

# ACVR Diagnostic Imaging Residency Training Program Application

This application is required for institutions desiring ACVR accreditation of a new residency training program and for institutions requesting re-accreditation of an existing program.

Before beginning the application process, all applicants should review the most recent version of the [ACVR Residency Program Essential Training Standards and Requirements](#) (RPE) document (accessed from the Essentials Homepage) in detail. Use the RPE as a reference when completing the application form, as the contents you provide herein will be evaluated by the Residency Standards and Evaluation Committee (RSEC) against the published RPE standards. This application form follows the headings of the RPE. All terms used in this application have same definitions as those in the RPE, and no information provided in the application form itself will supersede that published in the RPE. During the application review process, the Chair or Assistant Chair of the RSEC may contact the applicant for additional information or clarification.

*\*Note: If you wish to save your submission and complete it later, click the save button located at the bottom of the pages. You will be emailed a link to complete your form at a later date.*

## ACVR Residency Training Program Application

### Program Summary

The Residency Director of the program is expected to be the primary applicant and contact person for this application. The Residency Director must be located at the primary training institution.

<b>Institution Name</b>	Mississippi State University
<b>Residency Program Director Name</b>	Alison Lee
<b>Residency Program Director Email</b>	aplumley@cvm.msstate.edu

### Program Type

**What type of residency program is being requested?**

Traditional Residency Program

**If approved, what is the proposed start date of this residency program?**

Monday, July 18, 2022

### Objectives

**Succinctly state the objectives of the training program.**

- Train residents to a level of competence sufficient to achieve board certification in diagnostic imaging
- Offer a program of study that covers all essential aspects of diagnostic medical imaging and allows in-depth study in one or more areas of personal interest
- Provide experience in teaching, research, and service for residents
- Guide residents in the pursuit of a graduate degree (Masters)
- Train residents in diagnostic imaging skills, medical logic, and professional team interaction

## Training Period

**What is the total length of the training program?** 36

**What is the anticipated length of supervised clinical training a resident will experience during this program?** 36

**Will the resident(s) in this program be eligible to take the ACVR Preliminary Exam in September of their third year?** Yes

### **What are the responsibilities of the resident(s) during non-clinical portions of the program?**

Residents prepare for and lead regular (semimonthly) board review rounds with the senior radiologists and other faculty. The residents also present case-based topic rounds to 3rd and 4th year clinical students once per week. Residents are strongly encouraged to attend gross pathology rounds given each Friday afternoon. Each resident prepares and delivers lectures each spring in the diagnostic imaging course provided to second-year veterinary students. In the first year of the program, the resident is responsible for one lecture. In the 2nd, two lectures, and in the third year, three lectures. During the 36 months of residency and graduate program, each resident participates in a research project, produces a manuscript suitable for publication in a peer-reviewed journal, and presents the results at an ACVR scientific meeting. Residents are also encouraged to submit case reports for publication.

## ACVR Residency Training Program Application

### Direction and Supervision

When calculating time commitment in this section, you may consider a 100% (full time) duty schedule to consist of 48 weeks per year with 8 hours per day or 40 hours per week.

### Residency Director

Please review the Residency Director requirements and responsibilities in the [ACVR Residency Program Essential Training Standards and Requirements](#) (RPE) document. Note that the Residency Director will be required to provide at least 24 weeks of clinical duty per year in primary support of residents in this program and to meet all other qualifications of a Supervising Diplomate.

**Is the applicant Residency Director for this program prepared to meet these requirements?** Yes

**What percentage of the Residency Director's time is committed to clinical service at the primary training institution?** 50

**How many weeks per year will the Residency Director be on clinical service and teaching residents at the primary training institution?** 25

# ACVR Residency Training Program Application

## Additional Training Diplomates

Please review the definitions and responsibilities of [Supervising Diplomate and Supporting Diplomate](#) in the RPE document. Note that Supervising Diplomates will be required to provide at least 10 weeks of clinical duty in primary support of residents in this program, and are expected to participate in all facets of residency training. Supporting Diplomates aid in residency training, but provide support that is limited, as by modality (e.g. only works in ultrasound), time commitment (e.g. clinical duty < 10 weeks per year), or other constraints that prevent them from qualifying as a Supervising Diplomate.

Provide a copy of affiliation agreements with any diplomates that are located at an external institution (see Affiliation Agreement item at the end of this section).

**Excluding the Residency Director, please list all training diplomates who will act as Supervising Diplomates of this residency program. Indicate the approximate number of hours per year each supervisor will be scheduled on clinical duty with primary support of residents and, if applicable, any specific areas of instructional responsibility (e.g. trains mostly in small animal, trains mostly in MRI, etc). If a ‘Supervising Diplomate’ position will be comprised of multiple radiologists, please list the cohort as a single entity or institution for this question (e.g. “teleradiologists” or private institution name)**

Name: Marc Seitz

Hours/Year: 1400

Specific Areas and/or Limitations of Instructional Responsibility: All areas

Institution: Mississippi State University

Name: VetCT

Hours/Year: ~500

Specific Areas and/or Limitations of Instructional Responsibility: Radiography, Fluoroscopy, CT, MRI

Institution: VetCT

**If any Supervising Diplomate position is comprised of >1 radiologist, list each individual member of the Supervising cohort here. Indicate the approximate percentage of hours each individual will contribute to the total cohort hours listed above as well as any specific areas of instructional responsibility and/or limitations in the scope of supervision (e.g. does not participate in ultrasound instruction; only trains residents in large animal, etc).**

Name: Heather Chalmers

% of Hours: 20%

Specific Areas of Instructional Responsibility: Radiography,

Fluoroscopy,  
CT, MRI

Institution:  
VetCT

Name: Paige Coutu

% of Hours: 20%

Specific Areas of Instructional Responsibility:  
Radiography, Fluoroscopy, CT, MRI

Institution: VetCT

Name: Rebecca Manley

% of Hours: 20%

Specific Areas of Instructional Responsibility:  
Radiography, Fluoroscopy, CT, MRI

Institution: VetCT

Name: Elisabet Dominguez

% of Hours: 20%

Specific Areas of Instructional Responsibility:  
Radiography, Fluoroscopy, CT, MRI

Institution: VetCT

Name: Lorrie Gaschen

% of Hours: 20%


Specific Areas of Instructional Responsibility:  
Radiography, Fluoroscopy, CT, MRI


Institution: VETCT

In addition to ACVR/ECVDI Diplomates, the program must arrange for the resident(s) to have direct access to specialists in other areas. Please identify one member in each of the specialty colleges listed below that has agreed to support this program through clinical activity that allows regular interactions between the specialist and the diagnostic imaging residents (e.g. discussion of diagnostic work up, imaging findings, or patient outcomes, and/or participation in interdisciplinary rounds, etc). Indicate whether the specialist is located on-site at the primary institution at an external institution. Provide a copy of affiliation agreements with any non-ACVR/ECVDI diplomates that are located at an external institution (see Affiliation Agreement section at the end of this application). Upon completion of this application, the below individuals will receive an email requesting acknowledgement of their support of your residency program.

<b>ACVIM Member Name</b>	Andrew Mackin
<b>ACVIM Member Institution</b>	Mississippi State University
<b>ACVIM Member Email</b>	mackin@cvm.msstate.edu
<b>ACVS Member Name</b>	Mike Jaffe
<b>ACVS Member Institution</b>	Mississippi State University
<b>ACVS Member Email</b>	mhj95@msstate.edu
<b>ACVP Member Name</b>	Alicia Olivier
<b>ACVP Member Institution</b>	Mississippi State University
<b>ACVP Member Email</b>	alicia.olivier@msstate.edu

**Upload any affiliation agreement(s) with Supervising Diplomates, Supporting Diplomates, or Diplomates in other specialties that are located at external institutions. (see Affiliation Agreement section at the end of this application.) Refer to the RPE document for an explanation of what information should be included in such agreements.**


VetCT Virtual Locum services at Mississippi ...


VetCT letter.pdf

## ACVR Residency Training Program Application

### Resident:Supervising Diplomate Ratio

The number of residents in the program cannot exceed twice the number of Supervising Diplomates **on-site**. Remote Supervising Diplomates will not count when calculating the maximum residents allowed in a given program.

**What is the maximum number of imaging interns you will have enrolled in this training program at any given time?**

1

## ACVR Residency Training Program Application

### Facilities

Review the Facility Requirements listed in the RPE document. Note also that residents should have opportunities to be involved with image acquisition and protocol set-up. Does this residency training program provide on-site access to modern equipment for the following modalities?

**Digital or Computed Radiography**

Yes

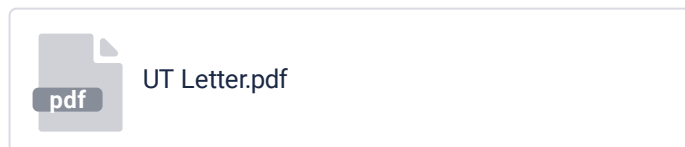
<b>Fluoroscopy</b>	Yes
<b>Ultrasound with Doppler Capability</b>	Yes
<b>MRI</b>	Yes
<b>Fan-beam CT</b>	Yes
<b>Nuclear scintigraphy</b>	No

**Briefly describe how this program meets the facility requirements, including the specific type of CT and MRI units available. Explain how your program will train residents in modalities for which equipment is not located on site, providing affiliation agreements if applicable. (see Affiliation Agreement item at the end of this section)**

The program is supported by two DR radiography units in small animal and a DR and CR radiography unit in large animal. We currently operate two ultrasound machines: a Biosound ESAOTE MyLab 50 and GE LogiQS8. For fluoroscopic studies, we use a Fujifilm PersonaC C-arm. We have two CT machines, a 16-slice Toshiba Aquilion 16 and a 64-slice GE Lightspeed CT scanner. The MRI machine is a 3T GE Signa. The 64-slice CT and MRI are located at a satellite location approximately 5 miles from the main campus, but imaging is ordered through the hospital HIS and images are sent directly to the PACS workstation for resident review.

For nuclear medicine instruction, residents are encouraged to attend the nuclear medicine short course. Pre-pandemic, residents participated in a 2-week out-rotation at the University of Tennessee with Dr. Federica Morandi. We have yet to re-initialize this, as we don't currently have a second-year resident and current state and university recommendations continue changing with regards to travel. When the University allows travel consistently we plan to re-initialize this program.

#### **Affiliation Agreement, if applicable**



**Please describe how residents will gain experience in image acquisition and protocol set-up for each of these modalities (excluding nuclear medicine).**

Residents all spend the first two weeks of the residency learning how to operate all modalities. Residents are expected to teach students how to position, measure, and set up for radiography in all species. Residents operate CT and MRI studies as time allows and are taught and critiqued by both technicians and faculty in the radiology and neurology services. Residents operate all machines after hours as needed. A resident is assigned to ultrasound each day, such that each resident has between 6-7 dedicated ultrasound days a month.

## **ACVR Residency Training Program Application**

### **Clinical Resources and Training Content**

Review the clinical resource and training content requirements listed in the RPE document

**What is the average annual caseload at the primary institution over the past 3 years? This number will include all patient visits whether or not they contribute to the annual imaging caseload.**

10607

**What is the average annual imaging caseload at the primary institution over the past 3 years? Each body region imaged for a given patient (e.g. thorax, abdomen, spine, etc) will count as a single study.**

9976

What is the average annual imaging caseload at the primary institution over the past 3 years in the following categories?

**Small animal radiology**

4774

**Large animal radiology**

273

**Abdominal ultrasound**

1672

**Non-abdominal ultrasound**

153

**Computed tomography**

553

**Magnetic Resonance Imaging**

585

**Nuclear scintigraphy**

0

**Indicate the approximate species breakdown of the imaging caseload at the primary institution in the following categories:**

Small animals (canine, feline): 80%

Large animals (equine, bovine, porcine, etc.): 15%

Avian, Exotic, and Wildlife animals: 5%

Which of the following types of imaging cases will the resident(s) have direct, on-site exposure to at the primary institution during the residency program?

**Echocardiography**

Yes

**Large animal ultrasound**

Yes

**Nonabdominal small animal ultrasound (i.e. cervical, musculoskeletal)**

Yes

**Food/fiber animal imaging**

Yes

Exotics imaging

Yes

Teleradiology/Referral imaging

Yes

**Explain how the resident(s) in this program will gain experience in any of the above types of imaging cases that are NOT available at the primary institution. Provide affiliation agreements, if applicable. (see Affiliation Agreement item at the end of this section).**

All types of cases listed above are available as part of the program at Mississippi State University.

## ACVR Residency Training Program Application

**What percentage of the total imaging caseload at the primary institution results in a written imaging report being generated by either the residents or the training radiologist diplomates in this program?**

100

**What percentage of the preliminary reports generated from the imaging caseload are initially produced by the resident(s) in this program?**

95

**Does this institution concurrently support the training of diagnostic imaging interns?**

Yes

**If yes, indicate the maximum number of imaging interns the institution will train concurrently, what percentage of the preliminary reports generated from the imaging caseload will be initially produced by the intern(s), and how this affects the resident imaging report caseload.**

The program supports one imaging intern. The primary focus of the internship is to support image acquisition and teaching, and interns do not spend a large amount of time generating reports. Interns are encouraged to write reports if residents are falling behind due to unusually heavy caseloads that day/week or in the absence of residents due to off-clinics time or illness. Resident cases are protected and monitored by the residency director; however, there is enough time spent with one or more resident off-clinics that the intern is able to get reporting time without affecting resident case numbers. The same is true for ultrasound cases and ultrasound exposure- while the intern does get the chance to practice ultrasound, residents ultimately have the opportunity to scan every ultrasound case that presents.

**What percentage of resident-generated reports are reviewed by training diplomates prior to finalization of the report?**

100

**What is the average turnaround time for resident-generated preliminary reports to be finalized by training diplomates?**

1 business day (typically less than 24 hours)



**What percentage of all imaging reports (resident and diplomate generated) is finalized and available to requesting clinicians within 48 hours after the exam is submitted for radiologist consult?**

95

**Please describe how after-hours/weekend/holiday cases are handled at the primary institution. How does this affect resident-reported imaging caseload?**

A resident is on-call for all after hours period, and is responsible for taking calls from the on-call doctor (usually rotating interns). After-hours case reports are assigned to the on-call resident, and are finalized over the rounds period the next business day. On-call residents have a faculty radiologist back-up they can call. The emergency caseload at Mississippi State is not high and does not contribute significantly to the resident's caseload, and in case of unusually high emergency imaging caseload, the other residents are instructed to help the on-call resident out at the start of the next business day.

For each category below, calculate the approximate number of cases that a single resident will interpret at the primary institution with radiologist feedback during the course of the entire residency program. These numbers should be calculated using the annual imaging caseload adjusted to include only those with written reports generated by the residents. In general, this number should then be divided by the total number of residents in a program during a given year.

If external rotations for the resident(s) are employed to increase the resident caseload in any given category, please be sure to upload affiliate agreements that include the expected number of reports that residents can expect to generate (with radiologist feedback) for cases in those categories.

**Small animal radiology** 6189

**Large animal radiology** 1236

**Abdominal ultrasound** 2099

**Non-abdominal ultrasound** 519

**Computed tomography** 898

**Magnetic resonance Imaging** 738

**Nuclear scintigraphy** 0

**How many ultrasound exams will a single resident perform with radiologist supervision and feedback during the course of the entire program? Scans for which the resident writes a report but does not acquire images are excluded.** 2300

**Do residents in this program have ample hands-on training and practice opportunities to become proficient in the performance of ultrasound guided fine needle aspirates and biopsies?**

Yes

Please indicate whether this training program includes formal courses in any of the following topics:

**Physics of Diagnostic Imaging**

Yes

**Radiobiology**

Yes

**Nuclear Medicine**

Yes

**Ultrasonography**

Yes

**Computed Tomography**

Yes

**Magnetic Resonance Imaging**

Yes

**Other**

No

**Briefly describe the formal courses that are available for the resident(s) in this program by indicating the institution, course title, course number, and credit hours as well as any other relevant information. For any topics for which formal course work is not provided for the resident(s), please explain how educational objectives in these topics will be met.**

Residents are required to take Veterinary Anatomy (CVM 5650) their first semester.

Residents have the opportunity to take Medical Physics I (radiography, CVM 8101) and Medical Physics II (MRI, CVM 8102) in their first year.

Radiobiology, nuclear medicine, ultrasonography, and CT are covered in a special topics course (CVM 7000 [3]), a course taken for 3 hours of credit based on the text of Bushberg: The Essentials of Medical Imaging. The educational modules on the RSNA.org website are used as a supplement for the course.

The residency program additionally maintains educational materials pertaining to the study guide for the qualifying exam in form of a resident packet which the resident has access to.

**Do residents have access to a majority of the written pathology reports that are generated from patients included in this imaging caseload?**

Yes

**Will the resident(s) in this program attain an advanced degree (MS, PhD) at the conclusion of the program?**

Yes

## **ACVR Residency Training Program Application**

### **Research Environment**

Review the Research Requirements listed in the RPE document.

Over the last five years, what is the average number of peer reviewed publications on which the training diplomates (Supervising and Supporting diplomates) of this program are included as authors? (total number of publications in last 5 years among all training diplomates divided by the number of training diplomates) 21

How many peer-reviewed publications are expected of a resident completing the program? 1

If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting? 100

**Briefly describe if/how residents are encouraged to engage in investigative work and what mechanisms are in place for training diplomates to support this work.**

Resident are assigned a research mentor in the first few weeks of the program, who works with them to design a project and initiate writing a grant for funding. The resident chooses a research committee based on their interests and proposed project, and that committee meets twice a year until the resident is finished with the program. The University is supported by numerous in-house funding options which the resident is encouraged to apply for.

## **Educational Environment**

Review the Educational Environment expectations listed in the RPE document.

**Please list and enumerate the formal presentations that are expected of each resident during the course of their training. In general, didactic lectures, departmental seminars, scientific presentations, Continuing Education presentations, and similar are considered "formal". Informal topic rounds, journal club, small group teaching (like student rounds), student labs, and similar events should not be included.**

Resident deliver 6 didactic lectures to veterinary students (1 in first year, 2 in second year, 3 in third year) over various imaging topics. Residents are required to give one formal, college-wide seminar presentation which is typically over their research but can be over any imaging topic. Residents are strongly encouraged to present their research at a national meeting.

**Briefly describe the type and extent of teaching opportunities that are provided to the resident throughout the training program.**

In addition to the opportunities described above, resident participate in rounds with clinical veterinary students daily and are encouraged to participate in activities like club meetings.

**Briefly describe the nature and scope of the teaching file available to the resident(s) in this program and how it is maintained/updated.**

An archive of approximately 6000 known case film packets and digital cases is categorized by body system and is available at all times to residents and clinical radiology students. These cases cover canine, feline, equine, bovine, other food animal, and exotic and wildlife species. In addition, all imaging studies from 2008 forward are available for review through the hospital's HIS system and

PACS. Additionally, as good teaching clinical cases are obtained and reviewed on PACS, the associated patient information is added to an extensive list of teaching cases organized by body systems. A list of journal articles, books, and other educational material pertaining to the objectives for the qualifying exam is available for the residents, and it is maintained and updated both by current residents and by the residency director. It is available to all residents via a shared drive.

**How many Known Case Conferences are conducted annually?** 50

**Describe the nature and frequency of resident rounds ("other educational events") planned for this program. You may upload an example schedule with the general program schedule that is requested at the end of this application.**

Resident rounds are held daily from 8-10. These are largely case rounds and used to finalize resident reports, although there are occasional teaching rounds held. Journal club and KCC are held weekly during this time period.

**Describe how the resident(s) in this program will attain direct and consistent medical library access and/or how they will access research tools and medical literature including the suggested references listed in the ACVR Preliminary Examination study guide.**

The MSU College of Veterinary Medicine has a dedicated, in-house medical library with many veterinary medical and medical journals, textbooks, and publications. There is also an extensive list of available electronic journal articles through the main campus library. These articles can be accessed from any computer in the College. In addition, personal subscription journals are shared in the diagnostic imaging service, and a rather large library of textbooks is available to imaging faculty and residents.

## ACVR Residency Training Program Application

### Evaluation and Protection of Residents

**For existing programs, list the names, email contact information, and start/end dates of your current residents.**

Shanna Marroquin: sm3779@msstate.edu; began 5/19, ends 5/22

Catana Capps: cmc1434@msstate.edu; began 5/21, ends 5/24

Will Stevenson: wss155@msstate.edu; began 5/21, ends 5/24

**Did all of your current residents adequately complete the last 6 months of training?**

Yes

**List the current members of the resident review committee.**

Alison Lee

Marc Seitz

Andrew Mackin

Heather Chalmers

**Describe the internal mechanisms in place at your institution to protect the resident(s) if personal or organizational conflicts arise. Include the management hierarchy for residents and procedures by which residents would report workplace misconduct.**

There is a hierarchical system in place for residents to report any interpersonal conflicts which arise. Briefly, residents are encouraged to come to either their resident mentor or the residency director with any issues. If the resident is uncomfortable bringing the issue to either of these individuals, then they are encouraged to go to the Department Head. If the resident is still uncomfortable taking the issue to the Department Head, they are encouraged to go directly to HR. The pertinent HR numbers, as well as

all safety information, is posted in the resident area in radiology. There is an online form that individuals can use to anonymously contact HR as well which residents are informed about during orientation and which is found in their handbook.

## ACVR Residency Training Program Application

### Appendix

Please provide the following information regarding preliminary and certifying board exam pass rates for residents in your program over the past five years.

#### Preliminary Board Exam Pass Rate

**2020**

Number Of Prelim Board Eligible Residents: 2

Number of Residents That Took Prelim Exam: 2

Number of Residents That Passed On 1st Attempt:  
2

Number of Residents That Passed After Multiple Attempts: 0

Number of Residents That Have Not Passed: 0

**2019**

Number Of Prelim Board Eligible Residents: 1

Number of Residents That Took Prelim Exam: 1

Number of Residents That Passed On 1st Attempt:  
1

Number of Residents That Passed After Multiple Attempts: 0

Number of Residents That Have Not Passed: 0

**2018**

Number Of Prelim Board Eligible Residents: 1

Number of Residents That Took Prelim Exam: 1

Number of Residents That Passed On 1st Attempt:  
1

Number of Residents That Passed After Multiple  
Attempts: 0

Number of Residents That Have Not Passed: 0

**2017**

Number Of Prelim Board Eligible Residents: 0

Number of Residents That Took Prelim Exam: 0

Number of Residents That Passed On 1st Attempt:  
0

Number of Residents That Passed After Multiple  
Attempts: 0

Number of Residents That Have Not Passed: 0

**2016**

Number Of Prelim Board Eligible Residents: 0

Number of Residents That Took Prelim Exam: 1

Number of Residents That Passed On 1st Attempt:  
1

Number of Residents That Passed After Multiple  
Attempts: 0

Number of Residents That Have Not Passed: 0

## **Certifying Board Exam Pass Rate**

**2020**

Number of Certifying Board Eligible Residents: 1

Number of Residents That Took Certifying Exam: 1

Number of Residents That Passed On 1st Attempt:  
1

Number of Residents That Passed After Multiple  
Attempts: 0

Number of Residents That Have Not Passed: 0

**2019**

Number of Certifying Board Eligible Residents: 1

Number of Residents That Took Certifying Exam: 1

Number of Residents That Passed On 1st Attempt:  
1

Number of Residents That Passed After Multiple  
Attempts: 0

Number of Residents That Have Not Passed: 0

**2018**

Number of Certifying Board Eligible Residents: 0

Number of Residents That Took Certifying Exam: 0

Number of Residents That Passed On 1st Attempt:  
0

Number of Residents That Passed After Multiple  
Attempts: 0

Number of Residents That Have Not Passed: 0

**2017**

Number of Certifying Board Eligible Residents: 1

Number of Residents That Took Certifying Exam: 1

Number of Residents That Passed On 1st Attempt:  
0

Number of Residents That Passed After Multiple  
Attempts: 1

Number of Residents That Have Not Passed: 0

**2016**

Number of Certifying Board Eligible Residents: 0

Number of Residents That Took Certifying Exam: 0

Number of Residents That Passed On 1st Attempt:  
0

Number of Residents That Passed After Multiple  
Attempts: 0

Number of Residents That Have Not Passed: 0

## Program Schedule

Upload a schedule for your residents that outlines their clinical and non-clinical work over the course of the residency program. This may be a master schedule or duty roster for your entire radiology section, if desired. If available, an example weekly or monthly rounds schedule can also be included.

### Program Schedule



MSU sample resident calendar.docx

## Affiliation Agreements

Upload digital copies of any affiliation agreements that have not been included elsewhere in this document. Refer to the RPE document for an explanation of what information should be included in such agreements.