

ACVR Residency Training Program Application Form:

Institution Name

Kansas State University College of Veterinary Medicine

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. Advanced training in diagnostic imaging**
 - a. Develop skills in diagnostic imaging to include: diagnostic and special radiographic procedures; ultrasound; CT; MRI; nuclear imaging.**
- 2. Training in clinical investigation**
- 3. Training in scientific writing and literature evaluation**
- 4. Training in didactic teaching and scientific presentations**
- 5. Preparation for certification examination by the American College of Veterinary Radiology**
- 6. Develop skills for communication with clients and referring veterinarians**

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 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?

- 1) Vacation,**
- 2) Planning, completion and presentation of a research project.**
- 3) Preparation for boards**
- 4) Externships (ie. Cardiology)**

IV. Direction and Supervision:

Program Director:

| |
|---|
| Who is the Director of Residency training? David S. Biller, DVM, DACVR |
|---|

| |
|--|
| What percentage of this individual's time is committed to clinical service and teaching of residents? 75% |
|--|

Faculty:

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

Roentgen diagnosis:

| |
|------------------------------|
| Faculty: David Biller |
|------------------------------|

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|---|
| Percentage clinical service: 75% |
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Diagnostic ultrasound:

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|------------------------------|
| Faculty: David Biller |
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|---|
| Percentage clinical service: 75% |
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Computed Tomography

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|--------------------------------|
| Faculty: Laura Armbrust |
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| Percentage clinical service: 70% |
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Magnetic Resonance Imaging:

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| Faculty: Laura Armbrust |
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|---|
| Percentage clinical service: 70% |
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Nuclear Medicine:

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|--------------------------------|
| Faculty: Laura Armbrust |
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| |
|---|
| 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

| |
|------------|
| Ken Harkin |
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|------------------|
| Tom Schermerhorn |
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ACVS

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|-----------|
| Jim Roush |
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| |
|----------------|
| Walter Renberg |
|----------------|

ACVP

| |
|----------------|
| Gordon Andrews |
|----------------|

| |
|--------------|
| Derek Mosier |
|--------------|

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 facilities include a reading area for rounds with an LCD projector, another reading area with 4 triple view boxes. There is 1 small animal diagnostic radiology room with Swiss Ray DR unit. There is a shared large and small animal diagnostic room with Swiss Ray DR unit, Eklin DR unit and a portable xray unit that is used with AGFA CR. There is a small animal diagnostic room with a digital fluoroscopy unit that can also use the AGFA CR.

We have one room used for nuclear medicine. We have a Siemens gamma camera with NucLear Mac computer.

We have one CT room with a GE . We have one MR room with an Hitachi MRP-7000 (0.3T Permanent magnet). We have one ultrasound room with an Acuson Sequoia unit.

We have a AGFA PAC unit that connects to ultrasound, nuclear medicine, CT, MR, and all DR and CR units.

VII. Clinical resources:

| |
|---|
| Indicate the approximate number of patients seen annually by the home institution? 16,000 |
|---|

| |
|---|
| What is the annual imaging caseload? 6,825 |
|---|

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

| | |
|---|-------------|
| Small animals (canine, feline) | 6006 |
| Large animals (equine and food animals) | 597 |

| | |
|----------------|------------|
| Exotic animals | 60 |
| Others | 162 |

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

| | |
|-----------------------------|------------|
| Small Animal Radiology: | 4,476 |
| Large Animal Radiology: | 496 |
| Abdominal Ultrasound: | 1190 |
| Computed Tomography: | 406 |
| Nuclear Medicine: | 23 |
| Magnetic Resonance Imaging: | 50 |
| Other (specify): | 184 fluoro |

VIII. Training content:

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|--|
| What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form? 100% |
| 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? Depends on what year the residents are. During first year 10%, second year >50%, third year while on duty >90% |
| 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: | 4000 |
| Large Animal Radiology: | 800 |
| Abdominal Ultrasound: | 1200 |
| Computed Tomography: | 370 |
| Nuclear Medicine: | 40 |
| Magnetic Resonance Imaging: | 50 |
| Elective (any of above) | |
| Required elective (specify): | |
| Total | 6,500 |

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: | | |
| The Physics of: | | |
| Diagnostic Radiology: | | |
| Nuclear Medicine: | | |
| Ultrasonography: | | |
| CT: | | |
| MRI: | | |

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.
Attached is available: Didactic Examination Schedule and Suggested Readings

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? **5**

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? **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?

Approximately 15. This includes: 6 given for House Officer seminars, 4 lectures given in the first year anatomy course on normal anatomy, 4 lectures in the didactic radiology course over 3 years of residency and 1 at ACVR.

XI. Evaluation:

During the program how often is resident performance evaluated in writing? **6 (every 6 months)**

XII. Teaching File:

What is the nature and scope of the teaching file available to residents? **The file consists of cases of all organ systems and species. They are available in radiology. There is also the student teaching cases(4th and 2nd year teaching files) available. There is computer based teaching cases available through the second year class. Most recent cases are collected from digital cases and are available through search of organ systems on computer or within a notebook of cases for evaluation.**

How is it maintained/updated? **Cases are picked by radiologists or residents and entered into case book.**

XIII. Conferences:

On average how many Known Case Conferences are conducted annually? **40**

XIV. Literature resources:

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

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

| Activity | % total | Year 1 | Year 2 | Year 3 |
|----------------------|----------------|-----------------|-----------------|-----------------|
| Clinic * | 82% | 47 weeks | 38 weeks | 42 weeks |
| Out Rotation | 2% | 0 weeks | 0 weeks | 4 weeks |
| Research | 6% | 3 weeks | 4 weeks | 1 week |
| Vacation | 8% | 2 weeks | 2 weeks | 4 weeks |
| Board Study** | 2% | | 8 weeks | |

*Because of the centralized nature of the radiology department at KSU, clinical service involves all diagnostic modalities for all species. One radiologist is in support of the clinical radiology service each day. The first year resident is involved with only diagnostic radiology cases while the second year resident is involved with only ultrasound and diagnostic radiology for first 6 months of the second year and CT, MR, ultrasound and diagnostic radiology for the last year and a half

**The resident will be given four weeks off of clinics to study for boards, and will be allowed to use four to eight weeks of vacation along with this to give an eight to twelve week block for study.

Didactic Examination Schedule and Suggested Readings*

(* not a complete list. It is expected that the resident will also be familiar with current veterinary literature related to each topic. Texts for alternate imaging will be selected at a later date.)

1st year **Radiographic Technique** (no exam)

Morgan JP. Techniques of veterinary radiography (5th ed). Iowa State University Press.

Morgan JP, et al. Equine radiography. Iowa State University Press.

Ticer JW. Radiographic technique in veterinary practice (2nd ed). WB Saunders.

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1st year **Radiation Physics Exam**

Curry TS, et al. Christensen's introduction to the physics of diagnostic radiology (ed). Lea and Febiger.

Jerrold T. Bushberg. The Essential physics of medical imaging, second Ed

1st year **Anatomy Exam**

1st year **Diagnostic Radiology** (no exam)

Thrall DE. Textbook of veterinary diagnostic radiology 3rd ed). WB Saunders.

O'Brien TR. Radiographic diagnosis of abdominal disorders in the dog and cat. Covell Park Vet Company.

Suter PF. Thoracic radiography of the dog and cat. Peter Suter (Publisher).

2nd year **Ultrasound Exam**

Kremkau FW. Diagnostic Ultrasound, Doppler Ultrasound. WB Saunders.

Nyland TG, et al. Textbook of veterinary diagnostic ultrasound. *WB Saunders*.

Literature from Veterinary Radiology and Ultrasound 1990 - present

Pertinent imaging literature from JAVMA 1990 - present

Pertinent imaging literature from JAVRS 1990 - present

Pertinent imaging literature from Veterinary Internal Medicine 1992 - present

Pertinent imaging literature from JAAHA 1990 - present

Pertinent imaging literature from Veterinary Surgery 1990 - present

2nd year Nuclear Medicine Exam

Handbook of veterinary nuclear medicine, Berry CP, Daniel GB (eds)

Literature from Veterinary Radiology and Ultrasound 1990 - present

Pertinent imaging literature from JAVMA 1990 - present

Pertinent imaging literature from JAVRS 1990 - present

Pertinent imaging literature from Veterinary Internal Medicine 1992 - present

Pertinent imaging literature from JAAHA 1990 - present

Pertinent imaging literature from Veterinary Surgery 1990 - present

2nd year Radiation Biology - Radiation Safety Exam

NCRP guidelines

Hall EJ. Radiobiology for the radiologist (5th ed). JB Lippincott.

2nd year CT / MRI Exam

Literature from Veterinary Radiology and Ultrasound 1990 - present

Pertinent imaging literature from JAVMA 1990 - present

Pertinent imaging literature from JAVRS 1990 - present

Pertinent imaging literature from Veterinary Internal Medicine 1992 - present

Pertinent imaging literature from JAAHA 1990 - present

Pertinent imaging literature from Veterinary Surgery 1990 - present

2nd year Special Radiographic Procedures Exam

Literature from Veterinary Radiology and Ultrasound 1990 - present

Pertinent imaging literature from JAVMA 1990 - present

Pertinent imaging literature from JAVRS 1990 - present

Pertinent imaging literature from Veterinary Internal Medicine 1992 - present

Pertinent imaging literature from JAAHA 1990 - present

Pertinent imaging literature from Veterinary Surgery 1990 - present

2nd year Physiology and Pathophysiology Exam

Literature from Veterinary Radiology and Ultrasound 1990 - present

Pertinent imaging literature from JAVMA 1990 - present

Pertinent imaging literature from JAVRS 1990 - present

Pertinent imaging literature from Veterinary Internal Medicine 1992 - present

Pertinent imaging literature from JAAHA 1990 - present

Pertinent imaging literature from Veterinary Surgery 1990 - present