I. Description of the program

A. The graduate student/residency program is a four-year program which is directed towards the development of expertise and competence in the specialty of veterinary diagnostic imaging and the building of a foundation for academic pursuits such as teaching, writing and clinical research.

B. This graduate student/residency program gives a high priority to preparation for board certification by the American College of Veterinary Radiology (ACVR). This requires a program of a minimum of 3 years (36 months) of postdoctoral medical education in veterinary radiology, of which a least 30 months of training must be supervised clinical experience. It is expected that all graduate student/residents will take the Preliminary Examination of the ACVR in September after the second year of their program.

C. The major emphasis of the graduate student/residency program is clinical training. Exposure to a wide variety of clinical case material involving all diagnostic imaging modalities available at the VMC will enable the graduate student/resident to become more proficient in diagnostic imaging. Access to veterinary and medical libraries and consultation with specialists in internal medicine, ophthalmology, surgery, radiology, clinical pathology, pathology, clinical pharmacology and microbiology will enable the graduate student/resident to improve and update his/her knowledge of imaging diagnostics and diseases as cases are managed through the Veterinary Medical Centre.

D. In addition to the clinical training, each graduate student/resident must enrol in the College of Graduate Studies and Research and work towards the Master of Science (project-based) degree. This involves coursework and a research project as outlined below.

II. Clinical Education /Clinical duties

A. The major part of the graduate student/residency program is participation in the clinical service and teaching program in the clinic.

B. **Provisional Reporting**

1. The graduate student/resident will be rotating through different imaging modalities on a weekly basis. When on a particular modality, the resident will be responsible for writing preliminary reports for all cases. If the modality you are on in a particular week happens to be slow, then it is expected that you will help write reports for the other modalities as well, in an effort to support your resident and/or intern mate(s).
2. **It is expected that, with few exceptions, all cases from the current day should have at least a provisional report before the work day is considered complete.**
3. The graduate student/resident will participate in the teaching of fourth year students in the clinic, including student rounds, and in helping to train the other house officers when applicable. In addition, the second and third year graduate student/residents will be expected to play an active part in the training of the more junior graduate student/residents.
4. The graduate student/resident will be assigned to either Radiology, Ultrasound or CT/MRI, or a combination of these modalities. The graduate student/resident should be familiar with the schedule and their responsibilities for that day. Minor problems or conflicts with the schedule that arise during the week should be addressed by trading with other house officers on the service (mutually agreed upon switches) and these changes should be communicated to the technicians and radiology faculty so that the schedule can be altered. More major changes (i.e. trading a week on a service or unavailability because

of course obligations) should be communicated to the radiologists.

C. **Emergency Duty**

1. The medical imaging house officers will participate, on a rotating basis, in providing after hours medical imaging coverage for the emergency service of the WCVM on weekends, evenings and holidays.
2. When on emergency duty, the graduate student/resident will be available for consult on radiographs, as well as be available to perform emergency ultrasounds and CTs. The graduate student/resident will be trained to set up for and operate the CT early in their training period at WCVM. Medical Imaging faculty will serve as backup for consultation as needed.
3. The graduate student/resident or intern on emergency duty should contact their faculty back-up whenever help is required; when unfamiliar or uncomfortable. It is the Medicine or Surgery emergency clinician's primary role to stabilize the patient and determine if it needs emergency intervention before requesting medical imaging procedures. The medical imaging emergency clinician's primary role is to perform the imaging study requested by the Medicine or Surgery emergency clinician.
4. After hours medical imaging cases will be reported by the graduate student/resident who performed the study. This will be especially important for ultrasound and advanced imaging cases where there is direct involvement of the graduate student/resident. Ultrasound reports should be completed at the time the exam is performed. For CTs a preliminary verbal assessment is adequate, and the written report can be completed the next work day.
5. The emergency duty after-hours schedule will be prepared by the Medical Imaging faculty and will be distributed (in 6 month blocks).
6. Any problems that the graduate student/resident encounters regarding clinic operations or personnel should be brought to the attention of the medical imaging faculty on clinic duty during the next regular working day.

D. **Case Management**

1. Residents will provide preliminary reports of all medical imaging studies performed at the VMC. Discussion of all cases with faculty is encouraged and considered to be a very important part of the training program. Reports will be over-read and finalized by one of the radiologists on duty. Feedback will be given on report-writing either individually or in group rounds situation, depending on the business of the clinic. Residents are encouraged to re-read their reports after correction.

E. **Evaluation of Clinical Performance**

1. Each graduate student/resident will have a faculty advisor/supervisor assigned when they arrive. Clinical supervisors are assigned on a rotating basis in this section.
2. The faculty advisor/supervisor of the graduate student/resident or the Department Head will solicit evaluations of the graduate student/resident's performance from clinicians and staff within the VMC in November and May of each year of their residency (total 6 evaluations). A summary of the comments and an overall evaluation will be provided to the graduate student/resident. The objective of these evaluations is to provide the graduate student/resident with feedback and constructive suggestions for improvement.
3. If a faculty or staff member has a problem with a medical imaging graduate

student/resident they may express their concern directly to the graduate student/resident or to the graduate student/resident's faculty supervisor who will make the graduate student/resident aware of the problem and discuss options for resolving the conflict.

F. **VMC Manual**

A VMC manual is available which outlines the daily procedures and protocols in the clinic. The graduate student/resident should be familiar with this manual.

G. **580 Rotation**

1. The graduate student/residents are an integral part of the Medical Imaging team that trains fourth year students in the clinics (580 Medical Imaging rotation).
2. The 580 hand-out outlines the objectives and protocols of the student rotation through the medical imaging block.
3. The problem-oriented approach to cases is encouraged in discussion of all clinical cases with students.
4. Medical imaging student rounds, consisting of dedicated topics/cases are held every morning (M-F) with rotating topics. Graduate students/residents are expected to regularly present these rounds to the students. Once or twice a week, each house officer may be assigned to direct the student rounds discussions.
5. A graduate student/resident may be asked to present a mystery case to the students and to lead the rounds discussion.
6. Graduate Student/Residents are expected to play an important role in the evaluation of student performance (grading) on all 580 rotations that they participate in, even if they were only on-clinics for 1 of the 2 weeks of the rotation. They should keep notes on their experiences with each student so they can participate in the evaluation process.

J. **Licensing requirements**

All house officers must register with the Saskatchewan Veterinary Medical Association (SVMA) and pay the fees required to obtain a license to practice in the province of Saskatchewan. Attendance at a licensing seminar which outlines the rules and regulations of the provincial association is required by the SVMA.

III. Coursework - Graduate M.Sc.

A. Each graduate student/resident must enrol in the Master of Science Degree program (project-based). The requirements for the degree include the four year clinical program, graduate courses as appropriate (decided upon with your committee), and successful completion of a research project. Application for admission to the College of Graduate and Postdoctoral Studies should be made immediately after the individual successfully matches to the WCVM program

B. The graduate student/resident must register for courses in early September, so consultation with faculty and other graduate students regarding which courses to take should occur early in the program.

C. Every Medical Imaging graduate student/resident in the MSc program must enrol in:

Friday morning seminars (VSAC 990) - Register for this non-credit course each Fall/Winter. Residents will give one or two lectures each academic year in this course and will attend as many of the lectures as possible, even when they are off clinics. The participation of residents in providing constructive criticism/formal evaluation of lectures by other speakers is mandatory.

Two mandatory on-line courses, **Introduction to Ethics and Integrity** (GPS 960) and **Ethics and Integrity in Animal Research** (GPS 962), must be taken through the University during your first term. Students register for these Ethics courses through PAWS along with their other courses and will receive a CR on their transcript for the courses once they have been completed.

D. Each medical imaging graduate student/resident (MSc program) should register in a course that deals with experimental design and statistics such as:

Clinical Trial Design and Analysis (VLAC 881.3) 3 credits, half-year offered every 2nd year (should be offered: January-May 2014). This is a very relevant course that is preferred by most veterinary graduate students/residents.
Design and Analysis of Experiments (STAT 345.3): has a basic stats course as a prerequisite (STAT 242.3 or STAT 245.3).
Biostatistics 1 (CHEP805.3): has a basic stats course as a prerequisite (STAT 242.3 or STAT 245.3).

E. Additional courses should be selected that suit the interests or needs of the graduate student/resident. These may be selected from courses offered within the WCVM or other Colleges at the University of Saskatchewan.

F. In some cases in-depth study of a special topic in medical imaging may be undertaken under the direction of faculty members and taken for credit for 1/2 year (VSAC 898.3, 3 credits) or a full year (VSAC 898.6, 6 credits).

G. One special topics course (2 to 4 weeks intensive) may also be taken away from the WCVM (usually at another school) if a curriculum, supervising faculty and grading-scheme is approved by the committee i.e.. Nuclear Medicine Short Course offered by the University of Tennessee.

H. The graduate student/resident must obtain a grade of at least 60% in each course and a weighted average of at least 70% in the program.

I. The graduate student/resident should let the medical imaging faculty know their class schedule as soon as they know it so that the clinic schedule can be adjusted to avoid conflicts.

J. Graduate students/residents interested in an academic career are encouraged to attend seminars designed to improve their clinical and classroom teaching skills. A variety of useful seminars are available through the Teaching and Learning Centre and through the Department of Medical Education on campus.

IV. Research Project

A. The graduate student/resident should discuss their interests with faculty and try to discover some areas of mutual interest and some ideas that could lead to a research project. The graduate student/resident should identify a research project within the first month or two at the WCVM (by September 15 whenever possible).

B. Research projects should be well designed and realistic, so that publishable results can be obtained within a 24 month period of time.

C. When a potential project has been identified and a faculty member has agreed to supervise the project, the graduate student/resident advisory committee will be formed. This consists of the faculty research supervisor, the resident's faculty clinical supervisor, the Department Head and at least one other faculty member.

D. The advisory committee will meet with the graduate student/resident and discuss their proposed program, including coursework and the proposed research project. Committee meetings will be scheduled as needed during the year to review the graduate student/resident's progress in courses and the project. The committee will meet at least twice yearly.

E. The graduate student/resident will research the literature and design their research project under the guidance of the project supervisor. The graduate student/resident will write a research grant proposal together with the faculty supervisor for submission to a research granting agency.

F. If possible, the graduate student/resident should have completed all data collection by

June of the 2nd year of the graduate student/residency program. This will allow time for analyzing the data, writing the paper and preparing the presentation of your results.

G. A paper suitable for publication is required as part of the residency. The completed paper should be submitted to the committee before March 1 of the third year of the program. Whenever possible, graduate student/residents should attempt to complete their paper ahead of this deadline. Editorial collaboration with co-authors is expected before the "final" paper is submitted in to the committee, so that the final version of the paper is considered journal-ready.

H. Graduate Student/Residents are encouraged to submit their research results as an abstract for presentation at the American College of Veterinary Radiology Scientific Meeting.

I. The graduate student/resident will present their project results in a research seminar to the faculty and students of the WCVM before April 15th of the final year of their program. On that same day they will normally defend their project for their committee. This involves approval of the finished (revised) research paper by the committee and the demonstration of satisfactory knowledge of the project and related areas of diagnostic imaging as determined through oral examination of the graduate student/resident by committee members.

V. Other Items of Importance

A. Publications

1. The graduate student/resident is expected to write at least one clinical case report, review article or retrospective study for publication (see Research, above). This may be done in collaboration with a faculty member as long as the graduate student/resident is the primary author. All graduate student/residents must complete this requirement in order to successfully complete their program.
2.. The graduate student will also be given the opportunity to present their research in the form of a poster during the WCVM Graduate Student Poster Day.

B. ACVR examination and requirements

1. It is expected that all graduate student/residents will take the Preliminary Examination of the American College of Veterinary Radiology in September of the third year of their program and the Certifying exam in September after the end of their third year. They should seek the guidance of their supervisor and other faculty in preparation for these examinations.
2. Graduate Student/Residents are responsible for making the appropriate application to the A.C.V.R. to register in the program. **This must be done by October 1st of the first year of your program.**
3. Graduate Student/Residents are responsible for familiarizing themselves with and satisfying all ACVR requirements and deadlines. There is a section for residents at www.acvr.org which has information and board review materials available.

C. Teaching/Seminars

1. You will be required to take a Special Topics course: Veterinary Medical Imaging Objectives and Journal Review I (VSAC 899). This course will meet twice a week and will help guide your preparation for the preliminary exam.
2. All graduate student/residents will be required to present one or two Friday morning seminars (VSAC 990) each year to faculty, students, staff and their peers. These seminars are brief (40-45 minutes plus questions) presentations of a case report, a medical condition, a discussion of new topics or treatments or a report on research findings.
3. Additional lecturing opportunities in elective courses, student seminars, continuing education programs, the Anatomy course and the Medical Imaging course will be made available to interested graduate student/residents. This will need to be arranged on an individual basis with the faculty member who provides the lectures within the resident's area of interest in the regular undergraduate curriculum

D. Time Off Clinics

1. All graduate student/residents are allowed three weeks of vacation time and three weeks of academic time (time off clinics) per year, with the exception of your third year when you will have 12 weeks off clinics for board exam preparation and thesis writing.
2. Academic time is time scheduled out of clinics. It is intended for use toward research or other academic pursuits such as writing papers for publication.
3. You are encouraged to attend the Nuclear Medicine short course offered at the University of Tennessee during your second year.
4. An externship in an area of special interest and approved by the graduate student/resident's committee may be allowed during vacation and/or academic time.
5. Scientific meetings may be attended during vacation time or academic time. You will receive $1300 that you can use for travel (and some research expenses). Some additional assistance with funds for travel may be available from the Department in terms of a bursary which you apply for.

F. Miscellaneous

1. Stationary supplies are supplied to the graduate student/resident through the Department of Small Animal Clinical Sciences office.
2. Computers are available in the Department and in the Auto-tutorial center and can be used by graduate student/residents for word processing and data entry.
3. Graduate student/residents will be issued a personal number for use of the Xerox machine in the Department. The maximum number allowed for the year is 3000 copies per resident. Anything over this amount will be billed to the graduate student/resident.
4. Each graduate student will be assigned to an office that they will share with one or more other residents within the department.