

Status: PENDING

**PROGRAM REQUEST**  
Comparative and Veterinary Medicine

Last Updated: Myers, Dena Elizabeth  
03/07/2011

<b>Fiscal Unit/Academic Org</b>	Veterinary Medicine Admin - D2900
<b>Administering College/Academic Group</b>	Veterinary Medicine
<b>Co-administering College/Academic Group</b>	
<b>Semester Conversion Designation</b>	Converted with minimal changes to program goals and/or curricular requirements (e.g., sub-plan/specialization name changes, changes in electives and/or prerequisites, minimal changes in overall structure of program, minimal or no changes in program goals or content)
<b>Current Program/Plan Name</b>	Comparative and Veterinary Medicine
<b>Proposed Program/Plan Name</b>	Comparative and Veterinary Medicine
<b>Program/Plan Code Abbreviation</b>	CVM-MS
<b>Current Degree Title</b>	Master of Science

**Credit Hour Explanation**

Program credit hour requirements		A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours required for completion of program		45	30.0	30	0.0
Required credit hours offered by the unit	Minimum				
	Maximum				
Required credit hours offered outside of the unit	Minimum				
	Maximum				
Required prerequisite credit hours not included above	Minimum				
	Maximum				

**Program Learning Goals**

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

**Program Learning Goals**      • See attached document

**Assessment**

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? Yes

Does the degree program or major have an assessment plan on file with the university Office of Academic Affairs? No

**DIRECT MEASURES (means of assessment that measure performance directly, are authentic and minimize mitigating or intervening factors)**

**Classroom assignments**

- Embedded testing (i.e. specific questions in homework or exams that allow faculty to assess students' attainments of a specific learning goal)
- Other classroom assessment methods (e.g., writing assignments, oral presentations, oral exams)

**Evaluation of a body of work produced by the student**

- Capstone course reports, papers, or presentations

**Direct assessment methods specifically applicable to graduate programs**

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- Candidacy exams
- Research proposals written and grants awarded
- Thesis/dissertation oral defense and/or other oral presentation
- Thesis/dissertation (written document)
- Publications
- Other: Job placement, first and current position

**INDIRECT MEASURES (means of assessment that are related to direct measures but are steps removed from those measures)**

**Surveys and Interviews**

- Student survey
- Student evaluation of instruction
- Student interviews or focus groups

**Additional types of indirect evidence**

- Job or post-baccalaureate education placement
- Student or alumni honors/recognition achieved
- Peer review of program
- External program review
- Curriculum or syllabus review
- Comparison or benchmarking

**USE OF DATA (how the program uses or will use the evaluation data to make evidence-based improvements to the program periodically)**

- Meet with students directly to discuss their performance
- Analyze and discuss trends with the unit's faculty
- Analyze and report to college/school
- Analyze and report to accrediting organization
- Make improvements in curricular requirements (e.g., add, subtract courses)
- Make improvements in course content
- Make improvements in course delivery and learning activities within courses
- Make improvements in learning facilities, laboratories, and/or equipment
- Periodically confirm that current curriculum and courses are facilitating student attainment of program goals
- Benchmark against best programs in the field

**Program Specializations/Sub-Plans**

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

**Pre-Major**

Does this Program have a Pre-Major? No

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**Attachments**

- CVM Grad Program Goals.doc: Program Goals  
*(Other Supporting Documentation. Owner: Morscher,Michele Louise)*
- Program Rationale MS.doc: Program Rationale MS  
*(Program Rationale Statement. Owner: Morscher,Michele Louise)*
- Grad Program Curriculum Summary MS.doc: Curriculum Summary MS  
*(Curricular Map(s). Owner: Morscher,Michele Louise)*
- DeanletterGradProgSemesters.doc.pdf: Dean Letter of Support  
*(Support/Concurrence Letters. Owner: Morscher,Michele Louise)*

**Comments**

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Morscher,Michele Louise	02/25/2011 12:47 PM	Submitted for Approval
Approved	Olson,Lynne E	02/25/2011 12:59 PM	Unit Approval
Approved	Dibartola,Stephen Paul	03/03/2011 12:02 PM	College Approval
Approved	Myers,Dena Elizabeth	03/07/2011 03:06 PM	GradSchool Approval
Pending Approval	Soave,Melissa A	03/07/2011 03:06 PM	CAA Approval



February 22, 2011

College of Veterinary Medicine

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Office of Academic Affairs  
203 Bricker Hall  
190 North Oval Mall  
Columbus OH 43210-1358

Dear Office of Academic Affairs:

On behalf of the College of Veterinary Medicine, we are pleased to recommend for approval the Program Plan for our graduate programs leading to the MS and PhD degrees. This submission contains the details of our program conversion, and by the summer of 2011, we will be able to add in more details about elective coursework available to students in other departments outside of our college.

Our three graduate programs (Veterinary Biosciences, Veterinary Clinical Sciences, and Veterinary Preventive Medicine) were merged into a single program in 2010. During the merger process, we revised our program goals and created several programs and policies to ensure quality, such as an program handbook, annual student review and a college-wide Council for Graduate Studies. Many of the standards established for the program merger will remain in place through the semester conversion.

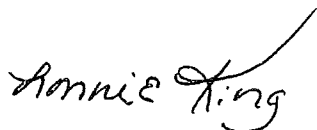
In the College, an ad-hoc conversion committee consisting of staff and faculty from the Office of Graduate Studies and the Council on Education led the process of the merger and the semester conversion. They reviewed course information sheets that were submitted by faculty and followed up individually with faculty members when discrepancies or were found. Within the department of Clinical Sciences, the Post-Professional Education Committee also spent extensive time reviewing and revising the courses that make up the residency training program and research methods series. Following are some of the milestones completed during the process:

- Development of updated program goals;
- Revision of the Research Methods I and II courses to better fit student needs and interest;
- Formalization of many courses that have been previously taught as independent study;
- Several faculty forums to discuss proposed new courses and substantial changes in existing courses in the curriculum;
- Complete re-design of numbering system for courses;

- Meetings of *ad hoc* faculty groups interested in specific aspects of our coursework (e.g. infectious diseases, clinical reasoning, research methods, etc) to determine the best way to convert these courses.

Throughout the conversion process, the College's Council for Graduate Studies served as a venue to discuss and approve initiatives that arose from faculty discussions and the work of the *ad hoc* committee. We acknowledge and appreciate the constructive nature of these discussions and the willingness of faculty to participate in the process and be receptive to change. Improving and monitoring our newly-merged graduate program remains a work in process, and the College plans to continue assessment and improvement before, during, and after semester conversion.

Sincerely,



Lonnie J. King, DVM, MS, MPA, ACVPM  
Dean  
Ruth Stanton Chair in Veterinary Medicine  
Professor, Veterinary Preventive Medicine



Michael Lairmore, DVM, PhD  
Associate Dean for Research and  
Graduate Studies  
Professor, Veterinary Biosciences

**The Ohio State University**  
**MS Graduate Program in Comparative and Veterinary Medicine**  
**Goals**

In May, 2010, the Ohio State Board of Regents approved the merger of the three graduate programs in the College of Veterinary Medicine (Veterinary Biosciences, Veterinary Clinical Sciences, and Veterinary Preventive Medicine) into a single program, the Graduate Program in Comparative and Veterinary Medicine. Through the process of merging the three graduate programs, college faculty and staff have identified goals of the new graduate program, which will remain the goals of the program through the semester conversion.

The MS degree gives students the opportunity to gain additional knowledge and necessary skills in a field of study offered by the CVM graduate program. The MS program is designed to train the student in specific research skills and other scholarly activities, to teach and to become practitioners of their field of study. Note that the MS (30 total credits) and PhD (80 total credits) degrees in Comparative and Veterinary Medicine each require that students take a minimum of 20 credits of graded, didactic coursework, 2 credits of which must be a course in biostatistics and research methods.

The program goals are therefore:

- To prepare research scientists for careers in academia, government, and industry through didactic course offerings and research in field and/or laboratory settings.
- To establish an educational program that emphasizes cross disciplinary research contributing to improvement of animal and human health.
- To nurture education in translational and population medicine as it applies to discoveries in basic science and progression to clinical application.
- To assist young scientists in acquiring skill sets in experimental medicine, grantsmanship, scholarship and project management that will prepare them to assume leadership roles in academia, research institutes and the biomedical industry.

The graduate program at The Ohio State University College of Veterinary Medicine offers a unique approach to advanced training of professional and graduate students leading to MS and PhD degrees in preparation for careers in biomedical, clinical, and field-based epidemiological research. Significant need exists at the national and international levels for skilled scientists who are trained in modern translational research methods to apply advances in medicine to improve animal and human health. Recognizing the commonality between human and animal medicine, translational research at the College of Veterinary Medicine is at the forefront of advancing discoveries in basic research that can be taken from the field, clinic, or laboratory bench and applied to the patient's bedside and to the population as a whole.

## Program Rationale

### Graduate Program in Comparative and Veterinary Medicine – MS

#### Justification for the newly approved Graduate Program in Comparative and Veterinary Medicine

In May, 2010, the Ohio State Board of Regents approved the merger of the three graduate programs in the College of Veterinary Medicine (Veterinary Biosciences, Veterinary Clinical Sciences, and Veterinary Preventive Medicine) into a single program, the Graduate Program in Comparative and Veterinary Medicine. Students in the three departmental graduate programs selected whether or not to join the new graduate program or to stay in their old graduate program. 80% of the students chose to join the new program. Effective autumn quarter, 2010, students were only admitted into the new combined graduate program. Although, based on the number of new graduate courses being offered, it appears that the program has undergone significant change, this is misleading. The changes in courses reflect the continuation of the implementation of the merged college programs.

As a part of the merger process, the three CVM graduate programs were evaluated and revised in order to increase the cross-disciplinary educational environment in response to the unmet need discussed in several reports by the National Academies and referred to in the External Review of two of our departments (VBS and VCS). In summary, the failure to produce adequate numbers of veterinarian scientists is impacting academia, where there are inadequate numbers of veterinarians with advanced doctoral degrees to fill open faculty positions. Equally in demand are important positions in corporations particularly in the pharmaceutical industry (discovery through safety assessment, and mechanistic pathobiology). Corporations have shown their concern about inadequate sources of skilled scientists by directly funding programs within select universities. OSU has received a number of these fellowships. Government also lacks adequate senior-level veterinarian scientists to meet the needs of Food and Drug Administration, United States Department of Agriculture, National Institutes of Health and Homeland Security, which are at a critical national level. The National Academies report “estimates [that] 658 additional [post DVM] graduates need to matriculate each year in all disciplines to meet the needs of public practice.” (*Critical Needs for Research in Veterinary Science*, National Academies Press, 2005 pp 154-155).

OSU is unique, with the exception of the University of Minnesota, in having Colleges of Medicine, Veterinary Medicine, Pharmacy, Public Health, Dentistry and Optometry on the same campus. Only seven universities in North America have both colleges of medicine and veterinary medicine on the same campus. OSU is among five of the thirty universities with Clinical and Translational Science Awards (CTSA) that have Colleges of Veterinary Medicine. Comparative and translational medicine, as well as epidemiology, which cross the boundaries of animal and human medicine, are of interest to all of the medical colleges. Therefore, the OSU College of Veterinary Medicine is uniquely positioned to expand its program in comparative, translational and population medicine in a way that few other universities are able.

The newly-merged graduate program in the College of Veterinary Medicine (CVM) is perfectly aligned with the six strategies that define Ohio State’s Academic Plan and the signature programs of the College of Medicine. The second OSU strategy to “develop academic programs that define Ohio State as the nation’s leading public land-grant university” is where the College of Veterinary Medicine will perhaps have its greatest impact and play an essential role for the

University as a whole. The CVM is the only veterinary school in the State of Ohio. The graduate program in veterinary medicine is essential for ensuring animal health, production and welfare, and public health and it contributes to biomedical, as well as corporate and government research. The land-grant mission dictates that this essential graduate program must be present and of a quality and size to fulfill the needs of the state and the nation.

The departmental graduate programs in the College of Veterinary Medicine have produced high quality graduates for decades. The recent merger has added value by creating an environment for cross disciplinary training and promotion of translational medicine. With the Quarter-to-Semester Conversion, our aim is to continue to maintain the high quality standards of our program and minimize the burden for students and faculty.

### Details of the Program and Semester Conversion Process

The combined graduate program reflects a broad scope of disciplines as they apply to Veterinary Medicine and Comparative Medicine, which includes teaching and/or research in anatomy, cellular and molecular biology, microbiology and immunology, anatomic and clinical pathology, pharmacology and physiology, epidemiology, veterinary public health, food safety, population medicine and herd health, and veterinary medical specialties. The combined program offers areas of study leading to the MS and PhD degrees with flexibility that allows students and faculty to custom design academic programs with careful guidance toward attainment of career goals of the student. DVM graduate students may pursue graduate studies in combination with training in preparation for certification by the American Veterinary Medical Association recognized specialty boards (“residency training”). These disciplines are linked through the concept of “One Health”, which is shown in the following figure.



During the merger process, the program goals were revised and program policies were created to ensure the continuation of high-quality graduate programs. The program is overseen by the college-wide Council for Graduate Studies, which includes members from each of the three departments. There is either membership overlap or close coordination between the Council for Graduate Students and the residency committees. The operations of the MS and PhD programs are contained in a Graduate Program Handbook that is available on-line (see <http://vet.osu.edu/assets/pdf/education/graduatePrograms/cvmGraduateProgramHandbook.pdf>). This handbook will be revised to reflect semester credits and the new course numbering system



prior to Summer 2012. The only programmatic changes will be to convert the quarter credit requirements to semester-credit requirements using the standard 2/3 conversion factor. There is a College Graduate Program Coordinator who assists with the administration of the academic programs. The Program Coordinator has participated in the semester conversion process and will facilitate the implementation of the transition plan.

An ad hoc conversion committee consisting of faculty and staff from the Office of Graduate Studies and the Council on Education led the process of both the program merger and the semester conversion. They reviewed course information sheets that were submitted by faculty and followed up individually with faculty members when discrepancies were found. Within the department of Clinical Sciences, the Post-Professional Education Committee also spent extensive time reviewing and revising the courses that make up the residency training program and research methods series. Some of the milestones completed during this process include:

- Development of updated program goals
- Revision of the Research Methods I and II courses to better fit student needs and interests
- Elimination of approximately 15 courses that were no longer being taught. Some of this material was moved into new or newly revised courses.
- Re-design of the course numbering system for consistency among departments. This numbering process has been documented and will be followed as new courses are created and approved.
- Creation of approximately 30 new didactic courses, many of which have been taught as independent studies and have now been formalized as a part of the semester conversion process. These course proposals were reviewed by the Council for Graduate Studies and, in some cases, also by the Professional Electives Committee and the Post-Professional Education Committee. See below for a complete listing of graduate courses that have been submitted for conversion.

Faculty teaching new courses will be required to submit a draft syllabus for the new course for review and final approval tentatively by December of 2011. The syllabi will be reviewed by the Council for Graduate Studies and other college committees as necessary.

### ***General MS Requirements***

Students in MS program in Comparative and Veterinary Medicine will be required to take 30 semester hours of credit. Twenty of those hours must be graded, didactic coursework. Two of the 20 didactic coursework semester credits must be in biostatistics and research methods. We anticipate that many of the students will complete this requirement with courses from the Veterinary Clinical Sciences Research Methods series (see VetClin 8781, 8782, 8783 and 8784). Students may take courses both inside and outside the College as part of their degree program. A complete listing of graduate courses offered within the college is shown below. Students whose research involves topics such as Biochemistry, Epidemiology, Immunology, Microbiology, Oncology, Pharmacology, or Virology will enroll for courses in other departments as directed by their advisor. The Graduate Program Handbook includes a listing of suggested courses, including other biostatistics and research methods courses that meet the program requirement, grouped by discipline. The current listing of courses under the quarter system is

listed in Appendix A. This listing will be updated as departments external to the college update their course offerings. In addition to coursework, students are required to give a seminar presentation, complete a body of original work suitable for a thesis, and pass the master's examination. (There is no non-thesis MS option available in the program).

The masters program is designed to be flexible in order to permit students to tailor their programs to their career goals. It introduces students to the scientific method and to some of the statistical and laboratory techniques with which to apply it. The student and advisor, with the assistance of the advisory committee (selected by the end of year 1) design a program designed to train the student in specific research skills and other scholarly activities, to teach, and to become practitioners of their field of study. The advisor has the responsibility of overall coordination of the course of study and research of the graduate student, advising the student in the conduct of scientific research, evaluating and promoting effective writing and oral communication and monitoring the progress of the student.

Each student in good academic standing will be evaluated in a meeting with the advisory committee on a yearly basis. A sample copy of the progress evaluation form is included in Appendix A. The completed form is returned to the Council for Graduate Students, which reviews the information to assure that both the advisor and the student are fulfilling their responsibilities. The completed form becomes a part of the student's permanent record. Students on academic probation are monitored and counseled on a regular basis by the Graduate School, the advisor and the Council for Graduate Students.

In addition, students who are pursuing the MS in conjunction with medical specialty residency training are overseen by residency committees. These committees may have specific coursework requirements in addition to the 2 semester credits of biostatistics and research methods, which are detailed in the specific residency documents.

### **Transition plan**

Good communication is essential to having the conversion process run smoothly. The Associate Dean for Research and Graduate Studies, in conjunction with the Council for Graduate Studies, will work with college staff and student leaders to keep them informed about the transition plans. According to the "Pledge to Students" document, the registrar's office will multiply the credit hours taken on the quarter system by 2/3 to calculate total semester credit hour equivalent. This will permit students to work with their advisors to determine how they will meet the remaining coursework requirements.

As noted above, the program has a system in place that monitors student progress on a yearly basis, which will help assure that no students are disadvantaged by the conversion process. In addition, the flexibility of the program coursework requirements and the active involvement of the advisory committee will help students arrange suitable coursework during the transition period.

The coursework specified for the combined MS/residency program is offered within the college (See Graduate Courses below). The residency committees have determined the sequence of course offerings during the transition to assure that students will be able to progress through the program unimpeded by the transition to semesters.

COLLEGE OF VETERINARY MEDICINE - GRADUATE PROGRAM COURSES

Department	Course Number	Course Title	Units Minimum	Units Maximum	Rank Doctoral	Rank Master's	Rank Professional
VETBIOS	6640	Fundamentals of Oncology	4	4	Yes	Yes	Yes
VETBIOS	7193	Individual Studies in Veterinary Biosciences	1	8	Yes	Yes	Yes
VETBIOS	7194	Group Studies in Veterinary Biosciences	1	1	Yes	Yes	Yes
VETBIOS	7195	Group Studies in Veterinary Biosciences	1	1	Yes	Yes	Yes
VETBIOS	7196	Individual Studies in Veterinary Biosciences	1	5	Yes	Yes	Yes
VETBIOS	7711	Basic Macroscopic Pathology	1	1	Yes	Yes	Yes
VETBIOS	7715	Applied Virology	1	1	Yes	Yes	Yes
VETBIOS	7717	Veterinary, Comparative, and Translational Immunology	1	1	Yes	Yes	Yes
VETBIOS	7720	Applied Histopathology	1	1	Yes	Yes	Yes
VETBIOS	7721	Laboratory Animal Medicine	2	2	Yes	Yes	Yes
VETBIOS	7730	Endocrinology	4	4	Yes	Yes	Yes
VETBIOS	7741	Molecular Biology and Pathogenesis of Viruses	5	5	Yes	Yes	Yes
VETBIOS	7751	Professional and Ethical Issues in Biomedical Research	1	1	Yes	Yes	No
VETBIOS	7790	Electrocardiography	2	2	Yes	Yes	Yes
VETBIOS	7792	Prototypical Cardiovascular Diseases	2	2	Yes	Yes	Yes
VETBIOS	7793	Advanced Comparative Electrocardiography	2	2	Yes	Yes	Yes
VETBIOS	7807	Gene Expression: Post-Transcriptional Control	3	3	Yes	Yes	Yes
VETBIOS	7851	Teaching in the veterinary curriculum	2	2	Yes	Yes	No
VETBIOS	7895	Seminar in Veterinary Biosciences	1	1	Yes	Yes	Yes
VETBIOS	7896	Advanced Topics in Veterinary Biosciences	1	1	Yes	Yes	Yes
VETBIOS	8739	Specialty Training in Clinical Pathology	1	10	Yes	Yes	No
VETBIOS	8801	Advanced Veterinary Anatomy of Carnivores	3	3	Yes	Yes	Yes
VETBIOS	8802	Advanced Anatomy of Herbivores	5	5	Yes	Yes	No
VETBIOS	8810	Advanced Systemic Pathology 1: Laboratory Animal Pathology	2	2	Yes	Yes	No
VETBIOS	8811	Advanced Systemic Pathology 2	2	2	Yes	Yes	No
VETBIOS	8812	Advanced Systemic Pathology 3	2	2	Yes	Yes	No
VETBIOS	8813	Advanced Systemic Pathology 4	2	2	Yes	Yes	No
VETBIOS	8891	Research Seminar in Veterinary Biosciences	1	1	Yes	Yes	Yes
VETBIOS	8893	Case Conference	1	3	Yes	Yes	No
VETBIOS	8894	Case Conference	1	3	Yes	Yes	No
VETBIOS	8894.01	Applied Comparative Pathology	1	4	Yes	Yes	No
VETBIOS	8894.02	Veterinary Surgical Pathology	1	1	Yes	Yes	No
VETBIOS	8895	Advanced Topics in Veterinary Biosciences	1	1	Yes	Yes	No
VETBIOS	8895.02	Seminars in Diagnostic Veterinary Pathology	1	1	Yes	Yes	No
VETBIOS	8895.03	Seminar in Veterinary Clinical Pathology	1	1	Yes	Yes	No
VETBIOS	8895.04	Veterinary Histopathology Seminar	1	1	Yes	Yes	No
VETBIOS	8896	Advances Topics in Veterinary Biosciences	1	1	Yes	Yes	No
VETBIOS	8896.01	Current Topics in Comparative & Translational Immunology	1	1	Yes	Yes	Yes
VETBIOS	8999	Research in Veterinary Biosciences	1	10	Yes	No	No
VETCLIN	7193	Independent Studies in Veterinary Clinical Sciences	1	8	Yes	Yes	Yes
VETCLIN	7194	Group Studies in Veterinary Clinical Sciences	1	3	Yes	Yes	No
VETCLIN	7195	Group Studies in Veterinary Clinical Sciences	1	3	Yes	Yes	Yes
VETCLIN	7196	Individual Studies in Veterinary Clinical Sciences	1	6	Yes	Yes	Yes

COLLEGE OF VETERINARY MEDICINE - GRADUATE PROGRAM COURSES

Department	Course Number	Course Title	Units Minimum	Units Maximum	Rank Doctoral	Rank Master's	Rank Professional
VETCLIN	7729	Pet Loss Education and Grief Support	1	2	Yes	Yes	Yes
VETCLIN	7746	Cattle Diseases	4	4	Yes	Yes	Yes
VETCLIN	7747	Small ruminant medicine and surgery	2	2	Yes	Yes	Yes
VETCLIN	7751.00	Equine Anesthesiology	1	1	Yes	Yes	Yes
VETCLIN	7753	Small Animal Pain Management	1	1	Yes	Yes	Yes
VETCLIN	7771	Applied Veterinary Clinical Dermatology	1	1	Yes	Yes	Yes
VETCLIN	7772	Large Animal Cardiology	1	1	Yes	Yes	Yes
VETCLIN	7791	Small Animal Theriogenology	1	1	Yes	Yes	Yes
VETCLIN	7792	Advanced Theriogenology Laboratory	1	1	Yes	Yes	Yes
VETCLIN	7793	Lectures in Equine Theriogenology	2	2	Yes	Yes	Yes
VETCLIN	7895	Seminar in Veterinary Clinical Sciences	1	1	Yes	Yes	Yes
VETCLIN	7895.02	Seminar in Reproductive Physiology and Medicine	1	1	Yes	Yes	Yes
VETCLIN	7896	Advanced Topics in Veterinary Clinical Sciences	1	1	Yes	Yes	No
VETCLIN	8781	Research Methods and Grantsmanship	1	1	Yes	Yes	No
VETCLIN	8783	Experimental Design & Data Analysis in Veterinary & Comparative Medicine I	1	1	Yes	Yes	No
VETCLIN	8784	Experimental Design & Data Analysis in Veterinary & Comparative Medicine II	1	1	Yes	Yes	No
VETCLIN	8785	Techniques in Ophthalmic and Vision Research I	1	1	Yes	Yes	No
VETCLIN	8786	Techniques in Ophthalmic and Vision Research II	1	1	Yes	Yes	No
VETCLIN	8787	Molecular techniques in veterinary medicine	1	1	Yes	Yes	No
VETCLIN	8788	Advanced Ophthalmic Research Techniques	1	1	Yes	Yes	No
VETCLIN	8789	Advanced Ophthalmic Research Techniques	1	1	Yes	Yes	No
VETCLIN	8822.02	Advanced Veterinary Internal Medicine: Gastroenterology	2	2	Yes	Yes	No
VETCLIN	8822.03	Advanced Veterinary Internal Medicine: Respiratory Disease	2	2	Yes	Yes	No
VETCLIN	8822.04	Advanced Veterinary Internal Medicine: Neurology	2	2	Yes	Yes	No
VETCLIN	8822.05	Advanced Veterinary Internal Medicine: Cardiovascular Diseases	2	2	Yes	Yes	No
VETCLIN	8822.06	Advanced Veterinary Internal Medicine: Nephrology and Urology	2	2	Yes	Yes	No
VETCLIN	8822.07	Advanced Veterinary Internal Medicine: Hematology and Oncology	2	2	Yes	Yes	No
VETCLIN	8822.08	Advanced Veterinary Internal Medicine: Hepatology	2	2	Yes	Yes	No
VETCLIN	8822.09	Advanced Veterinary Internal Medicine: Dermatology	2	2	Yes	Yes	No
VETCLIN	8822.10	Advanced Veterinary Internal Medicine: Clinical Ophthalmology	1	1	Yes	Yes	No
VETCLIN	8822.11	Advanced Veterinary Internal Medicine: Comparative Structure and Function of the Integument	2	2	Yes	Yes	No
VETCLIN	8822.12	Advanced Veterinary Internal Medicine: Otology and Audiology	1	1	Yes	Yes	No
VETCLIN	8823	Veterinary Core Communications Skill Competency	1	1	Yes	Yes	No
VETCLIN	8833.01	Advanced Veterinary Surgery: Anesthesia & Critical Care	1.5	1.5	Yes	Yes	No
VETCLIN	8833.03	Advanced Veterinary Surgery: Respiratory and Thoracic Surgery	2	2	Yes	Yes	No
VETCLIN	8833.04	Advanced Veterinary Surgery: Surgical Neurology	2	2	Yes	Yes	No
VETCLIN	8833.06	Advanced Veterinary Surgery: Renal, Urologic and Reproductive Surgery	2	2	Yes	Yes	No
VETCLIN	8833.07	Advanced Veterinary Surgery: Musculoskeletal Surgery	1	1	Yes	Yes	No
VETCLIN	8833.09	Advanced Veterinary Surgery: Oncologic and Reconstructive Surgery	1	1	Yes	Yes	No
VETCLIN	8833.10	Advanced Veterinary Ocular Microsurgical Techniques I	1	1	Yes	Yes	No
VETCLIN	8833.11	Advanced Veterinary Ocular Microsurgical Techniques II	1	1	Yes	Yes	No
VETCLIN	8844.01	Advanced Large Animal Internal Medicine: Clinical Pharmacology	1.5	1.5	Yes	Yes	No
VETCLIN	8844.02	Advanced Large Animal Internal Medicine: Medical and Surgical Gastrointestinal Diseases	2.5	2.5	Yes	Yes	No

**COLLEGE OF VETERINARY MEDICINE - GRADUATE PROGRAM COURSES**

Department	Course Number	Course Title	Units Minimum	Units Maximum	Rank Doctoral	Rank Master's	Rank Professional
VETCLIN	8844.03	Advanced Large Animal Internal Medicine: Metabolic and Endocrine Diseases	1.5	1.5	Yes	Yes	No
VETCLIN	8844.04	Advanced Large Animal Internal Medicine: Neurology	2.5	2.5	Yes	Yes	No
VETCLIN	8844.05	Advanced Large Animal Internal Medicine: Hematology and Oncology	2.5	2.5	Yes	Yes	No
VETCLIN	8844.06	Advanced Large Animal Internal Medicine: Musculoskeletal Diseases	1	1	Yes	Yes	No
VETCLIN	8844.07	Advanced Large Animal Internal Medicine: Cardiovascular Medicine	2.5	2.5	Yes	Yes	No
VETCLIN	8844.08	Advanced Large Animal Internal Medicine: Hepatology	0.5	0.5	Yes	Yes	No
VETCLIN	8844.09	Advanced Large Animal Internal Medicine: Principles of Fluid and Electrolyte Balance	0.5	0.5	Yes	Yes	No
VETCLIN	8844.10	Advanced Large Animal Internal Medicine: Respiratory Diseases	2.5	2.5	Yes	Yes	No
VETCLIN	8844.11	Advanced Large Animal Internal Medicine: Infectious Disease	1.5	1.5	Yes	Yes	No
VETCLIN	8844.12	Advanced Large Animal Internal Medicine: Toxicology	1	1	Yes	Yes	No
VETCLIN	8871	Small Animal Abdominal Ultrasound	1	1	Yes	Yes	No
VETCLIN	8891	Seminar in Veterinary Clinical Sciences	1	1	Yes	Yes	No
VETCLIN	8893	Case Conference	1	3	Yes	Yes	No
VETCLIN	8893.01	Case Conference: Orthopedic Surgery	1	1	Yes	Yes	No
VETCLIN	8893.02	Clinicopathologic Conference: Canine and Feline Medicine	1	1	Yes	Yes	No
VETCLIN	8893.03	Case Conference: Soft Tissue Surgery	1	1	Yes	Yes	No
VETCLIN	8893.04	Case Conference: Radiology	1	1	Yes	Yes	No
VETCLIN	8894	Case Conference	1	3	Yes	Yes	No
VETCLIN	8894.01	Advanced Comparative Clinical Ophthalmology I	1	1	Yes	Yes	No
VETCLIN	8894.02	Advanced Comparative Clinical Ophthalmology II	1	1	Yes	Yes	No
VETCLIN	8894.03	Advanced Comparative Clinical Ophthalmology III	1	1	Yes	Yes	No
VETCLIN	8894.04	Case Conference: Radiology	1	1	Yes	Yes	No
VETCLIN	8895	Advanced Topics in Veterinary Clinical Sciences	1	1	Yes	Yes	No
VETCLIN	8895.01	Advanced Topics in Veterinary Cardiology	1	2	Yes	Yes	No
VETCLIN	8895.02	Advanced Topics in Veterinary Clinical and Comparative Oncology	1	1	Yes	Yes	No
VETCLIN	8895.03	Advanced Topics in Veterinary Dermatology and Otology	1	1	Yes	Yes	No
VETCLIN	8895.04	Advanced Topics in comparative Diagnostic Imaging	1	1	Yes	Yes	No
VETCLIN	8895.07	Advanced Topics in Veterinary Neurology	2	2	Yes	Yes	No
VETCLIN	8895.08	Advanced Topics in Comparative Anesthesiology	1	1	Yes	Yes	No
VETCLIN	8895.12	Advanced Comparative Ophthalmology	1	1	Yes	Yes	No
VETCLIN	8896	Advanced Topics in Veterinary Clinical Sciences	1	1	Yes	Yes	No
VETCLIN	8896.01	Advanced Topics in Comparative Ophthalmology	1	1	Yes	Yes	No
VETCLIN	8896.03	Advanced Topics in Veterinary Dermatology and Otology	1	1	Yes	Yes	No
VETCLIN	8896.04	Dermatopathology I	1	1	Yes	Yes	No
VETCLIN	8896.05	Dermatopathology II	1	1	Yes	Yes	No
VETCLIN	8896.06	Dermatopathology III	1	1	Yes	Yes	No
VETCLIN	8896.07	Advanced Topics in Veterinary Neurology	2	2	Yes	Yes	No
VETCLIN	8896.08	Advanced Topics in Comparative Anesthesiology	1	1	Yes	Yes	No
VETCLIN	8896.09	Comparative Ocular Histology I	1	1	Yes	Yes	No
VETCLIN	8896.10	Comparative Ocular Histology II	1	1	Yes	Yes	No
VETCLIN	8896.11	Comparative ocular histology III	1	1	Yes	Yes	No
VETCLIN	8896.12	Advanced Comparative Ophthalmology	1	1	Yes	Yes	No
VETCLIN	8999	Research in Veterinary Clinical Sciences	1	10	Yes	No	No

COLLEGE OF VETERINARY MEDICINE - GRADUATE PROGRAM COURSES

Department	Course Number	Course Title	Units Minimum	Units Maximum	Rank Doctoral	Rank Master's	Rank Professional
VETPREV	5775	Introduction to Production Agricultural Medicine	1	1	Yes	Yes	Yes
VETPREV	7193	Individual Studies in Veterinary Preventive Medicine	1	8	Yes	Yes	Yes
VETPREV	7194	Group Studies in Veterinary Preventive Medicine	1	1	Yes	Yes	No
VETPREV	7195	Group Studies in Veterinary Preventive Medicine	1	1	Yes	Yes	No
VETPREV	7196	Independent Study in Veterinary Preventive Medicine	1	6	Yes	Yes	Yes
VETPREV	7700	Molecular Epidemiology of Infectious Diseases	3	3	Yes	Yes	Yes
VETPREV	7721	Epidemiology of Zoonotic Diseases	3	3	Yes	Yes	Yes
VETPREV	7722	Foodborne diseases, food animal production systems, and food safety	3	3	Yes	Yes	Yes
VETPREV	7730	Emerging Zoonotic Diseases in a Global Context	2	2	Yes	Yes	Yes
VETPREV	7735	Veterinary Practice Management	2	2	Yes	Yes	Yes
VETPREV	7743	Basic Exotic Animal Medicine - Small Mammals	2	2	Yes	Yes	Yes
VETPREV	7745	Basic Exotic Medicine -- Non Mammalian	1	1	Yes	Yes	Yes
VETPREV	7770	Zoo and Wildlife Medicine I	1	1	Yes	Yes	Yes
VETPREV	7771	Zoo and Wildlife Medicine II	2	2	Yes	Yes	Yes
VETPREV	7772	Wildlife Disease Ecology	1	1	Yes	Yes	Yes
VETPREV	7774	Bovine Theriogenology	1	1	Yes	Yes	Yes
VETPREV	7776	Dairy Herd Management and Preventive Medicine	2	2	Yes	Yes	Yes
VETPREV	7777	Prevention, Control and Eradication of Communicable Diseases	2	2	Yes	Yes	Yes
VETPREV	7778	Topics in Dairy Production Medicine	1	1	Yes	Yes	Yes
VETPREV	7895	Seminar in Veterinary Preventive Medicine	1	1	Yes	Yes	Yes
VETPREV	7895.01	Current Topics in Laboratory Animal Medicine	1	1	Yes	Yes	Yes
VETPREV	7895.02	Literature of Production Medicine	1	1	Yes	Yes	Yes
VETPREV	7896	Advanced Topics in Veterinary Preventive Medicine	1	1	Yes	Yes	Yes
VETPREV	8613	Preventing Metabolic Diseases and Records Analysis for Dairy Cattle	2	2	Yes	Yes	Yes
VETPREV	8723	Biosecurity, Environmental Health, and Other Veterinary Public Topics	3	3	Yes	Yes	Yes
VETPREV	8782	Veterinary Clinical Epidemiology	1	1	Yes	Yes	No
VETPREV	8810	Principles of Epidemiologic Theory	2	2	Yes	Yes	No
VETPREV	8830	Modeling Transmission Processes and Control of Infectious Diseases in Humans and Animals	3	3	Yes	Yes	Yes
VETPREV	8851	Laboratory Animal Medicine 1	2	2	Yes	Yes	No
VETPREV	8852	Laboratory Animal Medicine 2	2	2	Yes	Yes	No
VETPREV	8853	Laboratory Animal Medicine 3	2	2	Yes	Yes	No
VETPREV	8854	Laboratory Animal Medicine 4	2	2	Yes	Yes	No
VETPREV	8855	Laboratory Animal Medicine 5	2	2	Yes	Yes	No
VETPREV	8856	Laboratory Animal Medicine 6	2	2	Yes	Yes	No
VETPREV	8891	Seminar in Veterinary Preventive Medicine	1	1	Yes	Yes	No
VETPREV	8893	Case Conference	1	3	Yes	Yes	No
VETPREV	8894	Case Conference	1	3	Yes	Yes	No
VETPREV	8895	Advanced Topics in Veterinary Preventive Medicine	1	1	Yes	Yes	No
VETPREV	8895.01	Responsible Research Practices and Group Discussion of Cutting Edge Research	1	1	Yes	Yes	Yes
VETPREV	8896	Advanced Topics in Veterinary Preventive Medicine	1	1	Yes	Yes	No
VETPREV	8999	Research in Veterinary Preventive Medicine	1	15	Yes	No	No

Upon graduation from our program, students will have gained an understanding of hypothesis-based research and the training necessary to pursue a variety of careers in academia, government, and industry.

FROM QUARTER-BASED  
GRADUATE PROGRAM HANDBOOK

TO BE UPDATED BY SU 2012

Appendix C: Suggested Graduate Courses AT THE LATEST

Course Requirements

- Doctoral - ~~120~~<sup>80</sup> credit hours total ~~30~~<sup>30</sup>  
 Transfer credit up to ~~45~~ h (GSC approval required)  
 Research seminar (CVM 850)—required each quarter unless it conflicts with another class  
 Research  
     693 or 793 prior to the candidacy examination  
     999 after the candidacy examination  
~~20~~<sup>20</sup> ~~30~~ h formal course work (700 level or above)  
~~2~~<sup>2</sup> ~~3~~ h graduate level statistics

These should be completed prior to the candidacy examination.

- Masters degree - ~~45~~ credit hours total ~~30~~<sup>30</sup>  
 Research seminar (CVM 850)  
 Research (CVM 693)  
~~20~~<sup>20</sup> ~~30~~ h formal course work  
~~2~~<sup>2</sup> ~~3~~ h graduate level statistics

Note: for Combined Degree (DVM/MS) students, 10 credit hours approved for both graduate and professional credit may be applied towards the MS.

Specific details about call numbers, meeting times, and course availability can be found by consulting the Master Schedule at <http://www.buckeyelink.osu.edu>. Courses listed as ARR have arranged meeting times and students should contact the instructor to find out more information.

STATISTICS courses

TO BE UPDATED AS INFORMATION FROM OTHER COLLEGES BECOMES AVAILABLE

MG 650 - Analysis and Interpretation of Biological Data	3 credits
Statistics 641 - Design and Analysis of Experiments	3 credits
Statistics 528 & 529 - Data analysis I and II	3 credits
AGR EDU 887 Analysis and Interpretation of Data,	3 credits
AE 888 Instrumentation and Procedures for Data Collection	3 credits
PHBIO 701 Design and Analysis I	4 credits
PHBIO 702 Design and Analysis II	4 credits
PHBIO 703 A Problem-Oriented Approach to Biostatistics	4 credits
PHBIO 794 Group Studies in Biometrics	2-5 credits



ALL VBS, VCS, & VPM COURSES  
HAVE BEEN UPDATED

### Summer programs in applied statistical methods

These programs (i.e., seminars) cost a significant amount of money but are short term workshops that fulfill the statistics requirement - provided that you have successfully completed an undergraduate statistics class.

#### GENERAL COURSES:

MG 701 Molecular Genetics: DNA Transaction	3 credits
Biochem 702 - Molecular Genetics: Regulation of Gene Expression	3 credits
MG 705 Advances in Cell Biology (W)	3 credits
VBS/MG/MCB 880.07 – Gene Expression Seminar	3 credits
MG 601 Eukaryotic Molecular Genetic Lab (W)	5 credits
MG 602 Eukaryotic Cell and Developmental Biology Lab	5 credits
IBGP 701.05 and 702.05- Biology of Human Disease	10 credits
VBS 715 Applied Veterinary Medical Virology (Sp)	3 credits
IBGP 805 - Research Techniques and Resources	6 credits

#### OTHER COURSES LISTED ALPHABETICALLY BY DISCIPLINE Some courses may be listed twice if covering two different areas

#### AGRICULTURE COURSES

AE 885 Research Methods (A,W,Su)	3 credits
AE 886 Research Design (W,Sp,Su)	3 credits
AE 887 Data Analysis and Interpretation (A,Sp)	3 credits
AS 616 Poultry Physiology (Sp)	5 credits
AS 617 Physiology of Lactation (A)	3 credits
AS 650 Advanced Meat Technology (Sp)	3 credits
AS 655 Laboratory Analysis of Meat Products (W)	5 credits
AS 656 Eggs and Poultry Products Technology(A)	5 credits
AS 660 Quality Control Interpretation (Sp)	3 credits
AS 710 Advanced Reproductive Physiology (Sp)	4 credits
AS 730 Animal Physiology and Nutrition (A,W,Sp)	3 credits
AS 740 Principles of Toxicology I (W)	3 credits
AS 741 Principles of Toxicology II (Sp)	5 credits
AS 850 Food and International Agriculture (Su)	5 credits
AS 890 Seminars	1 credit
AS 810.02 Endocrinology of Reproduction (W)	5 credits
AS 810.03 Immunology and Immunogenetics (Sp)	5 credits
AS 830 Advanced Studies in Nutrition	3 credits
ECON 711 Production and Consumption (A)	4 credits
ECON 712 Finance and Risk Management (W)	4 credits
ECON 713 Public Policies and Market Regulations (Sp)	4 credits
FS 611 Cheese and Fermented Foods (W)	4 credits
FS 636 Food Microbiology (A,Sp)	5 credits

<b>FS 736</b> Advanced Food Microbiology	3 credits
<b>FS 761</b> Advanced Nutritional Utilization I (W)	5 credits
<b>FS 762</b> Advanced Nutritional Utilization II (Sp)	5 credits
<b>VBS 716</b> Diseases of Poultry and Game Birds (A,W)	3 credits

#### **BIOCHEMISTRY**

<b>Biochem 511</b> Introduction to Biological Chemistry (A,W,Sp,Su)	5 credits
<b>Biochem 613-615</b> Biochemistry and Molecular biology (AU, WI, SP)	4 credits
<b>Biochem 708</b> Proteins (S)	4 credits
<b>Biochem 761</b> Advanced biochemistry of proteins (AU)	3 credits
<b>Chemistry 661</b> Biochemistry (A,W)	3 credits

#### **BIOMEDICAL ETHICS**

<b>VBS 751</b> – Professional and Ethical Issues in Biosciences (SU)	1 credit
<b>Surgery 814</b> Responsible Conduct of Research: Human Participants and Use of Animals in Biomedical Research.	2 credits

#### **ENTOMOLOGY**

<b>ENT 661</b> Medical Entomology (W)	5 credits
<b>ENT 694</b> Group Studies	2-5 credits
<b>ENT 795D</b> Special Topics	1-3 credits
<b>ENT 870</b> Medical Veterinary Acarology (Su)	4 credits

#### **ENVIRONMENTAL HEALTH**

<b>PHEPI 713</b> Epidemiology in Environmental Health (A)	4 credits
<b>PHENV 731</b> Principles of Environmental Health (W)	4 credits
<b>VPM 796.05</b> Environmental Sanitation (Sp)	3 credits
<b>M 634</b> Water Microbiology (W)	3 credits

#### **EPIDEMIOLOGY**

<b>VPM 780</b> Veterinary Epidemiology (W)	3 credits
<b>VPM 810</b> Principles of Epidemiology (W)	2 credits
<b>PHEPI 711</b> Epidemiology I (W)	4 credits
<b>PHEPI 712</b> Epidemiology II (Sp)	4 credits
<b>PHEPI 713</b> Epidemiology in Environmental Health (A)	4 credits

#### **IMMUNOLOGY**

<b>MB 701</b> Cellular and Molecular Immunology (A)	5 credits
<b>IBGP 703.02</b> Host Defense	3 credits
<b>VBS 717</b> Current Topics of Veterinary Immunology	3 credits
<b>MB 723.01</b> Molecular Immunology (W)	3 credits
<b>MVIMG 833</b> Current Immunological Techniques (W)	4 credits

#### **LABORATORY ANIMALS**

<b>MCB 781</b> Animal Models of Human Disease (AU)	1 credit
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<b>VBS 693</b>	Laboratory Animal Medicine (Niewiesk's section)	2 credits
<b>MG 700</b>	Systems of Genetic Analysis (AU)	3 credits
<b>Animal Sciences 868</b>	Molecular Bio Techniques (SU)	5 credits

**MICROBIOLOGY**

<b>M 509</b>	Basic and Practical Microbiology (A,W,Sp,Su)	5 credits
<b>M 520</b>	General Microbiology I (A,Sp)	6 credits
<b>M 521</b>	General Microbiology II (W)	6 credits
<b>M 522</b>	Immunobiology (W)	5 credits
<b>M 524.01</b>	Mechanisms of Microbial Disease (Sp)	4 credits
<b>MVIMG 600</b>	Evolution of Emerging Viruses (Sp)	2 credits
<b>M H610</b>	Bioinformatics & Molecular Microbiology (Sp)	5 credits
<b>M 632</b>	Cellular Aspects of the Immune Response (A)	6 credits
<b>M 634</b>	Water Microbiology (W)	5 credits
<b>M 636</b>	Food Microbiology (A, Sp )	5 credits
<b>M 647</b>	Eukaryotic Pathogens (A)	3 credits
<b>M 649</b>	Introductory Virology (W)	5 credits
<b>M 655</b>	Animal Cell Culture Techniques (A)	5 credits
<b>M 661</b>	General Physiology (W)	5 credits
<b>M 664</b>	Medical Ecology (A)	3 credits
<b>M 665</b>	Environmental Microbiology (Sp)	3 credits
<b>MB 680</b>	Advanced Microbial Genetics (W)	3 credits
<b>M 701</b>	Cellular and Molecular Immunology (A)	5 credits
<b>BC 710</b>	Molecular Biology Laboratory (Sp)	5 credits
<b>M 720</b>	Microbial Biodiversity (A)	4 credits
<b>M 723</b>	Molecular Immunology (W)	3 credits
<b>M 724</b>	Molecular Biology of Bacterial Pathogens (Sp)	5 credits
<b>MG 770</b>	Molecular Genetics of Animal and Plant Viruses (S)	3 credits
<b>M 799</b>	Colloquim (A,W,Sp)	1 credit
<b>M 832</b>	Advanced Cellular Immunology (W)	3 credits
<b>VBS 754</b>	Fundamental Virology	5 credits
<b>VBS 841</b>	Viral Pathogenesis and Oncogenesis	5 credits
<b>IBGP 795</b>	Host/Pathogen Interaction Research Seminar (A,W,S)	1 credit

**ONCOLOGY/CANCER GENETICS**

<b>MG 500</b>	General Genetics (A,W,Sp,Su)	5 credits
<b>MG 605</b>	Molecular Genetics I (W)	4 credits
<b>MG 606</b>	Molecular Genetics II (S)	4 credits
<b>MG 607</b>	Cell Biology (A)	3 credits
<b>MG 608</b>	Genes and Development (W)	3 credits
<b>VBS 640</b>	Fundamentals of Oncology (W)	4 credits
<b>BC 702</b>	Molecular Genetics (W)	3 credits
<b>MG 715</b>	Developmental Genetics. (S)	3 credits
<b>MG 733</b>	Human Genetics (S)	3 credits
<b>MVIMG 734</b>	Cancer Genetics: High throughout Technologies (S)	4 credits

<b>MCB 831</b>	Eukaryotic Genome (W)	3 credits
<b>PATHOLOGY</b> - <i>HAVE BEEN UPDATED</i>		
<b>VBS 810-812 (813-815)</b>	- Advanced Systemic Pathology	3-5 credits
<b>VBS 718</b>	- Advanced Gross Pathology	1-5 credits
<b>VBS 815</b>	- Veterinary Surgical Pathology	3-5 credits
<b>VBS 739</b>	- Laboratory Medicine	1-10 credits
<b>VBS 800</b>	- Seminars in Veterinary Pathology	1-2 credits
<b>VBS 795</b>	- Seminars in Diagnostic Veterinary Medicine	1-10 credits
<b>PHARMACOLOGY</b>		
<b>Phar 600</b>	- General Pharmacology	3 credits
<b>PUBLIC HEALTH COURSES</b>		
<b>BIO 701</b>	Design and Analysis of Studies in The Health Sciences I (A)	4 credits
<b>BIO 702</b>	Design and Analysis of Studies in The Health Sciences II (W)	4 credits
<b>BIO 703</b>	A Problem Orientated Approach to Biostatistics (Sp)	4 credits
<b>BIO 794</b>	Group Studies in Biometrics	2-5 credits
<b>EPI 711</b>	Epidemiology I (W)	4 credits
<b>EPI 712</b>	Epidemiology II (Sp)	4 credits
<b>EPI 713</b>	Epidemiology in Environmental Health (A)	4 credits
<b>EPI 815</b>	Infectious Disease Epidemiology (Sp)	4 credits
<b>VETERINARY CLINICAL SCIENCES COURSES</b> - <i>HAVE BEEN UPDATED</i>		
<b>VCS 720.02</b>	Medical Photography	2-3 credits
<b>VCS 724</b>	Advanced Nutrition	1-2 credits
<b>VCS 751</b>	Feline Internal Medicine	3 credits
<b>VPM 785</b>	Biological Research 3 Techniques	3 credits
<b>VCS 790-792</b>	Pharmacology of Cardiac Drugs,	3 credits
<b>VBS 790</b>	Cardiovascular physiology	1 credit
<b>VCS 791.01</b>	Advanced Theriogenology	3-4 credits
<b>VCS 792</b>	Equine Theriogenology Studies	1 credit
<b>VCS 793</b>	Advanced Theriogenology and Laboratory	1 credit
<b>VCS 796.01</b>	Clinical Theriogenology	1 credit
<b>VCS 796.01</b>	Advanced Topics in Equine Surgery - soft tissue	1 credit
<b>VCS 800</b>	Advanced Topics in Equine Surgery - Musculoskeletal	2 credits
<b>VCS 800</b>	Research Methods	2-3 credits
<b>VCS 811</b>	Advanced Veterinary Clinical Pharmacology	
<b>VCS 822:</b>	Advanced Veterinary Medical Sciences Courses coordinated by the Graduate Studies Committee	
<b>VCS 822.01</b>	Diagnostic methods in Veterinary Internal Medicine	3 credits
<b>VCS 822.02</b>	Gastroenterology Johnson & Sherding	1 credit
<b>VCS 822.03</b>	Respiratory medicine	1 credit
<b>VCS 822.04</b>	Neurologic and muscular disease	2-3 credits
<b>VCS 822.05</b>	Cardiovascular Medicine	2-3 credits

<b>VCS 822.06</b> Nephrology and Urology	2-3 credits
<b>VCS 822.07</b> Medical Oncology and Hematology	2-3 credits
<b>VCS 822.08</b> Hepatology	2 credits
<b>VCS 822.09</b> Dermatology	2 credits
<b>VCS 822.10</b> Ophthalmology	2 credits
<b>VCS 833 Sequence</b> Advanced Veterinary Surgical Sciences - 833 Courses coordinated by the Graduate Studies Committee	
<b>VCS 833.01</b> Anesthesia and Critical Care	2 credits
<b>VCS 833.02</b> Gastrointestinal Surgery	2-3 credits
<b>VCS 833.03</b> Respiratory and Thoracic Surgery	2-3 credits
<b>VCS 833.04</b> Neurosurgery	2-3 credits
<b>VCS 833.05</b> Cardiovascular & Hemolymphatic Surgery	2-3 credits
<b>VCS 833.06</b> Renal, Urinary, & Reproductive Surgery	2-3 credits
<b>VCS 833.07</b> Musculoskeletal Surgery	2 credits
<b>VCS 833.08</b> Reconstructive Surgery	2 credits
<b>VCS 833.09</b> Selected Surgical Topics	2 credits
<b>VCS 850 Sequence</b> Seminars in Veterinary Clinical Sciences - Coordinated by the Graduate Studies Committee;	
<b>VCS 850.01</b> Anesthesia Conference	1-2 credits
<b>VCS 850.02</b> Cardiology Conference	1-2 credits
<b>VCS 850.03</b> Hematology - Oncology conference	1-2 credits
<b>VCS 850.04</b> Internal Medicine Conference (CPC-Small Animal)	1-2 credits
<b>VCS 850.05</b> Journal review: Feline Internal Medicine	1-2 credits
<b>VCS 850.06</b> Journal review: Hematology & Oncology	1-2 credits
<b>VCS 850.07</b> Large Animal Internal Medicine Conference	1-2 credits
<b>VCS 850.08</b> Neurology Conference	1-2 credits
<b>VCS 850.09</b> Surgery Conference	1-2 credits

**VETERINARY PREVENTIVE MEDICINE COURSES - HAVE BEEN UPDATED**

<b>VPM 700</b> Molecular Epidemiology (Sp)	3 credits
<b>VPM 715</b> Veterinary Public Service (A)	3 credits
<b>VPM 721</b> Epidemiology of zoonoses and diseases common to animals and humans (A)	4 credits
<b>VPM 722</b> Food-borne diseases, food animal production systems and food safety (W)	4 credits
<b>VPM 723</b> Biosecurity, environmental health and other veterinary public health topics (Sp)	4 credits
<b>VPM 780</b> Veterinary Epidemiology (W)	3 credits
<b>VPM 796.02</b> Prevention of Communicable Diseases (A)	3 credits
<b>VPM 796.06</b> Disease Control in Dairy Cattle (A)	4 credits
<b>VPM 796.12</b> Literature of Production Medicine (A,W)	1 credit
<b>VPM 796.13</b> Applied Dairy Nutrition (W)	3 credits
<b>VPM 796.18</b> Bovine Theriogenology (A)	2 credits
<b>VPM 810</b> Principles of Epidemiology (W)	2 credits
<b>VPM 850.02</b> Seminar in VPM-Student Presentation (A,Sp)	1 credit

ADVISORY FORMS

Student and Advisory Committee Forms

Advisory Committee Activity

**CANDIDATE:** First Name Last Name

**Degree sought:** MS [ ] PhD [ ]

**Date entered the Current program:** \_\_\_\_\_

**Student Goals for the Next Year of the Program:**

**Advisory Committee**

**Expertise Contributed**

Advisor \_\_\_\_\_

Member \_\_\_\_\_

Member \_\_\_\_\_

Member \_\_\_\_\_

**Signatures:** (only required if there have been new members added or if there has been a change in the last year)

Advisor \_\_\_\_\_  
(date)

Member \_\_\_\_\_

Member \_\_\_\_\_

Member \_\_\_\_\_

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**College of Veterinary Medicine  
Annual Progress Evaluation**

1. Student: **First Name Last Name**
2. Advisor(s): **Dr. Advisor**
3. Program: **Program**                      Date of Entry in Current Program: \_\_\_\_\_
4. Source of Support: **\$\$ Source**
5.    A. Established formal advisory committee (yes/no): \_\_\_\_\_ (if "No" or if changes have occurred in committee, complete Appendix A)  
      B. Date of most recent formal committee meeting: \_\_\_\_\_  
      C. Dates scheduled or completed the following:  
  
Candidacy Exam (if applicable): \_\_\_\_\_  
Expected Graduation: \_\_\_\_\_
6.    Training-related activities: **ATTACH ADDITIONAL SHEET IF NECESSARY.**
  - A. Date of most recent departmental research seminar presentation:
  - B. Research presentations (oral or poster): Date, Title, Place:
  - C. Peer-reviewed manuscripts (submitted, in press, or published):
  - D. Awards received (internal and external)
  - E. Submitted courseplan: \_\_\_\_\_ (for students who have not completed their candidacy exam)

Student's signature: \_\_\_\_\_

Advisor's signature: \_\_\_\_\_