



SYLLABUS:
Ultrasound Elective Rotation
VMED 5463

CONTACT INFORMATION:

Nathalie Rademacher, Dr.med.vet., Dipl. ACVR, Dipl. ECVDI (Ultrasound Course Coordinator)
 Associate Professor Diagnostic Imaging
 Office: Room 2217
 Email: nrademac@lsu.edu | (Clinics) 225 578 9506 | (Office) 225 578 9874

Faculty Radiologists	Email
Dr. N. Rademacher	nrademac@lsu.edu
Dr. L. Gaschen	lgaschen@lsu.edu
Dr. L. Abbi Granger	lagranger@lsu.edu
Dr. H. Paradise	hparadise@lsu.edu
Diagnostic Imaging Residents	
Dr. Rachel Jania	
Dr. Samantha Miles	
Dr. Cassandra Wilson	
Dr. Carolyn Blank	

Due to clinic service of faculty, consistent office hours are not available. It is recommended that meeting time and location be agreed upon via email.

COURSE MATERIALS:

Recommended Text(s):

Pennick, D., D’Anjou, M-A. **Atlas of Small Animal Ultrasonography**, 2nd edition, 2015, Blackwell Publishing

Barr, F., Gaschen, L. **BSAVA Manual of canine and feline ultrasonography**.

Nyland, T., Mattoon, J. **Small Animal Diagnostic Ultrasound**, 3rd edition, 2018 Saunders

COURSE DESCRIPTION:

Goal/Rationale of the Course

This 2-week ultrasound elective course is designed to improve skills and interpretation of ultrasound in veterinary medicine while being part of an active hospital setting. The students are integral part of the rotation and will be practicing ultrasound on clinical patients to increase knowledge of the systematic approach. Ultrasound is a skill technique that requires hand-eye coordination and an understanding of the modality, indications, anatomy, image recognition and pathophysiology. This rotation will give ample time for self-study and practice and in depth discussions with your mentor.

COURSE OBJECTIVES:

After this rotation, you should be able to	List keywords for each objective
1. Use the ultrasound equipment	Ultrasound equipment
2. List indications for abdominal ultrasound studies	Indications, ultrasound
3. Use the systematic approach to scan an abdomen in a small animal	Systematic approach, small animal, ultrasound
4. Identify normal anatomical structures	Anatomy, small animal
5. Recognize abnormal findings on ultrasound images	Ultrasound, image findings
6. List pathological conditions that can produce given abnormal image findings	Pathology, image findings, ultrasound
7. Formulate differential diagnoses based on the pattern of observed abnormal image finding	Differential diagnosis, image findings
8. Propose a final diagnosis based on the image findings and clinical presentation	Diagnosis, ultrasound, clinical presentation

TEACHING PHILOSOPHY:

Ultrasound plays a vital role for the practicing veterinarian as it has impact on therapeutic and prognostic decisions in the care of an animal. The intent of the rotation is to familiarize the veterinary student with the basic principles of a systematic ultrasound examination of the abdomen, practicing image interpretation with anatomy and disease recognition. Hand-eye coordination is the basis for ultrasound skills as well as image recognition. While observing an ultrasound examination, the student will be able to improve image and disease recognition while discussing image findings, physical principles and pathophysiology with the radiologist or resident on duty. Expand your ultrasound knowledge through independent study, direct conversations with mentors, using the teaching file and books provided for you in radiology.

COURSE POLICIES:Dress code:

Practical and professional attire is required: sturdy shoes, long pants (slacks or jeans without rips or tears) or scrubs are acceptable. Unacceptable are open toed shoes (that includes Flip flops), dresses or gym/athletic wear (yoga pants, running shorts, gym tank tops, etc), pajamas. Shirts with inappropriate picture or language are not appropriate. Students not dressed accordingly will be sent home to change their clothes.

Equipment

The resident or radiologist in charge supervises the use of the ultrasound equipment and will orient the student on the correct handling and care of the ultrasound equipment to ensure longevity of the machine and its transducers.

Orientation

All students must attend the ultrasound orientation meeting on the first day of the block at 8 AM on zoom.

Attendance/Lateness Policy

Absences must be pre-approved by the radiology faculty on clinic duty. One day is allowed per 2-week rotation. Unexcused absences and tardiness will result in an incomplete grade and students will be required to repeat the rotation. Missed days that are made up will not count towards the total allowable excused absences. Please see Phase II attendance requirements below.

Natural Disasters (Hurricanes, etc)

Hurricane Season officially runs from June 1st - Nov. 30th. The projected path of tropical storms/hurricanes are mapped by the National Hurricane Center: <http://www.nhc.noaa.gov/?atlc>. Please stay aware of impending storm systems. Staff and students of the VTHC are "essential personnel" during disasters affecting our community. The clinic schedule and student responsibilities may change during such events. Students may be required to participate in VTH emergency response efforts depending upon need and safety. **Please check in with the radiology faculty on clinics daily beginning 72 hours prior to any storm landfall projected for Louisiana.** If you are asked to report for duty during an emergency, your personal safety is the number one priority. Use common sense in your commute and alert the radiology faculty on clinics (225-578-9506) if you are unable to arrive safely.

Preparedness begins at home. Please view the section on hurricane preparedness on moodle and make sure you and your household is prepared (also visit: <http://www.getagameplan.org/>).

Home Football Games

Travel to the VTH during football season can be an adventure. Here is some general advice for negotiating the obstacles.

1. Be sure to have your SVM identification badge with you.
2. Approach the SVM via River Road along the levee (rather than Highland Rd).
3. There should be staff, student, and client parking reserved in front of the building for those needing access to the hospital.
4. If there is no parking, contact the campus police officer on duty (225-578-9811) to permit access to the equine clinic parking and parking behind the Dean's office (behind the gate).

GRADING/EVALUATION:

Ultrasound Interpretation	30%
Ultrasound Quizzes	30%
Ultrasound skills	30%
Attitude and Responsibility	10%
Total	100%

Ultrasound Interpretation (30% of final grade):

Images will be discussed on a case-to-case basis and during the examination of the patient and will include all aspects of ultrasound such as artifacts, basic physics and interpretation principles, anatomy and pathophysiology. In addition, participation, observation and description of image findings will be discussed and can be observed by the student while part of this rotation.

Friday Quizzes (30% of final grade):

Two open book short exams (20 questions, time limit of 60 minutes) are administered every Friday from 8 – 9am during the rotation using examsoft. Please make sure you have a LSU login and password for examsoft. If you do not have access to the LSU examsoft system, contact Stephanie James at Student Affairs (svmstudentaffair@lsu.edu or sjames10@lsu.edu) for credentials. Start code will be distributed by the resident or faculty on clinics. Questions may include multiple choice, matching, true/false and/or a practical format with questions derived from a picture. Attempts to copy or reproduce quizzes/questions for others’ use is a violation of academic honor. Use of cell phones during the exam is not allowed.

Week	Topics
1	Liver, spleen, kidneys, urinary bladder, Artifacts, basic physics
2	GI, Ureters, Pancreas, Adrenals, LN, Genital Tract, Vessels, artifacts, basic physics

ExamSoft Syllabus Statement

Students are responsible for the maintenance of their approved personal devices and Exemplify® software. Students are required to bring approved personal devices and privacy screens for all exams and indicated assignments. Lack of preparation may result in an inability to take the exam, adjustments to course grades at the discretion of the course coordinator, and/or an unprofessional conduct referral.

Any problems with Exemplify® or ExamSoft® can be addressed via phone to Student Tech Support at 866.429.8889, email to support@examsoft.com, or live chat at www.examsoft.com/about/support. LSU SVM provides additional, on-site, technical support for student technology issues regarding Exemplify® or ExamSoft®, via the IT helpdesk, between 7:30am and 4:30pm Monday- Friday. Faculty will not troubleshoot your technology issues.

Students found improperly using ExamSoft® or Exemplify® to gain unfair academic advantage are violating the LSU Code of Student Conduct. Violations such as "academic dishonesty" and/or "professional misconduct" would include, but are not limited to using a classmate's login/password, tampering with exam files, and falsifying upload or download information, or any attempt to circumvent the security features of the software.

Ultrasound skills (30% of final grade):

Ultrasound skills will be practiced by scanning clinical patients (usually limited time is given to the student for practice and depending on clinical presentation of the animal) or student owned animals to improve hand-eye coordination and connecting movements of the transducer with image recognition on the screen.

Attitude and Responsibility (10% of final grade):

Courtesy, honesty, timeliness and teamwork are expected from each student beginning with your first contact with faculty and staff in radiology extending to the hospital throughout your entire block.

E*Value:

Competencies will be completed online using E*Value, to provide feedback and recommendations for improvement by the faculty in charge of topic morning rounds. Evaluation will be completed weekly and send out to students with a summary at the end of the block.

Final Grade:

NOTE Rotation is PASS/FAIL Grading until end of 2020 due to COVID based on the breakdown listed

Grades will be rounded to the nearest percentage point and are based on the standard LSUSVM percentages:

A+	97-100
A	93-96
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	<60

ASSIGNMENTS/RESPONSIBILITIES:

Daily duties

- Switching on ultrasound machine
- Unplug lift table from outlet
- Student **MUST** consult with the resident or radiologist prior to calling a case
 - o Resident or radiologist on duty will determine which cases and in which order
 - o Do not start scanning a case if the radiologist or resident in charge is not informed
- Clip the animal according to the instructions of the resident or radiologist in charge
- Student can scan cases according to the on-duty residents or radiologist's assignment
 - o The student can usually scan for 5-10 minutes on most cases
 - o Fractious, very sick or sedated animals may require that only the radiologist or the resident scans them due to time constraints and necessity to expedite the examination
- Clean US machine with air-can sprayer and vacuum up the hair in the room at end of day.
- Refill US Gel and alcohol bottles
- Shut off lights and US machine at end of day
- Plug in Charge Cable for lift table
- Empty Vacuum Cleaner

Reading assignments

The ultrasound elective rotation creates ample opportunity for self-study and practical training. Ultrasound books are provided in the ultrasound room for reading as well as a teaching file with cases organized by anatomic location.

Morning Rounds

Ultrasound student will attend the radiology topic student rounds rounds from Monday- Thursday in the radiology reading room or on zoom, together with the radiology students (VMED 5454).

Feedback

Please provide feedback by the end of the rotation on Moodle by login to your myLSU account: <http://itsweb.lsu.edu/Moodle/>

COURSE CONTENT AND OUTLINE:

Week	Topics
1	Liver, spleen, kidneys, urinary bladder, Artifacts, basic physics
2	GI, Ureters, Pancreas, Adrenals, LN, Genital Tract, Vessels, artifacts, basic physics

Week 1

Monday

- Orientation starting at 8 am in Ultrasound room in radiology
- Make sure to know your Examsoft password and username for LSUSVM

Tuesday through Thursday 8-9.30AM

- Attend student morning rounds in radiology reading room where cases given on Moodle to the radiology students will be presented and discussed

Friday 8-9AM

- Examsoft Quiz: 60 minutes, 20 Questions: Multiple choice, Fill in the blank, Hot Spot Questions, True/False, Essay, Matching
- Topics: Liver, spleen, kidneys, urinary bladder, artifacts, basic physics
- Review session of Quiz during the day with on duty radiologist or resident

Week 2

Monday through Thursday 8-9.30AM

- Attend student morning rounds in radiology reading room

Friday 8-9AM

- Examsoft Quiz: 60 minutes, 20 Questions: Multiple choice, Fill in the blank, Hot Spot Questions, True/False, Essay, Matching
- Topics: Ureters, GI, Lymph Nodes, genital tract, vessels, pancreas, adrenals, basic physics, artifacts
- Review session of Quiz during the day with on duty radiologist or resident

OTHER RESOURCES:

- Moodle
- Lecture notes
- Ultrasound books in ultrasound room
- Book links on Moodle
- Recordings on Moodle by Dr. Gaschen
- Ultrasound power point lectures on Moodle
- Teaching

file

PHOTOGRAPHS AND VIDEO OF PATIENTS:

Photographs and video may be taken of patients for educational purposes (e.g., for use in abstracts, articles, and presentations). Any photographs and video for use by the media may not be taken without the express consent of the patient's owner. Verbal consent by the animal's owner is an acceptable means of gaining permission to photograph/video the patient. If a member of the media is present in the hospital and wishes to take background footage of clinicians and

students working with animal, no close-up shots are permitted such that the animal would be identified by its owner. All media requests must be directed to the LSU – School of Veterinary Medicine Public Relations Coordinator.

POSTINGS ON INTERNET/ SOCIAL NETWORKING SITES:

Posting, releasing, or otherwise disclosing photos, identifiable case descriptions, images, or records related to the educational, clinical, or research activities of the LSU - School of Veterinary Medicine, outside of the LSU - School of Veterinary Medicine via social networking sites (e.g. MySpace, Facebook, Twitter, etc.) or via other than standard professional means of query and/or dissemination of educational, clinical, or research information is prohibited. This policy applies to all students, faculty, staff, clients, and visitors of the LSU - School of Veterinary Medicine and to all activities of the LSU - School of Veterinary Medicine, on or off campus, related to veterinary clinical services and teaching and research labs. Pictures of animals (whether owned by University or client), and client information are strictly forbidden from being published or posted on social networking sites such as “Facebook”, “Twitter”, and “Myspace”; and non-educational blogs, message boards, or internet websites; without the prior approval from an appropriate Supervisor, Department Head, Director of the LSU – School of Veterinary Medicine Veterinary Teaching Hospital, or the Director of the Louisiana Animal Disease Diagnostic Laboratory. This policy is to promote the safety and privacy of students, faculty, staff, clients, and visitors. Failure to comply with this policy could result in damage to persons or property, may be a violation of legal, professional, and/or ethical obligations, and may result in disciplinary action by the LSU - School of Veterinary Medicine, up to and including dismissal.

ATTENDANCE REQUIREMENT

All students in the Phase II curriculum may be allowed a maximum of six (6) excused absences (this may be days or portions thereof, depending on the desires of the block mentor and course coordinator) which require no form of remediation. Additional days, for the days of the examination only, will be allowed to take the North American Licensing Examination. Examples of excused absences that may be allowed are: job interviews, state board examinations, family emergencies, illness, and attendance of professional meetings.

The block mentor shall have the final authority on granting an excused absence. Resolution of a dispute over excused absences shall be the duty of the Associate Dean for Student Affairs. Block mentors will be encouraged to allow any necessary excused absence, however insufficient student numbers on a block may preclude the approval of an excused absence. A maximum of two excused absences will be allowed per four week block and one excused absence per two week block. If a student exceeds the number of excused absences allowed per block then remediation may be required to pass the block (such as additional assignments or making up time lost).

If a student misses more than 2 days in any block’s grading period, then remediation may be required. These missed days include boards and excused absences (i.e. travel to and from boards and the boards). All excused absences greater than the six days allowed may require remediation. A written notification to the Associate Dean for Student Affairs for approval will be required at least four weeks in advance in anticipation of any anticipated excused absence over 6, or as soon as possible after an unanticipated excused absence. The Course Coordinators will forward a copy of any excused absence to the VCS office for tabulation. A written confirmation of the absence may be required. A written excuse may be required. If a written excuse cannot be obtained, then the absence will be considered unexcused. Any unexcused absence will require remediation and/or possible failure of the block.

REMEDICATION AND REASSESSMENT

If a remediation and reassessment is indicated per the SVM policy guidelines, it will be granted. The nature of the remediation and reassessment will be determined at the time of the request by the course committee in a timely fashion.

LSU SCHOOL OF VETERINARY MEDICINE ACADEMIC MISCONDUCT POLICY:

The LSU Code of Student Conduct applies to the School of Veterinary Medicine within the Code is the Academic Misconduct Policy, which outlines the School of Veterinary Medicine expectations for the integrity of students’ academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the LSU Code of Student Conduct Policy and for living up to their pledge not to violate the Code.

- I. It shall be a violation of this Code for a student to cheat.
- II. It shall be a violation of this Code for a student to knowingly circumvent any course requirement.

- III. It shall be a violation of this Code for a student to steal.
- IV. It shall be a violation of this Code for a student to purposely impair another student's educational opportunity.
- V. It shall be a violation to act in a manner which is detrimental to the moral and ethical standards of the veterinary medical profession.
- VI. It shall be a violation for a student to knowingly deceive another student, faculty member, or professional associate with the intent to gain advantage, academic or otherwise, for said student or for any other student.
- VII. It shall be a violation for any student to fail to report any infraction of the LSU Code of Student Conduct Policy to an appropriate representative.

LSU Code of Student Conduct can be found at:

<http://saa.lsu.edu/code-student-conduct>

Behavioral Misconduct

Per section 5.1 of the [Code of Student Conduct](#), the Code applies to conduct that occurs on the Campus, at LSU-sponsored activities, and/or when the Student or Registered Student Organization is representing LSU. The University shall have discretion to extend jurisdiction over conduct that occurs off campus when the conduct adversely and significantly affects the learning environment or University community and would be in violation of the Code if the conduct had occurred on campus. This includes behavior that may occur in a remote learning environment, such as email, discussion forums, zoom webinars, or any other platform or solution used for a course. In determining whether to extend jurisdiction, the University may consider its ability to gather information. Potential violations of the Code can be reported through [LSU Cares](#).

SEXUAL HARASSMENT POLICY

The University reaffirms and emphasizes its commitment to provide an educational and work environment free from sexual harassment and to provide a means to remedy sexual harassment that employees may have experienced. ([PS-73 Sexual Harassment](#) and [PS-95 Sexual Harassment of Students](#))

The intent of this policy is to express the University's commitment and responsibility to protect its students from sexual harassment and from retaliation for participating in a sexual harassment complaint. It is not intended to infringe upon constitutionally guaranteed rights nor upon academic freedom. In considering allegations of sexual harassment, the University must be concerned with the rights of both the complainant and the accused.

All proven cases of sexual harassment shall result in appropriate disciplinary action. The severity of the disciplinary action shall be consistent with the seriousness of the act of sexual harassment. Additionally, under appropriate circumstances, the University may take action to protect its students from sexual harassment by individuals who are not students of the University. If the alleged harasser is a student, the Dean of Students Office must be notified of the complaint.

Student Advocacy & Accountability, [Office of the Dean of Students](#), [LSU Student Life & Enrollment](#), 340 LSU Student Union, Baton Rouge, LA 70803, Phone: (225) 578-4307 Fax: (225) 578-5637 dossaa@lsu.edu

GENERAL STATEMENT ON ACADEMIC INTEGRITY:

Louisiana State University adopted the Commitment to Community in 1995 to set forth guidelines for student behavior both inside and outside of the classroom. The Commitment to Community charges students to maintain high standards of academic and personal integrity. All students are expected to read and be familiar with the [LSU Code of Student Conduct](#) and [Commitment to Community](#), found online at www.lsu.edu/saa. It is your responsibility as a student at LSU to know and understand the academic standards for our community.

Students who are suspected of violating the Code of Conduct will be referred to the office of Student Advocacy & Accountability. For undergraduate students, a first academic violation could result in a zero grade on the assignment or failing the class and disciplinary probation until graduation. For a second academic violation, the result could be suspension from LSU. For graduate students, suspension is the appropriate outcome for the first offense.

AMERICANS WITH DISABILITIES ACT:

Louisiana State University is committed to providing reasonable accommodations for all persons with disabilities. The syllabus is available in alternate formats upon request.

Students with disabilities: If you are seeking classroom accommodations under the Americans with Disabilities Act, you are required to register with Disability Services (DS). DS is located in 115 Johnston Hall. Phone is 225/578-5919. To receive academic accommodations for this class, please obtain the proper DS forms and meet with me at the beginning of the class. The Office of Student and Academic Affairs can help you if you have questions as well. <http://disability.lsu.edu/students>

SYLLABUS CHANGE POLICY:

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advanced notice.

Copy Statement

Some of the materials in this course are possibly copyrighted. They are intended for use only by students registered and enrolled in this course and only for instructional activities associated with and for the duration of the course. They may not be retained in another medium or disseminated further. They are provided in compliance with the provisions of the Teach Act (Section 110(1) of the Copyright Act) <http://www.copyright.gov/docs/regstat031301.html>.

SVM INSTITUTIONAL LEARNING GOALS/OBJECTIVES ALIGNED WITH COMPETENCIES:

Competency One: Comprehensive patient diagnosis (problem solving skills), appropriate use of clinical laboratory testing, and record management	Aligned with VMED Learning Objective	5463	Assessment Method	Teaching Method
1.2 Patient Assessment/Clinical Thinking Skills	2,3,4,5		Clinical performance, Examsoft Quiz	Case based instruction, Discussion
1.3 Knowledge Base/Basic Pathophysiology	2,5,6,7,8		Clinical performance; Examsoft Quiz	Case based instruction, Discussion
1.4 Diagnostic Skills/Clinical Laboratory Assessment	1,2,3,4,5		Clinical performance	Case based instruction
1.5 Participation in Patient Discussions	2,5,6,7,8		Participation	Case based instruction, Discussion
Competency Two: Comprehensive treatment planning including patient referral when indicated				
2.2 Understanding Therapeutic Modalities and Availability (would include knowledge of referral services available)	1,2		Clinical performance	Case based instruction, Discussion
Competency Eight: Client communications and ethical conduct				
8.2 Working with Health Care Team	1,6,7,8		Clinical performance	Discussion
8.5 Reliability/Thoroughness/Punctuality/Appearance	1,2, 3,4,		Clinical performance	Discussion
Competency Nine: Critical analysis of new information and research findings relevant to veterinary medicine				
9.1 Critical Analysis of New Information and Research Findings Relevant to Veterinary Medicine 9.2 Demonstrate effective use of literature, references and informational technology in support of diagnosis, case management, and continuing medical education.	5,6,7,8		Participation, Quiz	Small group discussion, Independent study
Competency Ten: Comparative Pathobiology: In the clinical setting discuss and apply basic science (physiology, immunology, histology, neuroscience, anatomy, etc.) to clinical cases within and across common species and between animal classes (mammals, birds, fish, reptiles, amphibians, etc.).				
10.1 Comparative and developmental physiology & anatomy	4,5,6		Clinical performance	Case based instruction, Discussion