

# COLLEGE OF VETERINARY MEDICINE

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## College Administration

Carlos Risco, DVM, Dipl. ACT—Dean  
 Margi Gilmour, DVM, MS, DACVO—Associate Dean for Academic Affairs  
 Jerry Malayer, PhD—Associate Dean for Research and Graduate Education

## Campus Address and Phone

**Address:** 205 McElroy Hall, Stillwater, OK 74078  
**Phone:** 405.744.6651  
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**Website:** [www.vetmed.okstate.edu](http://www.vetmed.okstate.edu) (<http://www.cvhs.okstate.edu>)

## College of Veterinary Medicine

The College of Veterinary Medicine (CVM) is the premier provider of animal care in the state of Oklahoma and for the region. The CVM provides quality educational opportunities to prepare our graduates for varied careers within the veterinary profession. The profession of veterinary medicine is rewarding, exciting, and one that touches the environment and the lives of humans and animals alike. The career options available to graduates with a doctor of veterinary medicine (DVM) degree are as varied as the people who make veterinary medicine their life-long commitment. The College of Veterinary Medicine at Oklahoma State University offers a program designed to prepare new graduates for a variety of biomedical careers including private practice, post-DVM clinical training, research, industry, military, and government.

**Mission:** Innovation in animal and human health.

**Vision:** To be innovative world leaders in healthcare, research, and professional education.

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### Core Values:

- **Communication:** Understanding the importance of good communication for the proper functioning of the team and advancing our common goals.
- **Integrity:** We will demonstrate at all times, and expect of our colleagues, the highest standards of personal integrity.
- **Accountability:** We will be accountable for our own actions, work, and words
- **Teamwork:** Understanding that a team is stronger than the sum of its parts, and that we perform better as a team.
- **Leadership:** Recognizing that we can all be leaders.

## Accreditation

The College is accredited by the Council on Education of the American Veterinary Medical Association. Accreditation is based on an assessment of 11 essential factors, namely, the college's organization, its finances, facilities and equipment, clinical resources, library and learning resources, enrollment, admissions, faculty, curriculum, continuing and post-graduate education, and research.

## High School Preparation

Preparation for a career in veterinary medicine includes understanding the profession. Volunteering, shadowing or working with a veterinarian is essential. Students should develop emotional maturity and become aware of how medical decisions include patient, client and financial issues. Professionalism and ethics are fundamental for veterinarians. Although the veterinary school does not use your high school grades to determine eligibility, students in high school are strongly encouraged to take coursework heavy in the math and sciences if offered.

## Admission and Application Requirements

Earning a DVM degree requires dedication and hard work, but the rewards are returned for a lifetime. In general, students must complete three to four years of pre-veterinary undergraduate coursework followed by four years of a professional program in a college of veterinary medicine.

Students may choose any accredited college/university to complete their pre-veterinary coursework, however, choosing a major related to the student's interest in science and animals is wise. The College requires all applicants be within 1 year of completing specific required courses to be eligible for application. For a list of required courses, visit the website: <https://vetmed.okstate.edu/students/pre-vet-courses.html> (<https://cvhs.okstate.edu/students/pre-vet-courses.html>)

Other factors can contribute to an applicant's eligibility for application to the DVM Program. For a detailed list of those factors, visit the "Eligibility" portion of the OSU-CVM website: <https://vetmed.okstate.edu/students/eligibility.html> (<https://cvhs.okstate.edu/students/eligibility.html>)

## Early Admission Program

Students pursuing careers in the health sciences often make their career decision prior to undergraduate enrollment. The goal of the Early Admission Program is to aid students with strong academic ability that are interested in veterinary medicine and guide them in their pursuit of a veterinary medical career. The Early Admission Program strives to provide guidance, direction, mentorship, and provisional admission for students with superior academic achievement and interpersonal skills that are well-suited to the missions of the veterinary profession. The EAP is applicable to all incoming true college freshmen attending a 4-year Oklahoma institution. Visit the Early Admission Program page on the CVM website for more information: <https://vetmed.okstate.edu/students/early-admission.html> (<https://cvhs.okstate.edu/students/early-admission.html>).

## Scholarships

The College has scholarships which are available to matriculating veterinary medicine students; many are based on academic achievement.

## Selection Factors

The Admissions Committee seeks to admit students with excellent records of academic achievement, in addition to backgrounds that help predict potential success in a variety of veterinary medical careers. Because the veterinary medical profession is constantly changing, the faculty supports the concept of achieving diversity in each entering class. The College of Veterinary Medicine typically admits 106 students annually of which 58 are Oklahoma residents and 48 are out of state students.

In selecting applicants for admission, the Admissions Committee will consider both quantitative (grade point averages, course load, and

standardized test scores) and qualitative factors (veterinary experience, background, personal statement and letters of recommendation).

Residents receive a score based on the evaluation of their application materials as well as a personal interview conducted by members of the Admissions Committee. Interviews for resident applicants are not automatically granted, but are strictly by invitation only. The nonresidents' qualitative score is based on file review by members of the Admissions Committee. Personal interviews are not offered to nonresident applicants.

Strong applications include letters of recommendation from references who have had recent experiences with the applicant. The CVM requires three letters of recommendation, one of which must come from a veterinarian, preferably one with whom the applicant has worked under (e.g. employment, job shadowing, training, etc.).

## College Curriculum

The veterinary school's curriculum prepares students for a wide variety of careers. It emphasizes educating general practitioners and also prepares students for nonpractice careers. The curriculum is built on a culture of scholarship that has led to the excellent reputation for educating students not only to be ready to enter practice but to become successful veterinarians.

The curriculum is integrated across departments and is systems-based rather than topic-based. The teaching style includes lecture and small-to large-group case discussion formats. Hands-on animal experiences are emphasized beginning in a student's first year. The college teaches all animal species. Students may pursue their area of interest through elective courses starting in their second year and can continue through their fourth. These electives include opportunities to focus on animal species interests, discipline interests and research. The 4<sup>th</sup> year is a mixture of required hospital rotations and electives including off-campus experiences. They are encouraged to take externships in private practice, referral centers, specialty practices, government laboratories, zoos or other facilities to expand their experience to the realities of the diverse careers available to them.

For a full list of the OSU DVM Curriculum, visit the "DVM Curriculum" portion of the CVM website: <https://catalog.okstate.edu/college-veterinary-medicine/degree-programs/veterinary-medicine-dvm/> (p. 2247).

## Graduate Program

### Comparative Biomedical Sciences

Pamela Lovern, PhD—Associate Professor and Coordinator of Graduate Studies

The comparative biomedical sciences (CBS) graduate program is a multidisciplinary program intended to provide students a broad base of research areas to address individual student interests. The program is administered within the College of Veterinary Medicine but may involve faculty from other colleges. Programs of research and study leading to the degrees of Master of Science and Doctor of Philosophy are available within the broad areas of focus: infectious diseases, pathobiology, and physiological sciences. The program is designed to prepare individuals for careers in teaching and research, and specialization is possible within each area dependent upon student and faculty interests and available funding.

Current areas of research focus include molecular, cell and developmental biology, clinical sciences (including laser applications and oncology); infectious and parasitic diseases (including vector-borne diseases, bacterial and viral diseases in wild and domestic animals); pathobiology; and toxicology. Faculty and their specific areas of interest are available through the graduate coordinator ([cbssc@okstate.edu](mailto:cbssc@okstate.edu) ([vbsc@okstate.edu](mailto:vbsc@okstate.edu))) or online at <https://vetmed.okstate.edu/students/comparative-biomedical-sciences/index.html> (<https://vetmed.okstate.edu/students/comparative-biomedical-sciences/>).

## Prerequisites

Candidates for admission must possess a bachelor's degree or equivalent, with a background in biological or physical sciences. Although there are no absolute performance level requirements, applicants with quantitative GRE scores at the 75th percentile or greater and GPAs of 3.0 (out of 4.0) or greater, will receive strongest consideration.

## The Master of Science Degree

The MS may be earned with 30 credit hours beyond a bachelor's degree or 21 hours beyond the DVM degree, including not more than six credit hours for the thesis. The plan of study is designed to meet the student's needs and interests and typically includes two credits of seminar, one course in statistics, and courses in molecular or cell biology and pathophysiology. The student must also pass a final oral examination covering the thesis and related course work.

## The Doctor of Philosophy Degree

The PhD requires a minimum of 60 credit hours beyond the bachelor's degree or DVM degree, including up to 45 credit hours for research and dissertation. The plan of study is designed to meet the student's needs and interests and typically includes courses in cell and molecular biology, pathophysiology, statistics and seminar. Written and oral qualifying examinations are required. Students must prepare a research proposal and complete and defend a dissertation based on original research.

## Application Procedure

Applications are made to the Graduate College (<http://gradcollege.okstate.edu/apply> (<http://gradcollege.okstate.edu/apply/>)) and are accepted at any time; however, all documents should be received prior to March 1st for admission to the fall semester. Applicants are required to submit official transcripts of all college-level work and scores for the GRE general test. International applicants are required to take an English proficiency exam TOEFL or equivalent exam, unless a student is from a country where English is a first language. For students seeking graduate teaching assistantships, a score of 22 or greater on speaking part of the internet-based TOEFL (iBT) is required. In addition, the applicant will submit a statement of purpose stating their preparation for graduate study as well as how earning a graduate degree will further their educational and career goals and will have three persons knowledgeable of their preparation for graduate study write and submit letters of reference.

Information about faculty research interests is available upon request to the graduate coordinator ([cbssc@okstate.edu](mailto:cbssc@okstate.edu) ([vbsc@okstate.edu](mailto:vbsc@okstate.edu))). After acceptance to the graduate program, students select a major professor and an advisory committee and develop a plan of study consistent with the CBS graduate program requirements and subject to approval of the dean of the Graduate College.

## Assistantships

A limited number of graduate teaching and research assistantships are available.

## Internship and Residency Programs

Internships and residency programs in clinical medicine and surgery are offered through the Department of Veterinary Clinical Sciences. Residency programs in pathology are offered through the Department of Veterinary Pathobiology.

## Academic Areas

- Veterinary Clinical Sciences (p. 2249)
- Veterinary Pathobiology (p. 2250)
- Physiological Sciences (p. 2251)
- Degree Programs (p. 2244)

## Graduate Programs

- Comparative Biomedical Science, MS (p. 2109)
- Comparative Biomedical Science, PhD (p. 1950)

## Professional Programs

- Veterinary Medicine, DVM (p. 2247)

## Faculty

### Veterinary Pathobiology

\*Jerry Ritchey, DVM, PhD, DACVP—Professor and Department Head

**Regents Professors and Endowed Chairs:** \*Anthony W. Confer, DVM, PhD, DACVP (emeritus) and Walter R. Sitlington Endowed Chair; Clinton J. Jones, PhD, and Sitlington Endowed Chair; \*Susan Little, DVM, PhD, DAVPC-Parasitology and Krull/Ewing Endowed Chair

**Professors:** Kenneth Clinkenbeard, DVM, PhD (emeritus); \*Jean M. d'Offay, DVM, PhD, DACVM (emeritus); Richard W. Eberle, PhD (emeritus); \*Robert W. Fulton, DVM, PhD, DACVM (emeritus); Katherine M. Kocan, MSPH, PhD (emerita); \*James H. Meinkoth, DVM, PhD, DACVP; Mason Reichard, PhD; \*Timothy Snider, DVM, PhD, DACVP

**Associate Professors:** Tom Oomens, PhD; \*Jared Taylor, DVM, MPH, PhD, DACVIM, DACVPM

**Assistant Professors:** Kelly Allen, MS, PhD; Fernando Vicosa Bauermann, DVM, PhD; \*Valerie McElliott, DVM, PhD, DACVP; \*Craig Miller, DVM, PhD, DACVP; \*Akhilesh Ramachandran, BVSc&AH, PhD, DACV

**Clinical Professors:** \*Todd Jackson, DVM, DACLAM; \*Theresa Rizzi, DVM, DACVP

**Clinical Associate Professors:**

**Clinical Assistant Professor:** \*Susan E. Fielder, DVM, DACVP; Yoko Nagamori, DVM

**Associate Research Professor:** Edmour Blouin, PhD (emeritus)

**Lecturer:** Dr. Jennifer Rudd, DVM, Meriam Saleh, PhD

**Research Scientist:** Maraya Maggioli

**Residents:** Katheryn Duncan, DVM; Dah Jiun Fu, DVM, Ryan Kalish, DVM; Sierra Salopek, DVM; Ruth Scimeca, PhD; Erin Stayton, DVM

**Post-Doctoral Fellows:** Kelly Harrison, PhD; Jeff Oster, PhD

**Graduate Teaching Associates:** Laximan Sawant, BVSc, MVSc

### Veterinary Clinical Sciences

\*Daniel J. Burba, DVM, DACVS, McCasland Professor of Biomedical Laser Surgery and Department Head

**Regents Professor and Endowed Chairs:** Kenneth Bartels, DVM, MS, and Cohn Family Chair for Animal Care (emeritus); \*Melanie Boileau, DVM, MS, DACVIM, and Clinical Professorship in the Center for Veterinary Health Sciences; \*Daniel J. Burba, DVM, DACVS, and McCasland Endowed Chair; \*Danielle Dugat, Cohn Family Chair for Animal Care; \*Andrew Hanzlicek, DVM, MS, DACVIM, and Kirkpatrick Chair in Small Animal Medicine; \*Todd Holbrook, DVM, DACVIM, DACVSMR, and Jack & June Jacobs Chair in Veterinary Medicine; G. Reed Holyoak, DVM, PhD, DACT, and Bullock Professor; \*Michael D. Lorenz, DVM, DACVIM, and Regents Service Professor (emeritus); \*Lara Sypniewski, DVM, DABVP, and Henthorne Clinical Professorship

**Professors:** \*Joseph Alexander, DVM, DACVS (President, CIED) (emeritus); \*Kenneth Bartels, DVM, MS (emeritus); \*Daniel J. Burba, DVM, DACVS; \*Lionel J. Dawson, BVSc, MS, DACT; \*Margi A. Gilmour, DVM, MS, DACVO; \*Todd Holbrook, DVM, DACVIM, DACVSMR; G. Reed Holyoak, DVM, PhD, DACT; \*John P. Hoover, DVM, MS, DACVIM, DABVP (emeritus); \*Charles G. MacAllister, DVM, DACVIM (emeritus); \*Mark Neer, DVM, DACVIM (emeritus); \*Richard Shawley, DVM, MS, DACVA (emeritus)

**Associate Professors:** \*Robert J. Bahr, DVM, DACVR (emeritus); \*Melanie Boileau, DVM, MS, DACVIM; \*Mary H. Bowles, DVM, DACVIM (emeritus); \*Erik Clary, DVM, PhD, DACVS; \*Daniel Dugat, DVM, DACVS; \*Lyndi Gilliam, DVM, DACVIM; \*Nicola Di Girolamo, DVM, Msc, PhD, DECZM; \*Andrew Hanzlicek, DVM, MS, DACVIM; \*Henry W. Jann, DVM, MS, DACVS, DACVSMR (emeritus); \*Meredyth Jones, DVM, MS, DACVIM; \*John Kirkpatrick, DVM, DABVP (emeritus); Carolyn T. MacAllister, DVM (emeritus); \*Gregor L. Morgan, MVSc, PhD, DACT (emeritus); \*Michael J. Schoonover, DVM, MS, DACVS, DACVSMR

**Assistant Professors:** \*Joao Manuel Lemos Brandao, LMV, MS, DECZM; \*Shane Lyon, DVM, DACVIM; \*Laura Nafe, DVM, MS, DACVIM; \*Emily McCool, DVM; \*Megan Williams, DVM, DACVS

**Clinical Professor:** \*Marjorie Gross, DVM, MS, DACVA (emeritus)

**Clinical Associate Professor:** \*Patricia Coan, DVM, PhD, DACLAM, \*Stefano Di Concetto, DVM, MS, DACVAA; \*Paul DeMars, DVM, CABVP; \*John Gilliam, DVM, DABVP, DACVIM; \*Robert Streeter, DVM, MS, DACVIM; \*Lara A. Sypniewski, DVM, DABVP; \*Asitha Vasudevan Pillai, DVM, MS

**Adjunct Associate Professors:** Wei R. Chen, PhD; Alex Cohen, M.D. PhD; \*William Dubois, DVM, DABVP; \*Cheryl Lopate, DVM, MS, DACT; \*Mark Munson, MD

**Clinical Assistant Professors:** Kimberly D. Carter, DVM; \*Carrie Kuzma, DVM; Katrina Meinkoth, DVM; Sarah Peakheart, DVM

**Adjunct Assistant Professors:** \*Kay Backues, DVM, DACZM; \*Jennifer D'Agostino, DVM, DACZM; \*Lindsay Donnelly, DVM, MS, DACVIM

**Lecturer:** Jillian Paegelow, DVM

**Residents:** Kristen Clark, DVM, Small Animal Internal Medicine (2017-2020); Adam Moore, DVM, Small Animal Internal Medicine (2017-2020); Samantha A. Bailey, DVM, Small Animal Internal Medicine (2018-2021); Emily Davis, DVM, Small Animal Internal Medicine (2019-2022); Donald Holter, DVM, Small Animal Surgery (2018-2021); Jane Park, DVM, Small Animal Surgery (2018-2021); Rodrigo Roca, DVM, Small Animal Surgery (2019-2022); Amy Lovett, DVM, Equine Internal Medicine, (2017-2020); Jessica Rutledge, DVM, Equine Internal Medicine (2017-2020); Hugh Duddy, DVM, Equine Surgery (2018-2021); Kelsey Jurek, DVM, Equine Surgery (2019-2022); Brian Weaver, DVM, APVP Food Animal (2018-2020); Natasha Williams, DVM, Food Animal Medicine (2018-2021); Elizabeth Crabtree, DVM, Food Animal Medicine (2019-2022); Cory Anderson, DVM, Theriogenology (2019-2022); Adam Bassett, DVM, Theriogenology (2019-2022)

**Interns:** Chelsea Connor, DVM, Small Animal Medicine & Surgery; Sarah Gronsky, DVM, Small Animal Medicine & Surgery; Jacklyn Gross, DVM, Small Animal Medicine & Surgery; Ivette Irizarry, DVM, Small Animal Medicine & Surgery; Sydney St. Clair, DVM, Small Animal Medicine &

Surgery; Evan Crisman, DVM, Equine Medicine and Surgery; Kelsey Studer, DVM, Avian Exotics and Zoological; Elizabeth Soler, DVM, Ophthalmology.

## Physiological Sciences

Martin Furr, PhD—Professor and Department Head

**Regents Professors:** Lin Liu, BS, PhD (Lundberg-Kienlen Professor of Biomedical Research); Carey N. Pope, PhD (Sitlington Chair in Toxicology)

**Professors:** James E. Breazile, DVM, PhD (emeritus); Nicholas L. Cross, PhD (emeritus); \*Michael S. Davis, DVM, MS, PhD (Oxley Chair in Equine Sports Medicine); Jerry R. Malayer, PhD; \*Dianne McFarlane, MS, DVM, PhD (Ricks Rapp Professorship); Lara K. Maxwell, DVM, PhD; Charlotte L. Ownby, MS, PhD (emeritus); Chris Ross, DVM, PhD; Alastair G. Watson, BVSc, PhD (emeritus)

**Adjunct Professors:** David W.A. Bourne, MS, PhD; Stephen Brimijoin, BA, PhD; Larry P. Gonzalez, BS, MA, PhD; Terence H. Risby, PhD

**Associate Professors:** Jill Akkerman, DVM, PhD; Guangping Chen, MS, PhD; Myron Hinsdale, DVM, PhD; Veronique Lacombe, DVM, PhD, Diplomate ACVIM, Diplomate ECEIM; James W. Lish, MS, PhD (emeritus); Pamela G. Lovern, BA, PhD; Joseph P. McCann, PhD; \*Sandra E. Morgan, MS, DVM (emerita); Ashish Ranjan, B.VSc., PhD (Kerr Endowed Chair); Larry E. Stein, PhD (emeritus)

**Adjunct Associate Professors:** Joseph R. Bidwell, BSc, MSc, PhD; David R. Wallace, BS, PhD; Guolong Zhang, BS, MS, PhD

**Assistant Professors:** Joshua Butcher, M.S., PhD; Madhan Subramanian, BVSc, PhD

**Adjunct Assistant Professor:** Terry A. Gipson, BS, MS, PhD

**Assistant Research Professors:** Chaoqun Huang, MD, PhD; Narasa Raju Teluguakula, BSc, MSc, PhD

**Research Associate:** Yurong Liang, BS, PhD; M. Cristina Munteanu, MS, PhD; Pulavendran Sivasami, MS, PhD

**Post-Doctoral Fellows:** Allison Campolo, PhD; Kalyani Ektate, BVSc, MVSc, PhD; Fang Hau, PhD; Sri Nandhini Sethuraman, BVSc, MVSc, Kishor Vaddadi, PhD; Lingyan Wang, BS, MS, PhD

**Graduate Teaching Associates:** Harshini Ashar, BVSc, MVSc; Bridgette French-Harbison, BS, MS; Girish Patil, MVSc; Mohit Singh, MVSc; Kun Song, BS; Joshua VanOsdol, BS; Nishani Wijesekera, BVSc; Dao Xu, BS

**Graduate Research Associates:** Gayan Bamunuarachchi, BS; Mike Gorbet, BS; Sugandhika Gothami, BS; Wenzhuo Hao, BS, MS; Kong Lin, BS; Stacey Herriage, BA; Robert Jeyasingh, BVSc; Kirstin Hester, BS; Raisa Monteiro, BVSc; Shannon Remerowski, BS, DVM; Oluwayemisi Semola, U; Lakmini Senavirathna, BS

**Staff:** Montana Fulton, RVT; Dallas Karcher, BS; Erin Langford-Loftis, BS; Christopher H. Pivinski, BS; Lana Schler, BS

**\*Board Certification in Specialty Area**

## Degree Programs

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### Graduate Programs

- Comparative Biomedical Science, MS (p. 2109)
- Comparative Biomedical Science, PhD (p. 1950)

### Professional Programs

- Veterinary Medicine, DVM (p. 2247)

## Comparative Biomedical Sciences, MS

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**Requirements for Students Matriculating in or before Academic Year 2020-2021.** Learn more about Graduate College Academic Regulation 7.0 (p. ).

**Total Hours:** 30 Hours

Code	Title	Hours
<b>Required Courses</b>		
CBSC 5013	Comparative Biomedical Sciences I	3
CBSC 5023	Comparative Biomedical Sciences 2: Pathobiology	3
STAT 5013	Statistics for Experimenters I	3
CBSC 6110	Seminar	2
CBSC 5000	Master's Research and Thesis	6
<b>Hours Subtotal</b>		<b>17</b>
<b>Electives</b>		
Select 13 hours of approved electives		13
<b>Hours Subtotal</b>		<b>13</b>
Total Hours		30

## Comparative Biomedical Sciences, PhD

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**Requirements for Students Matriculating in or before Academic Year 2020-2021.** Learn more about Graduate College Academic Regulation 7.0 (p. ).

**Total Hours:** 60 Hours

<b>Code</b>	<b>Title</b>	<b>Hours</b>
<b>Required Coursework</b>		
CBSC 5013	Comparative Biomedical Sciences I	3
CBSC 5023	Comparative Biomedical Sciences 2: Pathobiology	3
STAT 5013	Statistics for Experimenters I	3
STAT 5083	Statistics for Biomedical Researchers	3
CBSC 6110	Seminar	3
CBSC 6000	PhD Research and Dissertation	45
<b>Hours Subtotal</b>		<b>60</b>
Total Hours		60

## Veterinary Medicine, DVM

Total Hours: 165 Hours

### Year One

Code	Title	Hours
<b>Degree Requirements</b>		
<i>Fall Semester</i>		
VMED 7114	Veterinary Physiology I	4
VMED 7113	Veterinary Physiology II	3
VMED 7123	Veterinary Histology	3
VMED 7144	Gross and Developmental Anatomy	4
VMED 7152	Zootechnology	2
VMED 7162	Orientation to the Veterinary Medical Profession	2
<b>Hours Subtotal</b>		<b>18</b>
<i>Spring Semester</i>		
VMED 7221	Epidemiology and Evidence-Based Medicine	1
VMED 7223	Veterinary Parasitology I	3
VMED 7235	Veterinary Physiology III	5
VMED 7243	Comparative Anatomy	3
VMED 7253	Veterinary Immunology	3
VMED 7264	General Pathology	4
<b>Hours Subtotal</b>		<b>19</b>
Total Hours		37

### Year Two

Code	Title	Hours
<b>Degree Requirements</b>		
<i>Fall Semester</i>		
VMED 7311	Introduction to Clinics I	1
VMED 7323	Veterinary Parasitology II	3
VMED 7333	Pharmacology I	3
VMED 7342	Clinical Anatomy	2
VMED 7354	Veterinary Bacteriology and Mycology	4
VMED 7363	Clinical Pathology	3
Select three hours of electives.		3
<b>Hours Subtotal</b>		<b>19</b>
<i>Spring Semester</i>		
VMED 7412	Anesthesiology	2
VMED 7413	Food Safety and Public Health	3
VMED 7432	Pharmacology II	2
VMED 7443	Diagnostic Imaging	3
VMED 7454	Veterinary Virology	4
VMED 7482	Hemolymphatic and Oncology	2
Select four hours of electives.		4
<b>Hours Subtotal</b>		<b>20</b>
Total Hours		39

### Year Three

Code	Title	Hours
<b>Degree Requirements</b>		
<i>Fall Semester</i>		
VMED 7502	Ophthalmology	2
VMED 7533	Toxicology	3
VMED 7563	Musculoskeletal Systems	3
VMED 7583	Dermatology and Endocrinology	3
VMED 7674	Theriogenology	4
VMED 7592	Junior Surgery I	2
Select three hours of electives.		3
<b>Hours Subtotal</b>		<b>20</b>
<i>Spring Semester</i>		
VMED 7601	Junior Surgery II	1
VMED 7564	Alimentary System	4
VMED 7612	Clinical Neurology	2
VMED 7614	Cardiopulmonary System	4
VMED 7652	Introduction to Clinics II	2
VMED 7662	Urinary System	2
VMED 7781	Professional Veterinary Medicine	1
Select three hours of electives		3
<b>Hours Subtotal</b>		<b>19</b>
Total Hours		39

### Year Four

#### CORE ROTATIONS

Code	Title	Hours
<b>Rotations - 14 Rotations<sup>3</sup></b>		
VCS 7002	Anesthesiology I	2
VCS 7042	Community Practice I	2
VCS 7072	Diagnostics I	2
VCS 7082	Equine Medicine I	2
VCS 7142	Externship I	2
VCS 7152	Externship II	2
VCS 7162	Externship III	2
VCS 7222	Food Animal Medicine and Surgery I	2
VCS 7272	Small Animal Intensive Care Unit I	2
VCS 7372	Radiology I	2
VCS 7392	Small Animal Internal Medicine I	2
VCS 7422	Small Animal Surgery I	2
VCS 7442	Surgical Fundamentals in Shelter Patients I	2
VCS 7912	Grand Rounds	2
<b>14 Rotations</b>		
Total Hours		28

#### SMALL ANIMAL EMPHASIS

Code	Title	Hours
<i>Emphasis - 4 Rotations<sup>1</sup></i>		
VCS 7052	Community Practice II	2
VCS 7402	Small Animal Internal Medicine II	2
VCS 7452	Ultrasound/Clinical Pathology II	2



Select one of the following:	2
VCS 7342 Ophthalmology II	
VCS 7472 Zoological Medicine II	
<b>Hours Subtotal</b>	<b>8</b>
<i>Electives</i> <sup>1</sup>	
Select 7 rotations from the following:	
VCS 7012 Anesthesiology III	
VCS 7062 Community Practice III	
VCS 7172 Externship IV	
VCS 7182 Externship V	
VCS 7192 Externship VI	
VCS 7282 Small Animal Intensive Care Unit III	
VCS 7352 Ophthalmology III	
VCS 7362 Professional Development Experience III	
VCS 7412 Small Animal Internal Medicine III	
VCS 7432 Small Animal Surgery III	
VCS 7482 Zoological Medicine III	
VCS 7492 Applied Canine Exercise Physiology Elective III	
<b>Hours Subtotal</b>	<b>14</b>
Total Hours	22

### MIXED ANIMAL EMPHASIS

Code	Title	Hours
<i>Emphasis - 5 Rotations</i> <sup>1</sup>		
VCS 7232	Food Animal Medicine and Surgery II	2
VCS 7452	Ultrasound/Clinical Pathology II	2
Select one of the following:		2
VCS 7202	Field Services and Production Medicine II	
VCS 7312	Large Animal Theriogenology II-A	
VCS 7322	Large Animal Theriogenology II-B	
Select one of the following:		2
VCS 7052	Community Practice II	
VCS 7402	Small Animal Internal Medicine II	
Select one of the following:		2
VCS 7342	Ophthalmology II	
VCS 7472	Zoological Medicine II	
<b>Hours Subtotal</b>		<b>10</b>
<i>Electives</i> <sup>1</sup>		
Select 6 rotations from the following:		
VCS 7012	Anesthesiology III	
VCS 7062	Community Practice III	
VCS 7102	Equine Medicine III	
VCS 7132	Equine Surgery and Sports Medicine III	
VCS 7172	Externship IV	
VCS 7182	Externship V	
VCS 7192	Externship VI	
VCS 7212	Field Services and Production Medicine III	
VCS 7242	Food Animal Medicine and Surgery III	
VCS 7282	Small Animal Intensive Care Unit III	
VCS 7292	Large Animal Bovine Theriogenology III	
VCS 7302	Large Animal Equine Theriogenology III	

VCS 7332	Large Animal Theriogenology III	
VCS 7352	Ophthalmology III	
VCS 7362	Professional Development Experience III	
VCS 7412	Small Animal Internal Medicine III	
VCS 7432	Small Animal Surgery III	
VCS 7482	Zoological Medicine III	
VCS 7492	Applied Canine Exercise Physiology Elective III	
<b>Hours Subtotal</b>		<b>12</b>
Total Hours		22

### EQUINE EMPHASIS

Code	Title	Hours
<i>Emphasis - 4 Rotations</i> <sup>1</sup>		
VCS 7092	Equine Medicine II	2
VCS 7122	Equine Surgery and Sports Medicine II	2
VCS 7312	Large Animal Theriogenology II-A	2
VCS 7322	Large Animal Theriogenology II-B	2
<b>Hours Subtotal</b>		<b>8</b>
<i>Electives</i> <sup>1</sup>		
Select 7 rotations from the following:		
VCS 7012	Anesthesiology III	
VCS 7102	Equine Medicine III	
VCS 7112	Equine Performance Medicine III	
VCS 7132	Equine Surgery and Sports Medicine III	
VCS 7172	Externship IV	
VCS 7182	Externship V	
VCS 7192	Externship VI	
VCS 7212	Field Services and Production Medicine III	
VCS 7242	Food Animal Medicine and Surgery III	
VCS 7302	Large Animal Equine Theriogenology III	
VCS 7352	Ophthalmology III	
VCS 7362	Professional Development Experience III	
VCS 7462	Ultrasound/Clinical Pathology III	
VCS 7482	Zoological Medicine III	
<b>Hours Subtotal</b>		<b>14</b>
Total Hours		22

<sup>1</sup> Rotations: Two weeks each except the Thanksgiving (Rotation 15) and Christmas/New Year's (Rotation 17). Those rotations are three weeks.

For additional requirements, please refer to the College of Veterinary Medicine page (<http://catalog.okstate.edu/veterinary-health-sciences/>) in the Catalog.

## Veterinary Clinical Sciences

Daniel J. Burba, DVM, DACVS, McCasland Professor of Biomedical Laser Surgery and Department Head

The Department of Veterinary Clinical Sciences is one of four academic departments at the CVM. The Veterinary Clinical Sciences faculty are an integral part of the Boren Veterinary Medical Hospital. The faculty train veterinary students through hands-on experience and provide the highest quality of care to clients and patients. In addition to training veterinary students, there are several residents and interns in various sections of the hospital who are guided by the VCS faculty.

Visit the Veterinary Medical Hospital webpage (<https://cvhs.okstate.edu/veterinary-medical-hospital/>) to learn more about the faculty and staff and the services they provide.

### Internship and Residency Programs

The department offers graduate professional programs (internships and residencies). Internships are one-year post-DVM clinical programs in exotic, small or large animal medicine and surgery.

Internships are designed in part to prepare DVM graduates for residencies or graduate academic programs. Currently, internships are offered in small animal medicine and surgery rotating, equine internal medicine and surgery rotating, shelter surgery and medicine, and zoological medicine.

Residencies are three-year clinical programs in various disciplines designed in part to prepare for specialty board certification. Currently, residencies are offered in small animal surgery, small animal internal medicine, equine internal medicine, equine surgery, food animal medicine and surgery, ophthalmology and theriogenology. Graduate academic programs may be available in association with residencies.

### Application Procedure

Most open positions are listed in the Veterinary Internship/Residency Matching Program at [www.virmp.org](http://www.virmp.org) (<http://www.virmp.org>) and applications are submitted through the VIRMP.

### Faculty

\*Daniel J. Burba, DVM, DACVS, McCasland Professor of Biomedical Laser Surgery and Department Head

**Regents Professor and Endowed Chairs:** Kenneth Bartels, DVM, MS, and Cohn Family Chair for Animal Care (emeritus); \*Melanie Boileau, DVM, MS, DACVIM, and Clinical Professorship in the College of Veterinary Medicine; \*Daniel J. Burba, DVM, DACVS, and McCasland Endowed Chair; \*Danielle Dugat, Cohn Family Chair for Animal Care; \*Todd Holbrook, DVM, DACVIM, DACVSMR, and Jack & June Jacobs Chair in Veterinary Medicine; G. Reed Holyoak, DVM, PhD, DACT, and Bullock Professor; \*Michael D. Lorenz, DVM, DACVIM, and Regents Service Professor (emeritus); \*Lara Sypniewski, DVM, DABVP, and Henthorne Clinical Professorship

**Professors:** \*Joseph Alexander, DVM, DACVS (President, CIED) (emeritus); \*Kenneth Bartels, DVM, MS (emeritus); \*Daniel J. Burba, DVM, DACVS; \*Lionel J. Dawson, BVSc, MS, DACT; \*Margi A. Gilmour, DVM, MS, DACVO; \*Todd Holbrook, DVM, DACVIM, DACVSMR; G. Reed Holyoak, DVM, PhD, DACT; \*John P. Hoover, DVM, MS, DACVIM, DABVP (emeritus); \*Charles G. MacAllister, DVM, DACVIM (emeritus); \*Mark Neer, DVM, DACVIM (emeritus); \*Richard Shawley, DVM, MS, DACVA (emeritus)

**Associate Professors:** \*Robert J. Bahr, DVM, DACVR (emeritus); \*Melanie Boileau, DVM, MS, DACVIM; \*Mary H. Bowles, DVM, DACVIM (emeritus); \*Joao Manuel Lemos Brandao, LMV, MS, DECZM; \*Erik Clary, DVM, PhD, DACVS; \*Daniel Dugat, DVM, DACVS; \*Lyndi Gilliam, DVM, DACVIM; \*Nicola Di Girolamo, DVM, Msc, PhD, DECZM; \*Meredyth Jones, DVM, MS, DACVIM; \*John Kirkpatrick, DVM, DABVP (emeritus); Carolyn T. MacAllister, DVM (emeritus); \*Gregor L. Morgan, MVSc, PhD, DACT (emeritus); \*Michael J. Schoonover, DVM, MS, DACVS, DACVSMR;

**Assistant Professors:** \*Katelyn Fentiman, DVM, MS, ACVO; \*Dale Kelley, DVM, MS, PhD; \*Shane Lyon, DVM, DACVIM; \*Emily McCool, DVM; \*Fabio Pinaffi, DVM, MS, PhD; \*Megan Williams, DVM, DACVS

**Clinical Professor:** \*Marjorie Gross, DVM, MS, DACVA (emeritus); \*Robert Streeter, DVM, MS, DACVIM; \*Lara A. Sypniewski, DVM, DABVP;

**Clinical Associate Professor:** Kimberly D. Carter, DVM; \*Patricia Coan, DVM, PhD, DACLAM; \*Stefano Di Concetto, DVM, MS, DACVAA; \*Paul DeMars, DVM, CABVP; \*John Gilliam, DVM, DAVBP, DACVIM

**Adjunct Associate Professors:** Wei R. Chen, PhD; Alex Cohen, M.D. PhD; \*William Dubois, DVM, DABVP; \*Cheryl Lopate, DVM, MS, DACT; \*Mark Munson, MD

**Clinical Assistant Professors:** Rosslyn Biggs, DVM; \*Carrie Kuzma, DVM; Katrina Meinkoth, DVM; Sarah Peakheart, DVM; \*Asitha Vasudevan Pillai, DVM, MS

**Adjunct Assistant Professors:** \*Kay Backues, DVM, DACZM; \*Jennifer D'Agostino, DVM, DACZM; \*Lindsay Donnelly, DVM, MS, DACVIM

**Lecturer:** Jillian Paegelow, DVM

**Residents:** Samantha A. Bailey, DVM, Small Animal Internal Medicine (2018-2021); Emily Davis, DVM, Small Animal Internal Medicine (2019-2022); Donald Holter, DVM, Small Animal Surgery (2018-2021); Jane Park, DVM, Small Animal Surgery (2018-2021); Rodrigo Roca, DVM, Small Animal Surgery (2019-2022); Jessica Rutledge, DVM, Equine Internal Medicine (2017-2020); Hugh Duddy, DVM, Equine Surgery (2018-2021); Kelsey Jurek, DVM, Equine Surgery (2019-2022); Natasha Williams, DVM, Food Animal Medicine (2018-2021); Elizabeth Crabtree, DVM, Food Animal Medicine (2019-2022); Adam Bassett, DVM, Theriogenology (2019-2022); Evan Crisman, VMD Equine Internal Medicine (2020-2023); Michele Riehm, DVM Small Animal Internal Medicine (2020-2023); Elizabeth Soler, DVM Ophthalmology (2020-2023)

**Interns:** Brooke Bennett, DVM Shelter Surgery Medicine; Geghani Galustanian, DVM Small Animal Medicine and Surgery; Alys Harshbarger, DVM Food Animal; Alexandra Hoff, DVM Small Animal Medicine and Surgery; Imal Khelik, DVM Avian, Exotics and Zoological Medicine; Erin Koperna, DVM Small Animal Medicine and Surgery; Nicole Lacy, DVM Small Animal Medicine and Surgery; Robert McCarthy, DVM Equine Medicine and Surgery; Laura Taylor, DVM Small Animal Medicine and Surgery

**\*Board Certification in Specialty Area**

## Veterinary Pathobiology

Jerry Ritchey, DVM, PhD, DACVP—Professor and Department Head

The Department of Veterinary Pathobiology provides contemporary and state-of-the-art instruction and research for the disciplines of bacteriology, immunology, parasitology, pathology, virology, epidemiology and public health. The Department is the proud home of the National Center for Veterinary Parasitology, the Director of the University's Animal Resource Unit, and faculty associated with the Oklahoma Animal Disease Diagnostic Laboratory. Departmental faculty participate in research sponsored by the NIH, USDA and private industry focused on infectious diseases important in animals and people. The department is actively engaged in training the next generation of veterinarians and scientists, publishing basic and applied works and presenting our findings at scientific and educational platforms throughout the world.

### Residency Programs

**Residency Coordinators:** Dr. Valerie McElliott, Anatomic Residency Coordinator; and Dr. James H. Meinkoth, Clinical Residency Coordinator

Residency programs in anatomic and clinical veterinary pathology are offered. Candidates must have the DVM degree or equivalent. The anatomic and clinical pathology residency programs are three years with options to enter into the PhD program. The programs are designed for those interested in diagnostic veterinary pathology and board certification by the American College of Veterinary Pathologists. Residency training occurs through the Veterinary Medical Teaching Hospital and through the Oklahoma Animal Disease Diagnostic Laboratory. The program involves extensive diagnostic casework on primarily domestic animals and includes weekly case conferences and seminars. In addition, abundant archived materials are available for the specialty board preparation.

### Application Procedure

Usually one new residency training position is available each year in anatomic pathology and two of every three years in clinical pathology. Open positions are listed at the ACVP website (<https://www.acvp.org/>) and typically in the "Educational Opportunities" section of the Journal of the American Veterinary Medical Association.

### Faculty

\*Jerry Ritchey, DVM, PhD, DACVP—Professor and Department Head

**Regents Professors and Endowed Chairs:** \*Anthony W. Confer, DVM, PhD, DACVP (emeritus) and Walter R. Sitlington Endowed Chair; Clinton J. Jones, PhD, and Sitlington Endowed Chair; \*Susan Little, DVM, PhD, DAVPC-Parasitology and Krull/Ewing Endowed Chair

**Professors:** \*James H. Meinkoth, DVM, PhD, DACVP; Mason Reichard, PhD; \*Timothy Snider, DVM, PhD, DACVP

**Clinical Professors:** \*Todd Jackson, DVM, DACLAM; \*Theresa Rizzi, DVM, DACVP

**Associate Professors:** Tom Oomens, PhD; \*Akhilesh Ramachandran, BVSc&AH, PhD, DACV; \*Jared Taylor, DVM, MPH, PhD, DACVIM, DACVPM

**Assistant Professors:** Kelly Allen, MS, PhD; \*Fernando Vicoso Bauermann, DVM, PhD; \*Valerie McElliott, DVM, PhD, DACVP; \*Craig Miller, DVM, PhD, DACVP; \*Sunil More BVSc & AH, MVSc, PhD; \*Ruth C. Scimeca BVSc, PhD

**Clinical Assistant Professor:** \*Susan E. Fielder, DVM, DACVP

**Associate Research Professor:** Edmour Blouin, PhD (emeritus)

**Lecturer:** \*Dr. Jennifer Rudd, DVM, PhD; Meriam Saleh, PhD

**Research Scientist:** Mayara Maggioli

**Residents:** Katheryn Duncan, DVM; Dah Jiun Fu, DVM, Alexa Hunter, DVM; Ryan Kalish, DVM; Scott Mitchell, DVM; Stacy Woods, DVM

**Post-Doctoral Fellows:** Kelly Harrison, PhD; Jeff Ostler, PhD;

**Graduate Teaching Associates:** Laximan Sawant, BVSc, MVSc

**\*Board Certification in Specialty Area**

## Physiological Sciences

Martin Furr, DVM, Ph.D., Department Head

The Department of Physiological Sciences at Oklahoma State University contributes substantially to the teaching, research and service components of the College of Veterinary Medicine.

The department currently has 17 tenure/tenure-track, ten adjunct and two research track faculty members, ten postdoctoral fellows and approximately 21 graduate students.

Teaching responsibilities within the department include the areas of veterinary morphology, physiology, pharmacology and toxicology, providing professional coursework leading to the DVM degree and graduate coursework leading to the Master's and Doctor of Philosophy degrees. Departmental faculty have a wide range of research interests including neurotoxicology, lung biology, enzymology of drug metabolism, exercise physiology, reproductive physiology, therapeutics, comparative aging, cardiovascular physiology, raptor biology and cetacean biology. Extramural funding in support of research from agencies including NIH, DoD, USDA, American Cancer Society and others totals over \$2 million annually.

### Faculty

Martin Furr, PhD—Professor and Department Head

**Regents Professors:** Lin Liu, BS, PhD (Lundberg-Kienlen Professor of Biomedical Research); Carey N. Pope, PhD (Sitlington Chair in Toxicology)

**Professors:** James E. Breazile, DVM, PhD (emeritus); Nicholas L. Cross, PhD (emeritus); \*Michael S. Davis, DVM, MS, PhD (Oxley Chair in Equine Sports Medicine); Veronique Lacombe, DVM, PhD, Diplomate ACVIM, Diplomate ECEIM; Jerry R. Malayer, PhD; \*Dianne McFarlane, MS, DVM, PhD (Ricks Rapp Professorship); Lara K. Maxwell, DVM, PhD; Charlotte L. Ownby, MS, PhD (emeritus); Ashish Ranjan, BVSc, PhD (Kerr Endowed Chair); Chris Ross, DVM, PhD; Alastair G. Watson, BVSc, PhD (emeritus)

**Adjunct Professors:** David W.A. Bourne, MS, PhD; Stephen Brimijoin, BA, PhD; Larry P. Gonzalez, BS, MA, PhD; Terence H. Risby, PhD

**Associate Professors:** Jill Akkerman, DVM, PhD; Guangping Chen, MS, PhD; Myron Hinsdale, DVM, PhD; James W. Lish, MS, PhD (emeritus); Pamela G. Lovern, BA, PhD; Joseph P. McCann, PhD; \*Sandra E. Morgan, MS, DVM (emerita); Larry E. Stein, PhD (emeritus)

**Adjunct Associate Professors:** Joseph R. Bidwell, BSc, MSc, PhD; David R. Wallace, BS, PhD; Guolong Zhang, BS, MS, PhD

**Assistant Professors:** Joshua Butcher, M.S., PhD; Madhan Subramanian, BVSc, PhD

**Adjunct Assistant Professor:** Terry A. Gipson, BS, MS, PhD

**Assistant Research Professors:** Chaoqun Huang, MD, PhD

**Research Associate:** Yurong Liang, BS, PhD; M. Cristina Munteanu, MS, PhD

**Post-Doctoral Fellows:** Allison Campolo, PhD; Kirstin Hester, PhD; Sri Nandhini Sethuraman, BVSc, MVSc; Akansha Singh, PhD; Kishor Vaddadi, PhD; PhD

**Graduate Teaching Associates:** Harshini Ashar, BVSc, MVSc; Bridgette French-Harbitson, BS, MS; Girish Patil, MVSc; Mohit Singh, MVSc; Kun Song, BS; Joshua VanOsdol, BS; Nishani Wijesekera, BVSc; Dao Xu, BS

**Graduate Research Associates:** Gayan Bamunuarachchi, BS; Mike Gorbet, BS; Sugandhika Gothami, BS; Wenzhuo Hao, BS, MS; Kong Lin, BS; Stacey Herriage, BA; Robert Jeyasingh, BVSc; Kirstin Hester, BS; Raisa Monteiro, BVSc; Shannon Remerowski, BS, DVM; Oluwayemisi Semola, U; Lakmini Senavirathna, BS

**Staff:** Montana Fulton, RVT; Dallas Karcher, BS; Erin Langford-Loftis, BS; Christopher H. Pivinski, BS; Lana Schler, BS; Jessica Schultz, MS, BS

**\*Board Certification in Specialty Area**