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

Last Revised: February 19, 2018
Faculty:
Please list the faculty member of the program accepting PRIMARY responsibility for training in each of the following core areas:

Roentgen diagnosis:
- Faculty: Ashley Hanna
- Percentage clinical service: 80%

Diagnostic ultrasound:
- Faculty: John Mattoon
- Percentage clinical service: 80%

Computed Tomography
- Faculty: Greg Roberts
- Percentage clinical service: 80%

Magnetic Resonance Imaging:
- Faculty: Tom Wilkinson
- Percentage clinical service: 80%

Nuclear Medicine:
- Faculty: Greg Roberts
- 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
- Dr. Jennifer Slovak
- Dr. Jillian Haines

ACVS
- Dr. Boel Fransson
- Dr. Steve Martinez

ACVP
- Dr. Gary Haldorson
- Dr. Josh Ramsay

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.

<table>
<thead>
<tr>
<th>Species</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small animals (canine, feline)</td>
<td>80</td>
</tr>
<tr>
<td>Large animals (equine and food animals)</td>
<td>15</td>
</tr>
<tr>
<td>Exotic animals</td>
<td>5</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Specialization</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Animal Radiology</td>
<td>3660</td>
<td>3233</td>
<td>3088</td>
</tr>
<tr>
<td>Large Animal Radiology</td>
<td>416</td>
<td>410</td>
<td>422</td>
</tr>
<tr>
<td>Abdominal Ultrasound</td>
<td>1145</td>
<td>1115</td>
<td>1012</td>
</tr>
<tr>
<td>Computed Tomography</td>
<td>930</td>
<td>895</td>
<td>919</td>
</tr>
<tr>
<td>Nuclear Medicine</td>
<td>24</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Magnetic Resonance Imaging</td>
<td>397</td>
<td>348</td>
<td>383</td>
</tr>
<tr>
<td>Equine Ultrasound</td>
<td>70</td>
<td>71</td>
<td>74</td>
</tr>
<tr>
<td>Fluoroscopy</td>
<td>29</td>
<td>24</td>
<td>42</td>
</tr>
<tr>
<td>Small animal/Large animal referral cases</td>
<td>1124</td>
<td>975</td>
<td>948</td>
</tr>
</tbody>
</table>
VIII. Training content:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form? 100% in less than 24 hours</td>
<td>100% in less than 24 hours 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.</td>
</tr>
<tr>
<td>Of the preliminary reports generated from the imaging caseload what percentage are initially produced by the resident? 98%</td>
<td>Of the preliminary reports generated from the imaging caseload what percentage are initially produced by the resident? 98%</td>
</tr>
<tr>
<td>What percentage of resident reports are reviewed by the imaging faculty prior to finalization of the report? 98% (Occasionally, Y3 resident may sign reports)</td>
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</tr>
<tr>
<td>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? 90%</td>
<td>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? 90%</td>
</tr>
</tbody>
</table>

Please complete the table below

<table>
<thead>
<tr>
<th>Field</th>
<th>Approximate number of cases in the 30 months clinical experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Animal Radiology:</td>
<td>3342</td>
</tr>
<tr>
<td>Large Animal Radiology:</td>
<td>483</td>
</tr>
<tr>
<td>Abdominal Ultrasound:</td>
<td>930</td>
</tr>
<tr>
<td>Computed Tomography:</td>
<td>694</td>
</tr>
<tr>
<td>Nuclear Medicine:</td>
<td>25</td>
</tr>
<tr>
<td>Magnetic Resonance Imaging:</td>
<td>259</td>
</tr>
<tr>
<td>Elective (any of above)</td>
<td></td>
</tr>
<tr>
<td>Required elective (specify): LA Ultrasound Fluoroscopy Fluoroscopy Referrals</td>
<td>178 21 &gt;1160</td>
</tr>
<tr>
<td>Referrals</td>
<td></td>
</tr>
</tbody>
</table>

Last Revised: February 19, 2018
These numbers are based on a 3-year average of our caseload in each modality. The LA ultrasound number is likely an excessive estimate.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Course number</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiobiology:</td>
<td>VM 591</td>
<td>1</td>
</tr>
<tr>
<td>The Physics of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Radiology:</td>
<td>VM 591</td>
<td>1</td>
</tr>
<tr>
<td>Nuclear Medicine:</td>
<td>University of Tennessee/Virginia Tech short course</td>
<td>NA</td>
</tr>
<tr>
<td>Ultrasonography:</td>
<td>VM 586</td>
<td>2</td>
</tr>
<tr>
<td>CT:</td>
<td>VM 591</td>
<td>1</td>
</tr>
<tr>
<td>MRI:</td>
<td>VM 591</td>
<td>1</td>
</tr>
</tbody>
</table>

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.

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.

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? Wilkinson (7), Roberts (5), Mattoon (6), Hanna (1)

*Total-19, Average 3.8/year*

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? *75%*

Is an advanced degree a requirement of the training program? *Yes, Master’s of Veterinary Science*

X. Educational Environment:

Last Revised: February 19, 2018
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.

<table>
<thead>
<tr>
<th></th>
<th>Year 5</th>
<th>Year 5</th>
<th>Year 3</th>
<th>Year 2</th>
<th>Year 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passed preliminary exam 1st time</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passed prelim exam 2nd time</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Passed prelim after 2nd time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passed certifying exam 1st time</td>
<td>X</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passed certifying exam 2nd time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passed certifying exam after 2nd time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unsuccessful in all attempts</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

(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

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kansas State University</td>
<td>B.S.</td>
<td>1986</td>
<td>Agriculture</td>
</tr>
<tr>
<td>Kansas State University</td>
<td>DVM</td>
<td>1988</td>
<td>Veterinary Medicine</td>
</tr>
<tr>
<td>Washington State University</td>
<td>M.S.</td>
<td>1992</td>
<td>Veterinary Sciences</td>
</tr>
</tbody>
</table>

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

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


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.


Last Revised: February 19, 2018
BIOGRAPHICAL SKETCH

NAME
Tom Wilkinson

POSITION TITLE
Clinical Assistant Professor

EDUCATION/TRAINING

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western College of Veterinary Medicine (University of Saskatchewan)</td>
<td>DVM</td>
<td>2003</td>
<td>Veterinary Medicine</td>
</tr>
<tr>
<td>Washington State University</td>
<td>DACVR</td>
<td>2009</td>
<td>Radiology Residency</td>
</tr>
</tbody>
</table>

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

BIOGRAPHICAL SKETCH

NAME
Ashley Hanna, DACVR

POSITION TITLE
Assistant Professor, VCS Radiology Section, VMTH Washington State University

EDUCATION/TRAINING

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington State University</td>
<td>Residency, MS</td>
<td>2014-2017</td>
<td>Radiology</td>
</tr>
</tbody>
</table>

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
BIOGRAPHICAL SKETCH

NAME
John S. Mattoon

POSITION TITLE
Clinical Professor

EDUCATION/TRAINING

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon State University</td>
<td>BS</td>
<td>1981</td>
<td>General Science</td>
</tr>
<tr>
<td>Oregon State University/Washington State University</td>
<td>DVM</td>
<td>1984</td>
<td>Veterinary Medicine</td>
</tr>
<tr>
<td>University of California, Davis</td>
<td>DACVR</td>
<td>1989</td>
<td>Radiology Residency</td>
</tr>
</tbody>
</table>

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
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