintain the importance of daily case work.

XIV. Literature resources:

What is the geographic relationship between the nearest medical library and the training program? *Directly adjacent to the veterinary school, 3 minutes walking time.*

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 5	Year 3	Year 2	Year 1
Passed preliminary exam 1st time	X		X	X	X
Passed prelim exam 2 nd time		X			
Passed prelim after 2 nd time					
Passed certifying exam 1 st time	X	N/A	X	X	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.

All 3 residents (Years 1,2,3) are on duty together the majority of the time. Exceptions are noted under Section III (study time, research, and vacation). One resident is assigned to ultrasound on a daily basis, the other 2 are primarily responsible for radiology (in-house and referrals), CT and MRI. These duties vary some according to resident status. For example, Y3 residents will do more CT and MRI, while our Y1 resident is initially more radiology focused, gradually integrating ultrasound, followed by MRI and CT toward the mid-to end of their first year. Our residents assume primary imaging emergency duty every evening, with faculty back-up. This includes radiography, ultrasound and MRI (select cases).

BIOGRAPHICAL SKETCH

NAME Greg Roberts		POSITION TITLE Clinical Associate Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Kansas State University	B.S.	1986	Agriculture
Kansas State University	DVM	1988	Veterinary Medicine
Washington State University	M.S.	1992	Veterinary Sciences

Positions

2006-Present Clinical Associate Professor, Washington State University
 1996-2005 Clinical Assistant Professor, University of Florida
 1994-1996 Lecturer in Radiology, University of California
 1992-1994 Associate with Veterinary Diagnostic Image P.C., Portland, OR
 1992 Teaching Associate in Veterinary Radiology, Washington State University
 1992 Radiation Safety Officer/Authorized user of radioisotopes, Washington State University
 1989-1992 Radiology Residency, Washington State University
 1988-1989 Equine Medicine and Surgery Intern, Washington State University

Honors

Upjohn Equine Clinical Proficiency Award
 Earl B. Hauck Memorial Award (2)
 Upjohn Epidemiology Award
 William McLeod Memorial Scholarship
 V.M. Coleman Scholarship
 Willard Hauck Scholarship
 Gladys Lichty Memorial Scholarship
 Dean's List, Kansas State University

Recent peer-reviewed publications

Comparison of Pneumoperitoneum Volumes in Lift Laparoscopy With Variable Lift Locations and Tensile Forces. Kennedy KC, Fransson BA, Gay JM, **Roberts GD**. Vet Surg. 2014 Nov 7. doi: 10.1111/j.1532-950X.2014.

MRI findings in 232 horses with lameness localized to the metacarpo(tarso)phalangeal region and without a radiographic diagnosis. King JN, Zubrod CJ, Schneider RK, Sampson SN, **Roberts G**. Vet Radiol Ultrasound. 2013 Jan-Feb;54(1):36-47.

Comparison of abdominal ultrasound and magnetic resonance imaging for detection of abdominal lymphadenopathy in dogs with metastatic apocrine gland adenocarcinoma of the anal sac. Anderson CL, Mackay CS, **Roberts GD**, Fidel J. Vet Comp Oncol. 2013 Feb 22. doi: 10.1111/vco.12022.

Advances in equine ultrasonography. Neelis DA, **Roberts GD**. Vet Clin North Am Equine Pract. 2012 Dec;28(3):497-506. doi: 10.1016/j.cveq.2012.08.001. Epub 2012 Oct 12. Review.

BIOGRAPHICAL SKETCH

NAME Tom Wilkinson		POSITION TITLE Clinical Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Western College of Veterinary Medicine (University of Saskatchewan)	DVM	2003	Veterinary Medicine
Washington State University	DACVR	2009	Radiology Residency

Positions

2003-2006 Clinical Associate – Moore & Co. Veterinary Services – Calgary, Alberta
 2006-2009 Radiology Resident – Washington State University
 2009-2012 Radiologist – Western Veterinary Specialist and Emergency Centre – Calgary, Alberta
 2009-2012 Radiologist – Moore Equine Veterinary Hospital – Calgary, Alberta
 2012-Present Clinical Assistant Professor, Radiology – Washington State University

Honors

1998 Louise McKinney Scholarship for Academic Excellence, University of Alberta
 1999 Louise McKinney Scholarship for Academic Excellence, University of Alberta
 2003 Dr. Alexander Janisz Memorial Award, Western College of Veterinary Medicine
 2009 Dr. Ron Sande Radiology Scholarship, Washington State University

Recent peer-reviewed publications

Brühschwein A, Klever J, Wilkinson Jr T, Meyer-Lindenberg A. DICOM Standard Conformance in Veterinary Medicine in Germany: a Survey of Imaging Studies in Referral Cases. *Journal of Digital Imaging* (2017). <https://doi.org/10.1007/s10278-017-9998-x> (online ahead of print)
 Lang LG, Wilkinson Jr. TE, White TL, Farnsworth RK, Potter KA. Computed tomography of tooth resorption in cats. *Veterinary Radiology and Ultrasound* 2016 September; 57(5): 467-474
 Spall BF, Fransson BA, Martinez SA, Wilkinson TE. Tendon Volume Determination on Magnetic Resonance Imaging of Supraspinatus Tendinopathy. *Veterinary Surgery* 2016 April; v 45(3), pp386-91
 Wilkinson T, Mattoon JS. Diagnostic imaging and other disciplines: The importance of quality review articles in veterinary medicine. *Veterinary Journal* 2015 December, v. 206(3) (invited editorial contribution)
 Ramsay JD, Knowles DP, Evanoff R, Wilkinson TE, Mealey RH. Equine hepatitis virus has infection kinetics similar to hepatitis C virus and causes hepatic disease in horses. *Hepatology* 2015 May; 61(5):1533-46
 Kurach L, Wojnarowicz C, Wilkinson T, Sereda C. Acute hind limb paralysis secondary to extradural spinal cord *Cryptococcus gattii* lesion in a dog. *Canadian Veterinary Journal* May 2013, v.54(5), pp 463-466.

BIOGRAPHICAL SKETCH

NAME Ashley Hanna, DACVR		POSITION TITLE Assistant Professor, VCS Radiology Section, VMTH Washington State University	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Oregon State University	DVM	2010-2013	Vet. Med.
Washington State University	Residency,MS	2014-2017	Radiology

Positions

Assistant Professor, Vet. Clinical Sciences, WSU, Pullman, WA, 2017-Present

Resident, Radiology, WSU, Pullman, WA, 2014-2017

Honors

Dr. Ron Sande Radiology Scholarship, 2017

Ron and Sheila Pera Scholarship, 2015, 2016

E.E. Wedman Outstanding Senior Award, 2013

American College of Veterinary Radiology and Ultrasound Award, 2013

Merck Veterinary Manual Award, 2013

Phi Zeta, 2012 (Oregon State University)

Recent peer-reviewed publications

Nasal adenocarcinoma in a horse with metastasis to lung, liver, and bone and review of metastasis in nine horses with sinonasal tumors. **Hanna, A.**, Stieger-Vanegas, S., Heidel, J., Esser, M., Schlipf, J., Mecham, J. Case Reports in Veterinary Medicine. 2015 Article ID 845870.

BIOGRAPHICAL SKETCH

NAME John S. Mattoon		POSITION TITLE Clinical Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Oregon State University	BS	1981	General Science
Oregon State University/Washington State University	DVM	1984	Veterinary Medicine
University of California, Davis	DACVR	1989	Radiology Residency

Positions

1991-1997 Assistant Professor, College of Veterinary Medicine, Oregon State University
 1997-1999 Associate Professor, Atlantic Veterinary College, University of Prince Edward Island, Canada
 1999-2006 Associate professor, College of Veterinary Medicine, The Ohio State University
 2006-2012 Professor, College of Veterinary Medicine, Washington State University
 2013-2016 Adjunct Professor, College of Veterinary Medicine, Washington State University
 2014-2016 Chief Radiologist/Director of Professional Services, Antech Imaging Services
 2017-present Clinical Professor, College of Veterinary Medicine, Washington State University

Other Positions and Employment:

1984-1986 Animal Medical Clinic; Willamette Dog & Cat Clinic, Portland, Oregon
 1989-1990 Lecturer, Dept. Radiological Sciences School of Veterinary Medicine, University of California, Davis
 1990-1991 Veterinary Radiologist, Veterinary Radiology Group, San Francisco, California
 1990-1993 Associate Clinical Professor Department of Radiological Sciences School of Veterinary Medicine, University of California, Davis
 1992-1993 Visiting Assistant Professor Department of Radiological Sciences School of Veterinary Medicine, University of California, Davis

Honors

Pfizer Distinguished Teacher Award, 2009, Washington State University
 Newbrey Teaching Scholar, 2007, 2008, 2009, 2010, 2011 Washington State University
 Wescott Clinical Teaching Scholar, 2007, 2008, 2009, 2010, Washington State University
 Sophomore Teacher of the year, Class of 2009 Washington State University
 Faculty Clinical Teaching Award, 2006 The Ohio State University
 Carl J. Norden Distinguished Teacher Award, 2002 The Ohio State University
 Carl J. Norden Distinguished Teacher Award, 1996 Oregon State University

Scientific Reviewers

Veterinary Surgery, Journal American Veterinary Medical Association, AJVR, Veterinary Radiology & Ultrasound, Veterinary Ophthalmology, Journal Veterinary Internal Medicine