

## **UTCVM Radiology Residency Details**

**\* NOTE THAT SOME EXCEPTIONS/MODIFICATIONS TO THIS OUTLINE MAY BE NECESSARY DUE TO THE ONGOING COVID SITUATION \***

### **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 10 days
    - 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, during the 30 months of clinical training, a resident must interpret the following minimum number of studies: Radiology (including fluoroscopy): 4,000; CT: 300; MRI: 200
- 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 3 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.
- Reports:
  - The resident will perform and generate reports for all special procedures.
  - The resident will generate reports for most to all large animal cases.
  - Small animal studies will be shared between the radiologist on duty and the resident, at the discretion of the supervising radiologist

### 2) Ultrasound

- The resident should be actively involved in all cases unless otherwise excused.
- The resident will scan as many cases during the day and generate reports as deemed appropriate by the faculty on duty.
- With the exception of the first 3 to 6 months of residency, the resident on ultrasound is expected to help out the radiology service during the time the radiologist on duty is teaching student rounds.

### 3) MRI, CT and NucMed

- The resident is expected to participate in all MRI, CT and NucMed studies and familiarize themselves 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 is at the faculty member's discretion and will depend on the resident's experience level.
- With the exception of the first 3 to 6 months of residency, the resident on CT/MRI is expected to help out the radiology service during the time the radiologist on duty is teaching student rounds.

Clinical hours are 8:00AM until 5:00PM\* (Mon-Fri) or until all cases are completed (\*6:00PM if on Emergency Duty). 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 1-2 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 resident on Emergency Duty shall remain available in the clinic until 6:00PM (Mon-FRI) or until all cases are completed.
- The resident is expected to review all overnight and weekend cases by early the following morning.
- The resident is expected to generate reports for all emergency cases that occur during their week on duty.

### **2) Review of Resident Reports**

- 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).
- Cases reported 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 reported by residents will be reviewed by the faculty back-up. Weekend emergency reports have to be available for review Mon 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 3 to 6 months of residency the 1<sup>st</sup> year resident may not be assigned, depending on experience level and at the discretion of the supervising radiologist.
- The ultrasound resident is typically responsible for covering this service. If 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		
8:00	House Officer Seminar Series	Journal Club (once/month), KCC (twice/month), Tumor Boards or Internal Medicine Boards (once/month)	Department Meeting / Section Meeting  Residents may arrange book club, study sections etc. if no meeting is scheduled	Interesting Case Rounds (twice/month)	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	Fazio
Anatomy I	Hecht
Anatomy II	Hespel
Radiation protection and biology / Digital Imaging	Fazio
Special procedures	Morandi
Ultrasound	Hespel
CT	Morandi
MR	Hecht
Nuclear Medicine	Morandi

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

- 8-10 AM every other Tuesday in reading room or via zoom
- Faculty members are assigned on a rotating basis.
- Unless on leave or covering clinical cases, 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, 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 (VMP855; 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.
- 1<sup>st</sup> year radiographic anatomy course (VMP817 Small animal, fall semester; VMP 827 Large animal and physics, spring semester): The 1<sup>st</sup> year radiology resident is expected to review the materials taught in this course (lecture notes and slides and/or lecture capture) during the first month of the residency. The resident is not required to attend the actual lectures during the semester, however, the resident may be asked to assist in teaching the labs at the individual instructor's discretion.
- 3<sup>rd</sup> year advanced imaging elective (fall semester): The 1<sup>st</sup> year resident is expected to attend the lectures. Residents may be asked to participate in the lab offered at radiologist discretion.
- Clinical rotations: The 1<sup>st</sup> 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(s) 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	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 3 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 3 weeks  PRELIMINARY EXAM	2 weeks off (board prep)  CERTIFYING EXAM	
Sep	Start on call (with formal backup)  4 <sup>th</sup> week: Anatomy mock exam I	3 <sup>rd</sup> week: Pathophysiology mock 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	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 (10 days) of vacation / year and 1 week off for winter holidays.

\*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 (4th year of residency) on following page.



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

- 7/16-8/6: On clinics as service chief
- 8/9-8/20: Off for board preparation
- 8/23-8/27: ACVR Certifying Examination
- 8/30-7/14 (45 weeks total): Clinical rotations as service chief in radiology, ultrasound and MRI/CT:
  - 8-10 weeks radiology
  - 8-10 weeks ultrasound
  - 8-10 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