

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.*

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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.

Institution Name	Tufts University
Residency Program Director Name	Mauricio Solano
Residency Program Director Email	mauricio.solano@tufts.edu

Program Type

What type of residency program is being requested?	Traditional Residency Program
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If approved, what is the proposed start date of this residency program?	Monday, March 1, 2021
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Objectives

Succinctly state the objectives of the training program.

GENERAL OBJECTIVES

- 1) To provide non-degree postgraduate clinical training in Diagnostic imaging. Graduates will be equipped to function either in an academic environment or in a private specialty practice.
- 2) The resident will be eligible to apply for the qualifying examination of the American College of Veterinary Radiology (ACVR) upon satisfactory completion of this program. The minimum standards for this program have been approved by the AVMA according to the guidelines provided by the ACVR.

Specific objectives of the program include (both small and large animal):

- a. Teaches fundamentals and clinical application of diagnostic radiology.
- b. Teaches fundamentals and clinical application of ultrasonography.

- c. Teaches fundamentals and clinical application of nuclear medicine.
- d. Teaches fundamentals and clinical application of CT.
- e. Teaches fundamentals and clinical application of MRI.
- d. Teaches fundamentals and clinical application of interventional techniques and fluoroscopy
- e. Teaches fundamentals of radiobiology, physics, radiation protection, radiation dosimetry, and radiation safety.
- f. Provides experience in teaching Diagnostic imaging to veterinary students (formal classroom lectures and small groups).
- g. Provides guidance in designing, conducting, and preparing a publication of a clinically oriented research project.
- h. Provides experience with teleradiology

Training Period

What is the total length of the training program? 38

What is the anticipated length of supervised clinical training a resident will experience during this program? 35

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?

- a) Board exam preparation
- b) Design and complete a clinical research project
- c) Write and submit the results of research project to peer-reviewed journal and prepare presentation to ACVR meeting
- d) Write or participate as an author on other projects or papers
- e) Prepare in house lectures, seminars, participate in imaging labs
- f) Attend physics course, lectures by faculty in radiation biology, CT and MRI
- g) 3 week study in area of resident's interest (usually cardiology)
- h) 10 days vacation per year

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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? 24

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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: Agustina Anson

Hours/Year: (1152 hours) (28.8 weeks) She holds 60% clinical 40% research appoint.

Specific Areas and/or Limitations of Instructional Responsibility: all areas, all species, no limitations

Name: Amy Sato

Hours/Year: (1344 hours) (33.6 weeks). She holds a 75% clinical, 25% research appt

Specific Areas and/or Limitations of Instructional Responsibility: all areas, all species, no limitations

Name: Dominique Penninck

Hours/Year: (768 hours) (19.2 weeks) She holds a 40% clinical, 60 research appoint

Specific Areas and/or Limitations of Instructional Responsibility: trains mostly in small animal ultrasound, no limitations

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.

ACVIM Member Name	Mary Labato
ACVIM Member Institution	Tufts University
ACVIM Member Email	mary.labato@tufts.edu
ACVS Member Name	John Berg
ACVS Member Institution	Tufts university
ACVS Member Email	John.berg@tufts.edu
ACVP Member Name	Leslie Sharkey
ACVP Member Institution	Tufts University
ACVP Member Email	leslie.sharkey@tufts.edu

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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? 6

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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
Fluoroscopy	Yes
Ultrasound with Doppler Capability	Yes
MRI	Yes
Fan-beam CT	Yes
Nuclear scintigraphy	Yes

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)

Radiology

small animal DR suite: OTC 12 DELL CM80 EV800

small animal CR suite: Quantum quest HD series

Large Animal DR suite Vet Ray OTC-180 overhead tube Cannon plate

Large animal Two Portable x-ray units (minray and Omron)

Fluoroscopy

DELL Apollo EZ DRF with digital subtraction

Additional Fuji ES DR system for table top applications

Ultrasound

Phillips IU 22

Philips epiq TG

Toshiba applio

CT suite

Toshiba Aquilon 16 slice Unit. Retrofitted with large animal table

MRI

Phillips Ingenia 3.0 T. Retrofitted with large animal table

Nuclear scintigraphy

Mirage acquisition/processing Nuclear Medicine Station

57PMT IS2 digital rectangular nuclear medicine camera

ultrascan lifting system

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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.

35856

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.

28621

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

Small animal radiology

16800

Large animal radiology

2965

Abdominal ultrasound

6414

Non-abdominal ultrasound

875

Computed tomography

826

Magnetic Resonance Imaging

623

Nuclear scintigraphy

118

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

Small animals (canine, feline): canine, feline

Large animals (equine, bovine, porcine, etc.): equine, small ruminants, south American camelids, porcine

Avian, Exotic, and Wildlife animals: rabbits, ferrets, chickens, chinchillas, small reptiles

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

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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?

100

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

No

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

95

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

Vary by area and year of training.

Third year residents can finalize reports without faculty review during last three months of training

second year residents

Radiology within 5 days.

US,NM,CT,MRI within 48 hours

first year residents

ALL areas within 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?

80

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	8400
Large animal radiology	1483
Abdominal ultrasound	3207
Non-abdominal ultrasound	438
Computed tomography	413
Magnetic resonance Imaging	312
Nuclear scintigraphy	59

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.

2000

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?

No

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

Radiobiology

No

Nuclear Medicine

No

Ultrasonography

No

Computed Tomography

No

Magnetic Resonance Imaging

No

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.

Physics of diagnostic Imaging

Physics of Radiology and Nuclear Medicine, Michael King, University of Massachusetts. Meets every week for two hours. 10 months. Tufts Residents meet with all MD residents at nearby medical school. non credit course.

Radiation Biology mini course

residents meet with diplomate supervisor and go over qualifying board objectives with homework and tests given throughout course period. Non credit course

Nuclear medicine
ACVR sponsored NM course. non credit course

MRI
Brain camp conference. First time provided by program in 2020

US, CT,
resident driven study time following qualifying exam board objectives. DI faculty point out knowledge base deficiencies when identified during clinics

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

No

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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) 8

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.

Tufts University requires a research paper and presentation to successfully obtain certificate residency completion.

All resident apply for internal grants.

resident evaluations include performance items on "resident project"

Faculty mentor assigned to each resident project.

Time off is given to focus on project planning and analysis of data.

School holds meetings to teach residents how to write grants and also on topics on how to execute research projects.

Resident must present project at hospital wide annual presentation.

Educational Environment

Review the Educational Environment expectations listed in the RPE document.

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

The residents may provide one didactic lecture presentations for students in the veterinary curriculum ultrasound course (optional).

Resident is co-instructor in the ultrasound course laboratory sessions (compulsory).

Resident generate ultrasound teaching videos to contribute to teaching mission of section (compulsory)

resident leads rounds in the 4th year DI clinical rotation (compulsory)

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 EXCEL file, categorized by case number, owners name, species modality, coded according to diagnosis/anatomical area. Currently collection contains over 7500 cases. Collection is maintained and updated daily by faculty and residents on clinics and back up daily by IT department in public drive.

Ultrasound teaching video loops stored as AVI, WMV and quick time format is available in dedicated Mac platform connected directly to ultrasound machine for updating purposes. Collection is stored in public network drive. Searchable through general excel teaching file. Collection is maintained by ultrasound technicians and updated by clinician on clinics.

Echocardiographic teaching Collection is administered by cardiology section independently of the imaging section.

How many Known Case Conferences are conducted annually?

30

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.

Veterinary school campus library—walking distance. used only as quiet study space

Residents have FULL access to standard science journals and Books online through the University accounts. Tufts community members can access these resources worldwide through VPN accounts.

Tufts is also a member of the medical library consortium of New England which offers redundant access to science journals through mayor libraries of major universities in the state of Massachusetts.

The section also pays for our residents to receive a personal e-copy of the Veterinary Radiology and Ultrasound journal.

Hardcopies of many imaging textbooks (human and veterinary medicine) are on the premises and used as daily resources.

Each resident uses software (papers, etc) to upkeep their electronic library on their personal

computers. All first year residents inherit an extensive PDF library that contain the suggested resources listed by the ACVR which is updated yearly by the residents

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Evaluation and Protection of Residents

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

Yes

List the current members of the resident review committee.

Mauricio Solano
Dominique Penninck
Agustina Anson
Amy Sato

ALL other non-DI faculty are invited to provide feedback.

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.

The residency director is viewed as the liaison between DI faculty and residents. If conflict arises, his job is to listen to both parties to get a global view of issues. There is a healthy open door environment for residents to reach out to residency director.

All issues related to residents are discussed with all faculty in program present. Often disagreements arise between faculty (diff point of views) so the group of 4 faculty acts as a system of check and balances.

resident director works in conjunction with the co-chair of department and chair of clinical sciences on issues related to personal conflict. The Chair of Department supervises directly the residency director. Residents are encouraged to reach to this higher level of administrative personnel if residency director does not address conflict.

Human resources provides confidential 24/7 services in matters of sexual harassment, discrimination and hostile working environments. This group is independent of organizational clinical sciences structure and answer directly to Dean and Provost.

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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: 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

2018

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

2017

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

2016

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

Certifying Board Exam Pass Rate

2020

Number of Certifying Board Eligible Residents: 2

Number of Residents That Took Certifying Exam: 2

Number of Residents That Passed On 1st Attempt:
1

Number of Residents That Passed After Multiple
Attempts: TBD in march 2021

Number of Residents That Have Not Passed: 1

2019

Number of Certifying Board Eligible Residents: 2

Number of Residents That Took Certifying 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

2018

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

2017

Number of Certifying Board Eligible Residents: 2

Number of Residents That Took Certifying Exam: 2

Number of Residents That Passed On 1st Attempt:
1

Number of Residents That Passed After Multiple
Attempts: 1

Number of Residents That Have Not Passed: 0

2016

Number of Certifying Board Eligible Residents: 2

Number of Residents That Took Certifying Exam: 2

Number of Residents That Passed On 1st Attempt:
1

Number of Residents That Passed After Multiple
Attempts: 1

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



Sample of master schedule t... .pdf

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.