

## ACVR Residency Training Program Application

<b>Submission Date</b>	2018-01-11 08:25:01
<b>Institution Name:</b>	University of Tennessee College of Veterinary Medicine
<b>Email</b>	shecht@utk.edu
<b>Succinctly state the objectives of the training program.</b>	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.
<b>What is the total length of the training program?</b>	4 years
<b>If this is a four year program, during what year will the resident be eligible to take the ACVR Preliminary Exam?</b>	3
<b>If the resident is not eligible to take the exam during the beginning of the third year (September), please state the reason.</b>	N/A
<b>What are the responsibilities of the resident in the remaining non-clinical portion of the program?</b>	The majority of the time during the first 3 years will be dedicated to study time to prepare for the ACVR Preliminary 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 other 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. He/she be given 2 weeks off to prepare for the Certifying Examination and 8 weeks to allow for professional development (gain teaching experience, attend meetings, externships, pursue additional research activities etc.).
<b>Who is the Director of Residency training?</b>	Silke Hecht
<b>What percentage of this individual's time is committed to clinical service and teaching of residents?</b>	50%
<b>Roentgen diagnosis</b>	Silke Hecht 50%
<b>Diagnostic ultrasound</b>	Marie de Swarte 70%
<b>Computed Tomography</b>	Connie Fazio 50%

**Magnetic Resonance Imaging**

Silke Hecht 50%

**Nuclear Medicine**

Federica Morandi 40%

**List the names and percentage clinical commitment of additional imaging faculty in the program, and their area(s) of instructional responsibility.**

Adrien Hespel, DVM, MS, DACVR  
Shared responsibility with other faculty members for resident training in radiology, CT, MRI and US

[UTCVM CVs combined.pdf](#)

**ACVIM**

Jennifer Stokes

**ACVIM**

Dianne Mawby

**ACVS**

Karen Tobias

**ACVS**

Darryl Millis

**ACVP**

Linden Craig

**ACVP**

Mike Fry

**Briefly describe how the program meets the facility requirements.**

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 Diagnostic Room 1

- Philips Easy Diagnost RF System with
  - o Tri-mode 12"/9"/7" image intensifier
  - o 60 KW Generator

Small Animal Diagnostic Room 2

- Philips Easy Diagnost RF System with
  - o Tri mode 15"/12"/9" image intensifier
  - o Grid Controlled Fluoroscopy
  - o 80 KW Generator

Large Animal Diagnostic Radiology

- Philips CP Super 100 Generator
  - o 100 KW Generator
  - o Crane mounted tube and grid cabinet, servo controlled

Diagnostic Ultrasound

- Philips Epiq 5 with 5 transducers (radiology)
- Siemens Acuson Sequoia S512 with 3 transducers and the Image Arena Workstation (echocardiography)
- Siemens G60 (radiology)
- Siemens G20 (ICU)

Computed Tomography

- Philips Brilliance (40-slice) CT scanner
  - o DICOM interface
  - o Extended Brilliance workstation
  - o Small animal and equine accessible

Magnetic Resonance Imaging

- Siemens Espree 1.5T large bore magnet
  - o DICOM interface
  - o Small animal and equine accessible

Mobile C-Arm

- Philips BV 300 Plus Digital C-Arm
  - o Tri-mode 9"/7"/5" Image Intensifier
  - o High Resolution CCD-TV System
  - o 12-Bit Digital Processor
  - o DICOM Interface

Interventional cardiology/radiology suite equipped with Philips C-arm

Nuclear Medicine

- Small Animal GE Starport Gamma Camera with MiniStand Gantry System
- NuCam Large Animal Rectangular Gamma Camera with EquiStand II Gantry System
- Mirage acquisition software interfaced with a NuLear MAC Imaging Computer System for image analysis

Radiation Therapy

Linear Accelerator: Varian iX

- Dual photon energies (6 MV, 18 MV)
- 5 electron energies (range 6 - 20 MEV)
- Millenium 120 leaf multileaf collimator

Planning Software

- Elekta CMS XiO 3D IMRT

Film Processing and Printing

- Mini-Medical/90 Automatic X-Ray Film processor, AFP Imaging
- Kodak 8700 Dry Laser Imager

**Indicate the approximate number of patients seen annually by the home institution?**

Approximately 16,000

**What is the annual imaging caseload?**

Approximately 10,500

Small Animals (canine, feline): 85  
Large Animals (equine and food animals): 10  
Exotic Animals: 5

Small Animal Radiology: 6,000  
Large Animal Radiology: 850  
Abdominal Ultrasound: 1300  
Computed Tomography: 550  
Nuclear Medicine: 130  
Magnetic Resonance Imaging: 500  
Other (specify): 140; Exotic radiographs 300; US other than abdomen 200

**Please check which of the following types of imaging cases the residents will have exposure to during the residency:**

Small Animal Echocardiography  
Large Animal Ultrasound  
Nonabdominal Small Animal Ultrasound (i.e. cervical, musculoskeletal)  
Food Animal  
Exotics  
Teleradiology/Referral Imaging

**If the residents do NOT have exposure to any of the above types of imaging cases at your institution, please explain if/how they get the experience during the residency.**

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.

**What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form?**

100

**Of the preliminary reports generated from the imaging caseload what percentage are initially produced by the resident?**

Approximately 60%

**What percentage of the resident reports are reviewed by the imaging faculty prior to finalization of the report?**

100% in first 27 months of training; depending on resident 70-100% after certifying exam

**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?**

Approximately 20%

Small Animal Radiology: 3500  
Large Animal Radiology: 300  
Abdominal Ultrasound: 1000  
Computed Tomography: 400  
Nuclear Medicine: 60  
Magnetic Resonance Imaging: 300  
Elective (any of above):  
Required elective (specify): Echocardiography 50  
Total: 5610

**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 the button below to upload additional information as necessary.**

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 and biweekly Nuclear Medicine 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 De Swarte  
Anatomy I and II Hecht/Hespel  
Radiation protection / biology Fazio  
Special procedures Morandi  
Ultrasound De Swarte  
CT Morandi  
MR Hecht  
Nuclear Medicine Morandi

[Resident schedule.doc](#)

**Over the last five years, what is the average number of peer reviewed publications, on which the IMAGING faculty listed under Direction and Supervision in IV, are included as authors?**

47 / 5 years = 9.6 / year

**What is the number of publications/submissions expected of a resident completing the program?**

1

<p><b>If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting?</b></p>	<p>100%</p>
<p><b>Is an advanced degree a requirement of the training program?</b></p>	<p>No</p>
<p><b>How many lectures or scientific presentations are expected of each resident during the course of their training?</b></p>	<p>Approximately 12</p>
<p><b>Did all of your current resident(s) adequately complete the last six months of training?</b></p>	<p>Yes</p>
<p><b>List the current members of the residents' review committee.</b></p>	<p>All radiology faculty members equally participate in the residents' evaluation; there is no separate review committee. The review process is structured as follows:</p> <ul style="list-style-type: none"> <li>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.</li> <li>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).</li> <li>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.</li> </ul>
<p><b>List the internal mechanisms in place to protect your resident if conflicts arise.</b></p>	<ul style="list-style-type: none"> <li>o The department head (Department of Small Animal Clinical Sciences) meets with all interns and residents as a group every 3 months and is available for individual meetings in case of any problems.</li> <li>o The department head solicits annual evaluations of faculty by residents; these are anonymous and form part of the annual evaluation materials for faculty.</li> <li>o A veterinary social work service is available to mediate interpersonal conflicts if needed.</li> <li>o In case of serious conflicts human resources may get involved (luckily that has never been necessary).</li> </ul>

**What is the nature and scope of the teaching file available to residents?**

What is the nature and scope of the teaching file available to residents?

- 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 more than 20,000 cases in this database. Imaging studies performed after July 2005 are digital and are accessible through PACS. Older interesting cases are available as hard copies and are being scanned into PACS over time.
- A teaching file for instruction of junior and senior veterinary students is available. These are typical case examples of a wide variety of radiographic diagnoses and focus mainly on survey radiography and contrast studies. Some of these cases are hard copy films, most are digital files prepared in Power Point format. These cases are provided along with signalment, history, and a key with list of roentgen signs, radiographic diagnosis, and final diagnosis/outcome. These cases are arranged according to subject, for example orthopedics, urogenital, large animal, cardiac etc.

Additionally, interesting case files are maintained by individual radiologists and residents in their area of interest.

**How is it maintained/updated?**

How is it maintained/updated?

- The teaching database is overseen by Dr. Hecht. Residents/faculty enter cases in separate sheets and submit lists to Dr. Hecht on a monthly basis. Dr. Hecht will check for accuracy, delete double entries etc.
- The student teaching files are updated annually by faculty in their respective areas of teaching.

Every radiologist and resident is responsible for maintaining their own interesting case list in their area of interest.

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

25 regular KCC (+weekly MRI rounds in KCC format; + 6-16 full length boot camp sessions in preparation for the certifying exam)

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

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.

**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): x number passed prelim 1st time, y number passed certifying exam 1st time, z number was unsuccessful.**

	Year 5	Year 4	Year 3	Year 2	Year 1
<b>Passed preliminary exam 1st time</b>	1	1	1	1	1
<b>Passed preliminary exam 2nd time</b>					
<b>Passed preliminary exam after 2nd time</b>					
<b>Passed certifying exam 1st time</b>	1		1	1	1
<b>Passed certifying exam 2nd time</b>		1			
<b>Passed certifying exam after 2nd time</b>					
<b>Unsuccessful in all attempts</b>					

[Spring 2018 - Dec22 FINAL.xls](#)

## **UTCVM Radiology Residency Details**

### **4-Year Program with 4<sup>th</sup> Year Appointment as Clinical Instructor**

#### **On and Off Clinics Time Year 1-3**

- 30 months of supervised on-clinics time (minimum mandated by ACVR)
- 6 months (25 weeks) off-clinics time:
  - 6 weeks off in the 1<sup>st</sup> and 2<sup>nd</sup> year of the residency to study and perform a research project (write a grant proposal and IACUC protocol if applicable, perform research project and evaluate data)
  - 6 weeks study time before the Preliminary Examination
  - 4 weeks off in 3<sup>rd</sup> year
    - Up to 2 weeks can be used for an out-rotation.
      - Out-rotation should primarily focus on optimizing preparation for the Certifying Examination.
      - Decision should be made by December of the 3<sup>rd</sup> year.
  - 6 weeks total vacation time over the first 3 years [10 days/year; cannot be carried over]; vacation time 4<sup>th</sup> year TBD
    - Vacation should typically be scheduled at least 2 months ahead of time; and leave forms **MUST** be submitted and approved before start of leave.
    - Only one resident at a time is permitted to be on vacation.
    - No vacation time allowed in June of the last year of residency (Department policy).
    - No vacation time can be scheduled in July and August of the 2<sup>nd</sup> year (when the 3<sup>rd</sup> year resident is off to study and the 1<sup>st</sup> year resident has just started the program).
    - Before scheduling vacation time, the resident must receive approval from the section head and the radiologist on clinical duty (if the schedule is already available).
  - 3 weeks off for Christmas/New Year's week (1 week/year)
  - The section head will keep track of off time. In case of extensive leave time taken (e.g., sick leave) the number of scheduled off weeks will be reduced to meet minimum on clinics requirements.

#### **Clinical Assignments**

- Per ACVR requirements residents are expected to spend a minimum time equivalent of 12 months on radiology, 6 months on ultrasound and 3 months on CT/MRI. At UT, radiology residents rotate through 3 clinical services:
  - Radiology
  - Ultrasound
  - MRI/CT/NucMed



## Specific Description of Clinical Rotations

### 1) Radiology

- The 1<sup>st</sup> year resident will participate in all clinical student rounds for at least the first 6 months. Continued participation in rounds afterwards is encouraged depending on clinical schedule.
- The resident should be actively involved in all cases unless in rounds or otherwise excused.
- Dictations:
  - The resident will perform and dictate all special procedures cases.
  - The resident will generate reports for all large animal cases.
  - Small animal studies will be shared between the radiologist on duty and the resident as follows:
    - Monday and Wednesday-Friday: Both resident and radiologist dictate cases. The number of cases read by the resident will depend on the resident's experience level and will increase from 1<sup>st</sup> through 3<sup>rd</sup> year at radiologist faculty discretion.
    - Tuesday: The resident functions as service chief and is responsible for dictating all cases with back-up by the radiologist on duty.

### 2) Ultrasound

- The resident should be actively involved in all cases unless he/she is assigned to echocardiography or otherwise excused.
- The resident will scan as many cases during the day and generate reports as deemed appropriate by the faculty on duty.
- The resident will spend up to one day/week (typically Tuesday) in echocardiography but is expected to return to ultrasound if cardiology is not busy.
- With the exception of the first 6 months of residency, the resident on ultrasound is responsible for coverage of the radiology service during the time the radiologist on duty is teaching student rounds. It is the resident's responsibility to arrange coverage (typically the resident on MRI, alternatively the resident on radiology or a radiologist) if he/she is unavailable.

### 3) MRI, CT and NucMed

- The resident on this service is responsible for radiology service coverage during student rounds if the ultrasound resident is ineligible (1<sup>st</sup> year resident in first 6 months of training) or unavailable. It is the resident's responsibility to arrange coverage if he/she is assigned but unavailable.
- He/she is expected to participate in all MRI, CT and NucMed studies and familiarize himself/herself with the technical aspects as well as the interpretation principles in these modalities.
- Generally, the resident is expected to generate most to all reports for these modalities while on service. The number of studies dictated is at the faculty member's discretion and will depend on the resident's experience level.

Clinical hours are 8:00 until 6:00PM (Mon-Fri) or until all cases are completed. A reasonable attempt should be made to complete all reports by the end of the day. Residents will obtain faculty approval before leaving at the end of the day.

## **Additional Details Regarding Clinical Service**

### **1) Emergency Duty**

- 1<sup>st</sup> year residents are not scheduled on emergency duty for the initial 2 months of residency but are expected to shadow senior residents and faculty on emergency duty during this time.
- Emergency duty is shared equally by all residents.
- Formal faculty back-up is assigned at all times.
- The emergency resident will provide clinical coverage on Saturday morning (9-12 or until all cases are completed).
- The resident is expected to review all overnight and weekend cases early the following morning.
- The resident is expected to dictate all emergency cases that occur during his/her week on duty.

### **2) Review of Resident Dictations**

- Residents are encouraged to use voice recognition software to assure that all reports are available for review in a timely fashion. Residents assign faculty initials to each case using the 'exam code' option in PACS. The goal is to review all resident reports as soon as possible (maximum within 48 hours).
- All reports dictated by the resident on radiology on Tuesday are reviewed in Thursday morning rounds, optimally with  $\geq 1$  faculty member present.
- Other radiology cases dictated by residents during the day will be reviewed and approved by the faculty member on radiology duty as soon as possible.
- Ultrasound, MRI, CT and Nuclear Medicine reports generated by residents will be reviewed and approved by the respective faculty members on duty, ideally by the end of each day.
- Emergency cases dictated by residents will be reviewed by the faculty back-up. Weekend emergency reports have to be available for review Monday AM.

### **3) 3<sup>rd</sup> year Resident Service Chief Duty**

- The 3<sup>rd</sup> year resident will be assigned as service chief for radiology (approximately 6 weeks) and ultrasound (approximately 6 weeks) blocks. During this time, residents will function as faculty and as such conduct student rounds, supervise junior residents, and assume responsibility for timely generation and finalization of reports.
- A radiologist will be assigned as official back-up for each of these weeks and will review and co-sign reports generated by junior residents concurrently on the service. Senior residents may request back-up / second opinion / co-signature any time during their service chief blocks.

**4) Radiology Service Coverage While Radiologist in Rounds (typically 8-11 a.m.)**

- For the first 6 months of residency the junior resident will not be assigned.
- The ultrasound resident is typically responsible for covering this service. If he/she is ineligible or unavailable, the MRI/CT/NucMed resident will cover. It is the residents' responsibility to identify alternate coverage (resident on radiology or a radiologist) if both are unavailable.

**5) Image Guided Procedures (Centesis, Fine Needle Aspiration, Biopsy, Intracavitary Chemotherapy etc.)**

- Ultrasound
  - First 2 months: Resident is typically observer only; select procedures may be performed under supervision at discretion of supervising radiologist and dependent on resident experience level.
  - Following 4 months: Resident performs select procedures under supervision (faculty discretion).
  - Second half of the 1<sup>st</sup> year and 2<sup>nd</sup> year: Resident generally performs procedures with faculty supervision; routine procedures may be performed without supervision in select cases (faculty discretion).
  - 3<sup>rd</sup> year: Resident generally performs procedures without faculty supervision. Faculty back-up is provided as needed.
- Fluoroscopy, CT, other
  - All procedures are performed under direct faculty supervision for the first 2 years of residency. 3<sup>rd</sup> year residents may perform procedures unsupervised but are expected to request faculty assistance in complicated cases.

**6) Radiographs Requiring Immediate Evaluation and Cross-Sectional Imaging Studies**

- Typically, 1<sup>st</sup> and 2<sup>nd</sup> year residents are expected to consult with a radiologist on all imaging studies in patients scheduled to undergo surgery, endoscopy or other procedures immediately after imaging, and on all CT and MRI studies before the animal leaves radiology. Exceptions may be made at the discretion of the attending radiologist (e.g. for routine pre-operative orthopedic radiographs, radiation therapy CT scans approved by a radiation oncologist, or straightforward CT studies e.g. of the nose or spine).
- The 3<sup>rd</sup> year resident may approve these studies without immediate consultation with a radiologist. Faculty back-up is available as needed.
- When on emergency duty, residents typically interpret all imaging studies without immediate faculty feedback. However, faculty back-up is available if needed.

## Resident Evaluations

- Evaluations are conducted at
  - 3 months – radiology faculty only
  - 6 months – radiology faculty and SA + LA faculty
  - 12 months – radiology faculty only
  - 18 months – radiology faculty and SA + LA faculty
  - 24 months – radiology faculty only
  - 30 months – radiology faculty and SA + LA faculty
- The resident mentors will email the evaluation form to the other radiologists. The residency program director will e-mail separate evaluation forms to SA and LA clinicians. If needed, the residency program director will call a meeting of radiology faculty during which the residents’ performance will be discussed.
- The resident mentors will then compile the evaluations and discuss the results with their respective mentees.
- A signed copy of the summarized evaluation will be maintained by the mentor; one will also be maintained by the residency director.
- Evaluations will be circulated by the mentor to the other radiologists.

## Typical Weekly Schedule

	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>
7:00	MRI Rounds	J Club (during weeks where Tumor Boards or Medicine Boards are scheduled at 8AM)			
8:00	House Officer Seminars	J Club or KCC (alternating weeks) Tumor Boards or Internal Medicine Boards once a month	Department Meeting / Section Meeting  Residents may arrange book club, study sections etc. if no meeting is scheduled	Resident Report Review	Faculty Rounds (akin to Grand Rounds)

**Mock Exams, KCC, Research, Teaching etc.**

**1) Preliminary (Written) Mock Exam Assignments**

<u>Topic</u>	<u>Assigned radiology faculty</u>
Physics	Hecht
Pathophysiology	De Swarte
Anatomy I	Hecht
Anatomy II	Hespel
Radiation protection and biology / Digital Imaging	Fazio
Special procedures	Morandi
Ultrasound	De Swarte
CT	Morandi
MR	Hecht
Nuclear Medicine	Morandi

**2) Known Case Conference (KCC)**

- 8-10 AM every other Tuesday in reading room, US room, or radiology rounds room
- Faculty members are assigned on a rotating basis
- Unless on vacation or covering clinics, all faculty members are expected to attend
- Typically, cases will be presented in the current format of the certifying board exam. Other formats may on occasion be used.
- In preparation for the certifying exam, additional sets of full length KCC will be given in the last 2-4 weeks before the examination date (at least 1-2 sessions/faculty member).

**3) Friday Morning (Faculty) Rounds**

- 30-minute seminars presented by interns and residents. Radiology residents rotate with other house officers to give presentations (1-2 presentations/resident each year).
- A complete draft of the presentation must be completed and forwarded to a faculty member at least 1 week prior to the presentation date.

**4) Tumor Boards, Internal Medicine Boards**

- During this approximately monthly seminar series, multiple speakers (typically residents) from different specialties (Medical Oncology, RO, Clinical Pathology, Pathology, Radiology...) present information on a specific tumor type or disease process. Radiology residents alternate in presenting diagnostic imaging considerations and (if applicable) participate in writing up the imaging section of an associated review paper.

## 5) Research

- Each resident is expected to complete a research project pertaining to diagnostic imaging, submit the results for presentation at the annual meeting of the ACVR (typically during 3<sup>rd</sup> year), present the results at an internal meeting at UT (if applicable), and submit a manuscript for publication.
- The resident mentor may or may not function as research mentor; the resident is encouraged to discuss possible projects with each faculty member and identify a suitable project.
- Additional projects for which collaboration of a radiology resident is requested must be approved by the radiology faculty.

## 6) Teaching

- 3<sup>rd</sup> year radiology course (VM855; fall semester): The 1<sup>st</sup> 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 2<sup>nd</sup> or 3<sup>rd</sup> year resident may be requested by the responsible instructor. The 1<sup>st</sup> and 2<sup>nd</sup> year resident may be assigned a lecture in the course (\* SUBJECT to change with implementation of new curriculum. \*). A draft of this lecture must be completed and forwarded to the course coordinator at least 10 working days prior to the presentation date.
- 1<sup>st</sup> year radiographic anatomy course (VMP817; fall semester): The 1<sup>st</sup> 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.
- 3<sup>rd</sup> year ultrasound and advanced imaging electives (spring semester): The 1<sup>st</sup> year resident is expected to attend the lectures in the advanced imaging elective course. The ultrasound lectures may be attended unless they interfere with other assignments. The residents may be asked to participate in the lab offered in the frame of the ultrasound elective course and/or assist with image interpretation sessions offered in the advanced imaging elective. (\* SUBJECT to change with implementation of new curriculum. \*)
- Clinical rotations: The 1<sup>st</sup> year resident is responsible for administering the radiographic anatomy exam 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 one 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.

## 7) Other Presentations

- Additional presentations beyond the ones expected in the program (VM855, faculty rounds, tumor boards) must be assigned or approved by the radiology faculty. Possible additional presentation venues include in-house seminars (e.g., Monday morning seminar series) or CE courses offered by UT to local practitioners.

## Radiology Residency Schedule

	1 <sup>st</sup> year	1 <sup>st</sup> / 2 <sup>nd</sup> year	2 <sup>nd</sup> / 3 <sup>rd</sup> year	3 <sup>rd</sup> /4 <sup>th</sup> year	4 <sup>th</sup> year
Jan		1 week off to write grant proposal for resident research project* Second (6 month) evaluation by radiology + clinical faculty	1 <sup>st</sup> week: Nuclear medicine mock exam Fourth (18 months) evaluation by radiology + clinical faculty	Sixth (30 months) evaluation by radiology + clinical faculty	
Feb				1 week off	
Mar		4 <sup>th</sup> week: Radiation protection/biology and digital imaging mock exam (Objectives 6-10)	4 <sup>th</sup> week: CT and MR mock exam	2 weeks out-rotation	
Apr			1 week off		
May		1 week off	1 week off	1 week off	
Jun		4 <sup>th</sup> week: Special procedures mock exam	1 week off 2 <sup>nd</sup> week: Anatomy mock exam II		
Jul	Start date 7/15: 1 week orientation 1 week technician duty	Third (12 month) evaluation by radiology faculty	Off 2 weeks Fifth (24 months) evaluation by radiology faculty	7/15 Clinical Instructor Year begins	7/14 End of Clinical Instructor Year
Aug	1-2 weeks technician duty 2 weeks ultrasound Start regular clinical rotations		Off 4 weeks	2 weeks off (board prep)	
Sep	Start on call (with formal backup)  4 <sup>th</sup> week: Anatomy mock exam I	3 <sup>rd</sup> week: Pathophysiology mock exam	PRELIMINARY EXAM	CERTIFYING EXAM	
Oct	First (3 month) evaluation by radiology faculty	2 weeks off for research* Write abstract and paper detailing research results*			
Nov	1 week off				
Dec	3 <sup>rd</sup> week: Physics mock exam (Objectives 3-5, 11-15)	3 <sup>rd</sup> week: Ultrasound mock exam	Decision re: out-rotation by 3 <sup>rd</sup> year resident		

**Note:** Additional off clinic time consists of 2 weeks / year of vacation.

\*Some flexibility in these dates is permitted and necessary. All efforts should be made to complete the research project prior to the preliminary board exam.

Explanation of clinical instructor year (4<sup>th</sup> year of residency) on following page.

**Explanation of Clinical Instructor Year/4<sup>th</sup> Year of Residency (Dates are approximate):**

- 7/16-8/21: On clinics as service chief
- 8/24-9/4: Off for board preparation
- 9/7-9/11: ACVR Certifying Examination
- 9/14-7/14 (43 weeks total): Clinical rotations as service chief in radiology, ultrasound and MRI/CT:
  - 9 weeks radiology
  - 9 weeks ultrasound
  - 9 weeks MRI/CT
  - 8 weeks on clinics elective to focus on area of interest
  - 8 weeks off clinics time. At least 2 of these should be spent in one or more of the following areas to allow for professional development:
    - ABLE facilitator
    - Externship e.g. in large animal cross sectional imaging or interventional radiology
    - Prepare and present lecture(s) or labs in elective courses
    - Attend RSNA conference, relevant veterinary meeting, teaching conference or grant writing seminar
    - Present at local or national CE conference



## Radiology Resident Schedule 2019

Radiology Service				Ultrasound Service				MRI / CT / NM				Off time & Others
Monday	Friday	Radiologist	Resident	Monday	Friday	Radiologist	Resident	Monday	Friday	Radiologist	Resident	
31-Dec-18 7-Jan-19	4-Jan-19 11-Jan-19	Morandi Morandi	Auger Lipe	31-Dec-18 7-Jan-19	4-Jan-19 11-Jan-19	Fazio Fazio		31-Dec-18 7-Jan-19	4-Jan-19 11-Jan-19		Johnson (Wed-Fri)	NYD week - Johnson and Lipe off Johnson vacation Jan 6-8 Johnson vacation Jan 6-8; Auger off to finish research project
14-Jan-19 21-Jan-19	18-Jan-19 25-Jan-19	DeSwarte DeSwarte	Johnson Auger	14-Jan-19 21-Jan-19	18-Jan-19 25-Jan-19	Hespel Hespel	Lipe	14-Jan-19 21-Jan-19	18-Jan-19 25-Jan-19		Auger Johnson	Lipe off for research MLK b'day; Johnson NucMed mock exam
28-Jan-19 4-Feb-19	1-Feb-19 8-Feb-19	Auger (SH) Auger (FM)	Lipe Johnson	28-Jan-19 4-Feb-19	1-Feb-19 8-Feb-19	Fazio DeSwarte	Johnson Lipe	28-Jan-19 4-Feb-19	1-Feb-19 8-Feb-19	Hecht Morandi		MA vacation Feb 10-14 GC off Feb 7-8
11-Feb-19 18-Feb-19	15-Feb-19 22-Feb-19	Morandi Morandi	Lipe Johnson	11-Feb-19 18-Feb-19	15-Feb-19 22-Feb-19	DeSwarte DeSwarte	Auger	11-Feb-19 18-Feb-19	15-Feb-19 22-Feb-19	Hespel	Johnson Lipe	MA vacation Feb 10-14
25-Feb-19 4-Mar-19	1-Mar-19 8-Mar-19	Hespel Hespel	Johnson Auger	25-Feb-19 4-Mar-19	1-Mar-19 8-Mar-19	Fazio Fazio	Lipe	25-Feb-19 4-Mar-19	1-Mar-19 8-Mar-19	DeSwarte DeSwarte	Lipe	Auger off Johnson off to study
11-Mar-19 18-Mar-19	15-Mar-19 22-Mar-19	Fazio Fazio	Johnson Lipe	11-Mar-19 18-Mar-19	15-Mar-19 22-Mar-19	Auger (SH) Auger (SH)		11-Mar-19 18-Mar-19	15-Mar-19 22-Mar-19	Hecht Hecht	Johnson	Lipe vacation GC off Mar 11-15 Johnson CT/MR mock exam
25-Mar-19 1-Apr-19	29-Mar-19 5-Apr-19	Hecht Hecht	Auger Johnson	25-Mar-19 1-Apr-19	29-Mar-19 5-Apr-19	DeSwarte DeSwarte	Johnson Lipe	25-Mar-19 1-Apr-19	29-Mar-19 5-Apr-19		Auger (Mon - Thur)	Lipe Radio Mock Exam MA vacation Apr 5-8
8-Apr-19 15-Apr-19	12-Apr-19 19-Apr-19	DeSwarte DeSwarte	Lipe Johnson	8-Apr-19 15-Apr-19	12-Apr-19 19-Apr-19	Hespel Hespel	Johnson Lipe	8-Apr-19 15-Apr-19	12-Apr-19 19-Apr-19	Fazio Morandi	Auger (Tue-Fri)	MA vacation Apr 5-8 GC off Apr 8-12 Good Friday - MA out-rotation (Apr 15-28)
22-Apr-19 29-Apr-19	26-Apr-19 3-May-19	Hecht Hecht	Lipe Auger	22-Apr-19 29-Apr-19	26-Apr-19 3-May-19	DeSwarte Fazio	Johnson	22-Apr-19 29-Apr-19	26-Apr-19 3-May-19		Johnson Lipe	MA out-rotation (Apr 15-28)
6-May-19 13-May-19	10-May-19 17-May-19	Fazio Fazio	Johnson Auger	6-May-19 13-May-19	10-May-19 17-May-19	Morandi Morandi	Auger Lipe	6-May-19 13-May-19	10-May-19 17-May-19	Hecht Hecht	Johnson (Mon-Tue)	Lipe off to study KI vacation May 15-17
20-May-19 27-May-19	24-May-19 31-May-19	Auger (AH) Auger (AH)	Lipe Johnson	20-May-19 27-May-19	24-May-19 31-May-19	DeSwarte DeSwarte	Lipe	20-May-19 27-May-19	24-May-19 31-May-19	Hespel Hespel		Johnson off to study GC off May 22-24 Memorial Day
3-Jun-19 10-Jun-19	7-Jun-19 14-Jun-19	Morandi Morandi	Lipe Auger	3-Jun-19 10-Jun-19	7-Jun-19 14-Jun-19	Hecht Hecht	Johnson	3-Jun-19 10-Jun-19	7-Jun-19 14-Jun-19		Auger Lipe	Johnson off to study; Johnson Anatomy Mock Exam II
17-Jun-19 24-Jun-19	21-Jun-19 28-Jun-19	Hespel Hespel	Johnson (Mon - Thur) Lipe	17-Jun-19 24-Jun-19	21-Jun-19 28-Jun-19	DeSwarte DeSwarte	Auger Johnson (Tue - Fri)	17-Jun-19 24-Jun-19	21-Jun-19 28-Jun-19	Fazio Fazio	Lipe Auger	KI off June 21-24 KI off June 21-24; Lipe Special Procedures Mock Exam
1-Jul-19 8-Jul-19	5-Jul-19 12-Jul-19	DeSwarte DeSwarte	Johnson Auger	1-Jul-19 8-Jul-19	5-Jul-19 12-Jul-19	Hespel Hecht	Lipe	1-Jul-19 8-Jul-19	5-Jul-19 12-Jul-19	Fazio Morandi	Lipe Johnson	MA off Jul 1-5 (VISA renewal) Indep Day GC off Jul 1-5
15-Jul-19 22-Jul-19	19-Jul-19 26-Jul-19	Hecht Hecht	Johnson Lipe	15-Jul-19 22-Jul-19	19-Jul-19 26-Jul-19	Morandi Auger (MdS)	Lipe	15-Jul-19 22-Jul-19	19-Jul-19 26-Jul-19	Hespel DeSwarte		7-15 AUGER first day as faculty (off clinics); DeBow orientation Johnson off for board prep; DeBow tech duty
29-Jul-19 5-Aug-19	2-Aug-19 9-Aug-19	Hespel Hespel	Lipe Lipe	29-Jul-19 5-Aug-19	2-Aug-19 9-Aug-19	DeSwarte DeSwarte	DeBow	29-Jul-19 5-Aug-19	2-Aug-19 9-Aug-19	Auger (AH) Auger (AH)		Johnson off for board prep; DeBow tech duty Johnson off for board prep
12-Aug-19 19-Aug-19	16-Aug-19 23-Aug-19	Fazio Fazio	Lipe DeBow	12-Aug-19 19-Aug-19	16-Aug-19 23-Aug-19	Hespel Morandi	DeBow Lipe	12-Aug-19 19-Aug-19	16-Aug-19 23-Aug-19	Morandi Hespel		Auger, Johnson off for board prep GC off Aug 12-16 ECVDI meeting; Auger, Johnson off for board prep
26-Aug-19 2-Sep-19	30-Aug-19 6-Sep-19	Morandi Morandi	Lipe DeBow	26-Aug-19 2-Sep-19	30-Aug-19 6-Sep-19	Fazio Auger	DeBow Lipe	26-Aug-19 2-Sep-19	30-Aug-19 6-Sep-19	Hespel DeSwarte		Johnson off for board prep ACVR cert EXAM Aug28-29 Labor day - ACVR prelim EXAM Sep4
9-Sep-19 16-Sep-19	13-Sep-19 20-Sep-19	DeSwarte DeSwarte	Johnson Lipe	9-Sep-19 16-Sep-19	13-Sep-19 20-Sep-19	Auger Auger	DeBow Johnson	9-Sep-19 16-Sep-19	13-Sep-19 20-Sep-19	Hecht Hecht	DeBow	Lipe off to study GC off Sep 16-18 ; Lipe Pathophysiology Mock Exam
23-Sep-19 30-Sep-19	27-Sep-19 4-Oct-19	Fazio Fazio	Johnson DeBow	23-Sep-19 30-Sep-19	27-Sep-19 4-Oct-19	DeSwarte Morandi	Lipe Johnson	23-Sep-19 30-Sep-19	27-Sep-19 4-Oct-19	Hecht Auger	DeBow Lipe	DeBow Anatomy Mock Exam I
7-Oct-19 14-Oct-19	11-Oct-19 18-Oct-19	Hespel Hespel	Lipe Johnson	7-Oct-19 14-Oct-19	11-Oct-19 18-Oct-19	Fazio Auger	DeBow Lipe	7-Oct-19 14-Oct-19	11-Oct-19 18-Oct-19	Morandi Morandi	Johnson DeBow	Auger research week GC off Oct 14-25
21-Oct-19 28-Oct-19	25-Oct-19 1-Nov-19	Hecht Hecht	Lipe DeBow	21-Oct-19 28-Oct-19	25-Oct-19 1-Nov-19	DeSwarte DeSwarte	Johnson Lipe	21-Oct-19 28-Oct-19	25-Oct-19 1-Nov-19	Auger Fazio		GC off Oct 14-25; DeBow off to study ACVR meeting - Auger, Johnson attend
4-Nov-19 11-Nov-19	8-Nov-19 15-Nov-19	Auger Auger	Lipe DeBow	4-Nov-19 11-Nov-19	8-Nov-19 15-Nov-19	Johnson (MdS) Johnson (AH)		4-Nov-19 11-Nov-19	8-Nov-19 15-Nov-19	DeSwarte Hespel	DeBow	KL vacation Nov11-17
18-Nov-19 25-Nov-19	22-Nov-19 29-Nov-19	Hespel Hespel	DeBow Lipe	18-Nov-19 25-Nov-19	22-Nov-19 29-Nov-19	Auger Fazio	DeBow	18-Nov-19 25-Nov-19	22-Nov-19 29-Nov-19	Fazio -	Lipe Johnson	KI vacation Nov18-24 Thanksgiving week - MA vacation Nov25-Dec1; Johnson on call
2-Dec-19 9-Dec-19	6-Dec-19 13-Dec-19	Johnson (MdS) Johnson (SH)	Lipe DeBow	2-Dec-19 9-Dec-19	6-Dec-19 13-Dec-19	Morandi Auger	DeBow Lipe	2-Dec-19 9-Dec-19	6-Dec-19 13-Dec-19	DeSwarte Hecht		Auger at RSNA Lipe Ultrasound Mock Exam
16-Dec-19 23-Dec-19	20-Dec-19 27-Dec-19	Hecht Hecht	Lipe DeBow	16-Dec-19 23-Dec-19	20-Dec-19 27-Dec-19	DeSwarte DeSwarte	DeBow	16-Dec-19 23-Dec-19	20-Dec-19 27-Dec-19	Auger -		DeBow Physics Mock Exam Xmas week - MA off; DeBow on call
30-Dec-19 6-Jan-20	3-Jan-20 10-Jan-20	Auger Auger	Lipe DeBow	30-Dec-19 6-Jan-20	3-Jan-20 10-Jan-20	Morandi Morandi	Johnson	30-Dec-19 6-Jan-20	3-Jan-20 10-Jan-20	- Morandi	Johnson Lipe	NYD week Lipe on call
13-Jan-20 20-Jan-20	17-Jan-20 24-Jan-20	Hespel Hespel	Johnson Lipe	13-Jan-20 20-Jan-20	17-Jan-20 24-Jan-20	Auger DeSwarte	Lipe Johnson	13-Jan-20 20-Jan-20	17-Jan-20 24-Jan-20	Fazio Fazio	DeBow	Lipe NucMed Mock Exam; DeBow off for research MLK b'day