

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 <u>ACVR Residency Program Essential Training Standards and Requirements</u>(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 University of Tennessee College of Veterinary Medicine

Residency Program Director Name Connie Fazio

Residency Program Director Email cfazio2@utk.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 15, 2024

Objectives

Succinctly state the objectives of the training program.

The objective of this program is to train the graduate veterinarian in the specialty of veterinary diagnostic imaging, including small and large animal diagnostic radiology, diagnostic ultrasound, computed tomography, magnetic resonance imaging and nuclear medicine. The ultimate goal is to enable the resident to

successfully complete the ACVR board examination. The residency is a clinical training program ("pure"

residency program) with no academic degree awarded.

Training Period

What is the total length of the training 48 program?

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

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

Yes

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

The majority of the off clinics time during the first 3 years will be dedicated to study time to prepare for the ACVR Board Examination. The resident is also expected to develop and conduct an original research project under the supervision and guidance of one or more radiology faculty members; write a grant proposal (if applicable); submit an abstract for presentation at the ACVR Annual Scientific Meeting; and write a scientific paper that details the results of

the project to be submitted to Veterinary Radiology and Ultrasound or another peer-reviewed journal. The 3rd year resident will be given the option of a 2 week out-rotation. The 4th year resident will primarily function as a clinical instructor. They will be given 2 weeks off to prepare for the Certifying Examination and 8

weeks to allow for professional development (gain experience, attend meetings, externships, pursue additional research activities etc.).

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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 <u>ACVR Residency Program Essential Training Standards and Requirements</u> (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 70 Director's time is committed to clinical service at the primary training institution?

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

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Additional Training Diplomates

Please review the definitions and responsibilities of <u>Supervising Diplomate</u> and <u>Supporting Diplomate</u> 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: Silke Hecht Hours/Year: 1040

Specific Areas and/or Limitations of Instructional Responsibility: Provides training in all modalities (form would not allow this field to be blank)

Institution: University of Tennessee College of Veterinary Medicine

Name: Federica Morandi

Hours/Year: 1040

Specific Areas and/or Limitations of Instructional Responsibility:

Institution: University of Tennessee College of Veterinary Medicine

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 Shelly Olin

ACVIM Member Institution University of Tennessee College of Veterinary Medicine

ACVIM Member Email solin@utk.edu

ACVS Member Name Cassie Lux

ACVS Member Institution University of Tennessee College of Veterinary Medicine

ACVS Member Email clux@utk.edu

ACVP Member Name Linden Craig

ACVP Member Institution University of Tennessee College of Veterinary Medicine

ACVP Member Email linden@utk.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.

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

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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)

All modalities (small and large animal radiology, fluoroscopy, ultrasound, CT, MRI and Nuclear Medicine), an interventional radiology suite, and a linear accelerator are on site.

Small Animal Radiography and Fluoroscopy Units:

- 1) Philips Digital Diagnost 4.1
- 2) CombiDiagnost R90

Large Animal Diagnostic Radiology: Philips CP Super 100 Generator

Main US unit: Philips Epiq 5 with 5 transducers (+ additional units in cardiology, Nuclear Medicine, ICU, and Large Animal)

Computed Tomography: Philips Brilliance (40-slice) CT scanner

Magnetic Resonance Imaging: Siemens Espree 1.5T large bore magnet

Nuclear Medicine

- 1) Small Animal GE Starport Gamma Camera with MiniStand Gantry System
- 2) NuCam Large Animal Rectangular Gamma Camera with EquiStand II Gantry

System Additional equipment on site:

- 1) Linear Accelerator: Varian iX
- 2) Interventional cardiology/radiology suite equipped with Philips C-arm
- 3) Mobile C-Arm: Philips BV 300 Plus Digital C-arm

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

Residents rotate through all of these modalities, gaining experience with each. The first weeks of the residency are dedicated to technical experience in imaging acquisition and protocol setup. The residents assist with these modalities as needed in the clinic. Our residents learn to run the MRI from our MRI technicians and are responsible for running the MRI scanner for occasional after-hours cases.

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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.

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.

12500

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

Small animal radiology 5600

Large animal radiology 900

Abdominal ultrasound 1910

Non-abdominal ultrasound 200

Computed tomography 800

Magnetic Resonance Imaging 500

Nuclear scintigraphy 90

Other (Specify) Special Procedures: 100

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 No

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

Food/fiber animal imaging Yes

Exotics imaging Yes

Teleradiology/Referral imaging No

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).

For clarification of above answers: Large Animal Ultrasonographic Studies are being performed by Large Animal Clinicians at UTCVM. Even though radiology

residents are not typically involved they are given opportunity to observe studies performed by large animal clinicians if interested and time permitting. While LA clinicians would welcome regular participation of radiology residents, we have not

had a radiology resident with LA interest in many years and the small animal ultrasound caseload keeps them busy, so our residents typically elect to stay on the small animal side. LA US studies are being sent to PACS and are available for later review.

We do not have a teleradiology or referral imaging business. However, many cases referred to our institution will come with referral radiographs and residents are exposed to a variety of techniques and types of imaging performed in practice (including hardcopy films and contrast procedures). They will not generate written reports for those cases but will discuss them with in-house clinicians. We do offer

CT and MRI outpatient services, and radiology residents are involved with interpreting the studies and drafting referral MRI and CT reports for the referring veterinarians.

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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?

80

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

No

95

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

What percentage of residentgenerated reports are reviewed by training diplomates prior to

finalization of the report?

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

Less than 24 hours on average. Main exception would be weekend cases that may not be finalized until Monday.

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?

100

Please describe how after-hours/weekend/holidaycases are handled at the primary institution.

How does this affectresident-reported imaging caseload?

After-hours/weekend/holiday cases are handled by the resident assigned to primary on call for that week, with a diplomate providing back up for the resident at all times. This increases the resident-reported imaging caseload.

For each category below, calculate the approximate number of cases that a single resident will <u>interpret at the primary institution with radiologist feedback</u> 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	4000
Large animal radiology	500
Abdominal ultrasound	1200
Non-abdominal ultrasound	100
Computed tomography	400
Magnetic resonance Imaging	300
Nuclear scintigraphy	50
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.	1300
Do residents in this program have ample hands-on training and practice	Yes
opportunities to become proficient in the performance of ultrasound guided fine needle aspirates and biopsies?	

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

Physics of Diagnostic Imaging	No
Radiobiology	No
	INO
Nuclear Medicine	
Ultrasonography	

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.

The program is not associated with an advanced degree; therefore there are no formal classes that the residents are required to take for credit. The residents have assigned topics of focused learning during their residency training. A radiologist will supervise the learning in these areas and provide reading lists and guidance. The learning objectives follow the ACVR written objectives (now

study guidelines), and rigorous written mock exams administered every 2 – 3 months assure the learning objectives are met. In addition to these assigned

learning objectives weekly MRI rounds are held which include review sessions on relevant physics topics as well as case-based rounds. A schedule of topics and assigned faculty follows. A master schedule is attached showing timing of the individual mock exams.

Topic - Assigned radiology faculty
Physics - Hecht
Pathophysiology - Fazio
Anatomy I and II - Hecht/Fazio
Radiation protection / biology - Fazio
Special procedures - Morandi
Ultrasound - Hecht
CT - Morandi
MR - Hecht

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?

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)

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

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

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.

Residents are expected to pursue a research project (retrospective/prospective). An attempt is made to identify a project attractive to the resident to make it a more enthusiastic endeavor. We are an academic institution, and radiologists have off clinics time that (among other things) can be used to supervise/direct resident research. Available in-house support includes small in-house grants and statistical support.

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.

Each resident is expected to submit an abstract for presentation at the ACVR Annual Scientific Meeting.

Each resident is expected to present seminars for the UTCVM Friday Morning Rounds, which is akin to grand rounds for the hospital. Radiology residents rotate with other house officers to give presentations, approximately 1-2 presentations/resident each year.

Each radiology resident is expected to contribute to a seminar series with other specialty sections in the UTCVM (Tumor Boards, Internal Medicine Boards, Interdisciplinary Boards, M&M Rounds). During this approximately monthly seminar series, multiple speakers from different specialties (Oncology, Pathology, Surgery, etc) present information on a specific disease process. Radiology residents alternate in presenting diagnostic imaging considerations and literature review.

These formal presentations approximately total 6-7 presentations for each resident during the course of their training.

Additional opportunities for formal presentations include in-house seminars for house officers and faculty, didactic lectures, presentations at CE conferences, and talks for student clubs.

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

• 3rd year radiology course (VM855; fall semester): The 1st year resident is expected to attend all lectures, assist in all laboratories, and take all exams and quizzes administered in the frame of the course. Additional assistance in the

labs by the 2nd or 3rd year resident may be requested by the responsible instructor.

- 1st year radiographic anatomy course (VMP817; fall semester): The 1st year radiology resident may be asked to attend lectures and/or assist in teaching the labs. Details are to be determined by the radiology faculty.
- 3rd year advanced imaging elective (fall semester): The 1st year resident is expected to attend the lectures. Residents may be asked to participate in the lab offered at radiologist discretion.
- Clinical rotations: The 1st year resident is responsible for administering the radiographic anatomy and/or technical quiz given to students at the beginning of the radiology rotation. At the beginning of each radiology rotation, faculty and

residents on duty decide which set(s) of rounds and/or review sessions will be given by the resident(s). Residents are responsible for providing an ultrasound lab to the students during each 2-week rotation. Overall, residents are expected to be actively involved in teaching students on the clinical rotation.

Additional teaching opportunities are available to the 4th year resident if interested.

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 interesting case list is maintained in Microsoft Excel on a central server accessible through radiology and office computers. Interesting cases seen on

clinics are entered into this database by residents and faculty and are grouped according to category (e.g. radiographs, ultrasound, etc.). There are currently approximately 10,000 cases in this database which are accessible through PACS. Additionally, interesting case files are maintained by individual radiologists and residents in their area of interest.

How many Known Case Conferences 24 are conducted annually?

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.

Monday morning - House Officer Seminar Series weekly

Tuesday morning - Journal Club once monthly, KCC twice a month, Tumor Boards/Medicine Boards/Interdisciplinary Rounds once monthly

Wednesday Morning - MRI Rounds, residents may arrange other rounds such as book club or study sections when no department or section meeting is scheduled

Thursday morning - Interesting Case Rounds twice a month

Friday morning - Friday Morning Rounds (akin to Grand Rounds)

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 Pendergrass Agriculture and Veterinary Medicine Library is located in the College of Veterinary Medicine Teaching Hospital. The University of Tennessee John C. Hodges Library (the central campus library) is located within walking distance of the Veterinary Hospital. All residents have online access to databases and relevant veterinary and human medical journals and electronic textbooks. Residents are encouraged to join RSNA and take advantage of their online teaching materials.

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^{*}example schedule included in the general program schedule

Evaluation and Protection of Residents

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

Hannah Wagoner July 15 2023 - July 14 2027, current 1st year resident hwagone2@utk.edu

Leah Griffith July 15 2022 - July 14 2026, current 2nd year resident lgriff39@utk.edu

Tom Monto July 15 2021 - July 14 2025, current 3rd year resident tmonto@utk.edu

Scott Stokowski July 15 2020 - July 14 2024, current 4th year resident / clinical instructor, ACVR board certified in 2023 sstokow1@utk.edu

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



List the current members of the resident review committee.

All radiology faculty members equally participate in the residents' evaluation; there is no separate review committee. The review process is structured as follows:

o A preliminary evaluation is conducted by the resident mentor after consultation with radiology faculty after 3 months. In case of any problems the

program director and other faculty may be asked to participate in the meeting.

o A formal written evaluation is carried out every six months. All radiology faculty complete an evaluation form. In addition, input is solicited from small and large animal clinicians 3 times during the program (at 6, 18 and 24 months).

o The resident mentor is responsible for compiling the results and meeting with the resident to discuss the evaluation (areas of positive performance, areas for improvement, and action plan). In case of any problems the program director and other faculty may be asked to participate in the meeting.

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.

- o The department head (Department of Small Animal Clinical Sciences) is available for individual meetings in case of any problems.
- o The department head solicits annual evaluations of faculty by residents; these are anonymous and form part of the annual evaluation materials for faculty.
- o A veterinary social work service is available to mediate interpersonal conflicts if needed.
- o In case of serious conflicts human resources (HR) may get involved if necessary.

The residents would report workplace misconduct to the department head and HR.

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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: 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
2019	Number Of Prelim Board Eligible Residents: 1
	Number of Residents That Took Prelim Exam: 1
	Number of Residents That Passed On 1st Attempt: 0
	Number of Residents That Passed After Multiple Attempts: 1 (2nd attempt)
	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

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

2016

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

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: 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	
2017	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

Number of Certifying Board Eligible Residents: 1

Number of Residents That Took Certifying Exam: 1

Number of Residents That Passed On 1st Attempt: 1

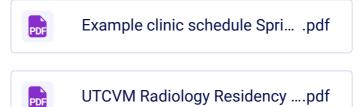
Number of Residents That Passed After Multiple Attempts: 0

Number of Residents That Have Not Passed: 0

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



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.