Cornell Combined DVM-PhD Program Student/Faculty Guidelines

The combined DVM-PhD Program was created in 2002. It is based on an earlier Veterinary Scientist Training Program instituted in 1975. Students admitted to the DVM-PhD program agree to meet the requirements and standards of the PhD and DVM training programs at Cornell University. Oversight of the combined degree program is provided by a committee of graduate faculty in the College of Veterinary Medicine (CVM) with one member drawn from each of the five departments in the College. One member serves as Program Director and Oversight Committee Chair. Current Combined Degree Oversight Committee (CDOC) membership is:

- Renata Ivanek Miojevic (DVM PhD), Program Co-Director and Oversight Committee Co-Chair, Department of Population Medicine and Diagnostic Sciences
- Gunther Hollopeter (PhD), Department of Molecular Medicine
- Sabine Mann (DVM PhD), Department of Population Medicine and Diagnostic Sciences
- Rory Todhunter (BVSc, PhD), Program Co-Director and Oversight Committee Co-Chair, Department of Clinical Sciences
- Gerlinde Van de Walle (DVM, PhD), Department of Microbiology and Immunology

Additional committee members include:

- Peter Scrivani (DVM), Chair of the DVM Curriculum Committee, ad hoc member
- Jody Korich (DVM), Associate Dean for Veterinary Education, ex officio member
- Robert Weiss (PhD), Associate Dean for Research & Graduate Education, ex officio member
- David Lin (PhD), Department of Biomedical Sciences, Director of Graduate Studies (DGS) Field of Biomedical and Biological Sciences (BBS), ex officio member

Administrative support for the activities of the Oversight Committee is provided through the Office of Graduate Education Manager and the Associate Dean for Research and Graduate Education in the CVM.

Admission into the DVM-PhD program is the joint responsibility of the CDOC, the DVM Admissions Committee, and the Biomedical and Biological Science (BBS) PhD Program Admissions Committee. Academic oversight for the DVM program is provided by Dr. Katherine Edmondson, Assistant Dean for Learning and Instruction. Ms. Jennifer Mailey in the Office of DVM Admissions at the CVM provides support for DVM-PhD. Academic oversight for the PhD program is provided by Drs. Renata Ivanek Miojevic and Rory Todhunter, Co-Directors of the Combined Degree Program, and Dr. Dave Lin, DGS for the Field of Biomedical and Biological Sciences. Ms. Arla Hourigan in the Office of Graduate Education at the CVM provides support for DVM-PhD students during their PhD studies.

Abbreviations used in this document: BBS, Biomedical and Biological Sciences; CDOC, Combined Degree Oversight Committee; CUHA, Cornell University Animal Hospital; CVM, College of Veterinary Medicine; DGS, Director of Graduate Studies; OGE, Office of Graduate Education; VIP, Veterinary Investigator Program.

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I. INTRODUCTION

Our academic objective is bold: we seek to integrate the most rigorous basic scientific and clinical training so that our graduates will be at the forefront of biomedical science and the veterinary profession in academic research, medicine and teaching; government service and public health; or the biotechnology/pharmaceutical industry. Our Program takes advantage of Cornell's uniquely

interdisciplinary environment to integrate clinical training in veterinary school with the University's internationally-recognized strengths in biochemical, cellular and molecular biology, biomedical engineering, cancer biology, epidemiology, ecology, food sciences, genomics, infectious disease and immunology, nanotechnology, neurosciences, zoology wildlife conservation and One Health among others.

For students, the benefits of Cornell's Combined DVM-PhD Degree Program include:

- training in basic sciences to improve fundamental biological understanding and to learn how to ask and test scientific questions appropriately;
- acquisition of a systems knowledge of anatomy, physiology, medicine and surgery that will enable students to understand biological processes and disease conditions from subcellular to organismal levels;
- understanding of the similarities and differences between species, enabling students to utilize comparative approaches to science and medicine;
- clinical training which facilitates identification of areas in need of research to benefit animal and human health;
- integration of basic science and clinical studies to decrease the time required to earn two advanced degrees in an environment where outstanding DVM and PhD training is available;
- financial support during the DVM studies currently consisting of health insurance and summer stipends during research rotations. In addition, the CVM will forgive all loans associated with the DVM tuition when both the DVM and PhD are completed. If a student is already in the DVM program when accepted in the combined degree program, the DVM tuition will be covered for the years that the student was part of the combined degree program;
- financial support during the graduate studies consisting of graduate school tuition, stipend and health insurance provided by the faculty mentor

Clinical medicine and laboratory research have many rewards – but also potential frustrations. The CVM's DVM-PhD Program recognizes that a scientific career is a challenging undertaking. In addition to those common among all professional careers, there are particular challenges associated with combined-degree careers because the training is long and it is difficult to manage the conflicting demands of clinical, laboratory and personal responsibilities. During your training, we provide guidance for how to plan your studies, and suggest ways to deal with many problems you are likely to encounter, while attempting to preserve the flexibility necessary to permit integration and completion of two advanced degrees in a timely manner.

The Cornell DVM-PhD Program is centered in the CVM and is comprised of the College's DVM Professional Program and Cornell's Graduate School. The unique structure of the Program provides you with extraordinary resources and opportunities. It also is a source of challenges that we hope to minimize with this Guide. **Please note, this is only a guide** – not a substitute for the policies that govern your education and training in the DVM Program or in your PhD field. These policies will be reviewed annually and updated regularly. It is your responsibility to abide by them for each of the training components as they are applied during the period in which you are enrolled. While it is the intention of all involved to honor agreements made at the time you matriculate in the DVM-PhD program, some changes in the Veterinary Medicine curriculum may occur that are particular to the DVM class you are associated with. These may include, but are not limited to, addition or deletion of distribution courses and changes in scheduling of clinical rotation and distribution course blocks. During the graduate

program, most of the guidance in this document is based on expectations for students in the graduate Field of BBS, which is part of the Biomedical and Biological Sciences (BBS) Program based in the CVM.

II. GOALS AND ORGANIZATION OF THE DVM-PhD DEGREE PROGRAM

The goal of the DVM-PhD Program at Cornell University is to train the next generation of leaders in biomedical research – and to do so in a manner that promotes an effective intellectual dialogue between students and faculty researchers and clinicians. Graduates of the Program will have excellent research credentials and be well qualified for the practice of veterinary medicine if they decide to combine research with veterinary practice. This program is designed to be completed in on average 8 years (see Appendix A). Thus, considerable interplay of DVM and PhD studies is necessary for the student to make efficient progress through the program. Successful integration of PhD and DVM studies requires an appreciation that the mission of the graduate program and the professional curriculum are not entirely congruent. This section of the guidelines is an introduction to how the DVM-PhD program attempts to combine important parts of graduate and veterinary medical studies. In addition to a set of milestones below, strong proactive mentoring (see section III) is essential for students to complete the program in a timely way.

A. Elements of the Training Program

The main components of the DVM-PhD program are the DVM studies comprised of course work, laboratory exercises and clinical training, and PhD studies which include laboratory rotations, graduate courses, proposal writing (A-exam), thesis research and writing, and thesis defense (B-exam). An outline of the 8 years of the training program can be found in Appendix A.

Summary of requirements for continuation of enrollment in the CD Program:

1. Maintain a B average per semester (GPA of 3.0) in the DVM and PhD curriculum
2. Identify and gain entry into a lab for your PhD studies that has adequate funding to support your tuition, health insurance, stipend and research costs
3. Provide a 6-month PhD program progress report for review by the CDOC during the first year of your PhD studies
4. Pass the A exam within 2 years of entering the PhD program
5. Comply with graduate field requirements
6. Demonstrate a commitment to combined research and DVM studies

Most combined DVM-PhD students are required to do their first research rotation during the summer of Year 1. In consultation with the Program Director and the DGS of BBS, the student should arrange for a research rotation as soon as they matriculate into the program. It is imperative that the student rotate in labs that have sufficient funding for research and that can financially support a graduate student. For this summer rotation, the student will be part of Cornell Veterinary Investigator Program (VIP) and receive a stipend (see Appendix B). This first research rotation should be completed by mid-August prior to entering the DVM program.

The second research rotation is completed during distribution period A/B at the beginning of the spring semester. The student should register for 4 credits of research during that period. The third research rotation is completed during the summer between year 1 and 2 of the DVM program. Stipend support for the summer will be arranged by Associate Dean for Research and Graduate Studies and may be through one of the organized programs: VIP, the Cornell Leadership Program (see Appendix B), or

another mechanism. Again, students should consult with the CD Program Director(s) and the DGS before submitting their rotation selection so that they can ensure a rotation that is worthwhile to the student's career goals. At the end of this third rotation, the student should select a thesis mentor in consultation with the Program Director and the DGS. All DVM-PhD students admitted before or during the first year of their DVM training are required to select a thesis mentor before entering the 2nd year of the DVM program. Considering that students are admitted through the BBS program and that the CVM provides considerable financial support to CD students, students must remain registered within the graduate field of BBS and the thesis mentor must be a member of that field.

The Research Years: DVM-PhD students must keep contact with the Office of Graduate Education (OGE) and Ms. Paige Frey, the College Registrar, to ensure they make smooth transitions between the DVM Program and the Graduate School. It is important to note that the administrative mechanics will change to the Graduate School once in the PhD Degree Program and all program requirements must be fulfilled according to the Graduate School.

DVM-PhD students are advised to select their Special Committee during the first 2 months of their graduate program. The function of this committee is to guide students and evaluate their progress. Detailed information about this committee can be found in section V-C.

A first committee meeting should be scheduled within the first 6 months of the graduate program. This way, the student, their advisor, and the committee members can discuss the plans for the thesis research and any other issues that might be relevant. Thereafter, the committee should meet at least once a year. A progress report must be completed and distributed to the committee members, to the OGE, and to the Combined Degree program director before the meeting, no later than July 1st of each year. In addition, the results of the meeting must be distributed to the same entities. https://www.vet.cornell.edu/education/biomedical-biological-sciences-bbs-phd-program/combined-dvmphd-program/curriculum

These first 6 months of graduate training are critical in setting the student on a productive path towards completion of the PhD. As such, the student will submit to the CDOC a brief report (1 page, bullet points) after 6 months in the graduate program outlining what they have accomplished, what they plan to accomplish in the next 6 months and whether the project is going in a productive direction, or if a new direction is being formulated.

After completing three semesters of graduate study the student will prepare a formal research proposal for their Special Committee and defend it in an oral examination (the A-exam). The A-exam proposal format is specified in the guidelines published by the graduate field on their website. The A-exam should be completed within the first two years of the graduate program. See section VII-D for more details.

Students are responsible for scheduling their Special Committee meetings and the A-Exam. It is the policy of the DVM-PhD Program that a student who fails to convene their Special Committee annual meeting by the end of their first year of graduate studies will be considered in poor academic standing, unless they have received explicit permission to have the meeting, or exam, at a later date. All students are strongly encouraged to make sure that their Committee meets in a timely manner, and that the reports are submitted to meet this deadline. Given the difficulties associated with coordinating committee members, students are advised to begin scheduling the Committee several months in advance of the meeting – and to send out reminders. If the student, or their Committee, is concerned about the rate of progress, it is advised that Committee meetings be scheduled twice a year, so that the rate of progress can be monitored more closely. The decision of whether the student can defend their thesis usually would be made during a Committee meeting.

Students are expected to have completed their thesis research and thesis document before returning to the DVM curriculum by the end of their fourth year of graduate studies. However, if a student in good standing is not ready to return to the DVM program at that time, and they have sufficient evidence that they will be able to finish their research if granted an additional year, they may petition the CDOC and the DVM Curriculum Committee for a 1-year extension of their thesis research period. If they fail to do this in a timely way, they must return to the DVM class. Failing to petition, or return to the DVM class, will require reapplication for admission to the DVM program. Information regarding petitions can be found in Appendix C. Students can complete their PhD in 3 years.

Students that receive approval for a 5th year of graduate studies are required to submit to the CDOC a progress report after 4 months into the additional year outlining what they have accomplished in those 4 months and what their plan is to finish up their thesis by the end of the year. This will enable the CDOC to provide enhanced guidance during this critical point in the student's graduate studies.

Completion of the DVM program. Combined Degree students are expected to return to the veterinary curriculum in the Spring semester of the second year of their DVM program. In the summer preceding their return to the DVM curriculum, students must inform Dr. Jai Sweet and registrar Ms. Paige Frey of their intentions.

Students may TA in one of the foundation courses during their years in graduate school. This is important to maintain the integration of the veterinary and graduate research curriculum.

B. Important Milestones

- Begin seeking guidance from the Combined Degree program director and from the DGS of BBS within weeks of acceptance into the DVM-PhD program to select a laboratory for their 1st research rotation
- Successfully complete one summer research rotation prior to entering the DVM Program (via VIP)
- Continue seeking guidance from the program director and DGS to select 2nd and 3rd research rotations
- Complete a second research rotation during the winter intercession or spring distribution period of year 1
- Complete a 3rd research rotation during the summer between years 1 and 2 of the DVM program
- Choose a research mentor by the end of the third rotation
- Begin the PhD degree Program in January of Year 2
- Form a Special Committee within 2 months of starting graduate studies
- Have a Special Committee meeting within 6 months of starting graduate studies
- Take the A-exam before the end of the first 2 years of graduate studies
- Take elective and the BBS required graduate courses while in graduate school
- Return to the DVM curriculum in January of Year 6
- Take the B-exam before returning to the DVM curriculum
- Finish the DVM program in May of Year 8

C. Timeline Alternatives and Exceptions

Needless to say, the CDOC strongly prefers students to apply for, and be accepted into, the CD program as part of their DVM application prior to entering the DVM program. However, other paths have been followed. Students who matriculated into the DVM curriculum or to PhD program at Cornell and are

admitted to the CD program will have essentially the same timeline as other combined degree students.

1. **DVM Students Entering the Combined Degree Program** would have to demonstrate their commitment to research, either by having participated in the VIP or Leadership Programs, and/or doing research part time while in the DVM curriculum. The number of research rotations required will be pro-rated by the number of labs they have done research projects in before being accepted into the program. Thus, it is likely that 1st year DVM students will be credited with one research rotation. They will be expected to complete their additional research rotations by the end of the summer after entering the program and select a thesis mentor.
2. **Cornell Graduate students Entering the Combined Degree Program** are expected to have completed 3 laboratory rotations and selected a research mentor prior to starting the DVM curriculum. During the first year of Vet School these students are expected to pursue thesis research during summers and Distribution Course periods.
3. **Extending the Thesis Research Period.** If a student, their research mentor and their Special Committee are in agreement that the student's research will benefit significantly by a one year extension of the research period, or if their research would be jeopardized by leaving a highly competitive ongoing project in an unfinished state, the student must submit a written petition first to the CDOC, which will judge its suitability for support before its presentation to the DVM Curriculum Committee (see Appendix C).
4. **Extenuating Circumstances.** The Oversight Committee recognizes that life is not always smooth and sometimes extenuating circumstances will arise that will alter the most carefully laid plans. Students are encouraged to consult with their research mentor, the DVM-PhD Program Director, and/or the DGS regarding any difficulties that they may encounter that are likely to affect their progress through the Program.

D. Financial Support

During the DVM program, an individualized financial support package is prepared annually for each student by the Director of Student Financial Planning, Kristin Pennock. Part of the financial aid package includes a loan for DVM tuition from the CVM starting the year that the student enters the program. The loan is forgiven once the DVM-PhD students successfully complete both their DVM and PhD degrees. The College will provide health insurance during the DVM program.

DVM-PhD students receive full graduate tuition, health insurance and stipend support from research funds supplied by their faculty research mentor/PhD committee chair person from the beginning of the student's PhD program. Therefore, it required to select a research mentor whose funding is sufficient to cover these funds for the duration of the PhD. It is also expected that students will apply for graduate funding to an appropriate funding agency (e.g., NIH, USDA). During the fall semester of Year 3, students will take BIOAP 6100, a 3-credit course in which they will write a research proposal to be submitted for external funding. During the spring semester of year 3 students will take BIOAP 7100. Topics for this course will include; hypothesis development, scientific design, critical evaluation of literature, and oral defense. Additional BBS PhD curriculum requirements include *VTBMS 7200 - BBS Seminar* - *Work-in-Progress* (WIP) and BIOMG 7510 - Ethical Issues and Professional Responsibilities.. (see section IX, Administrative Issues)

III. GUIDANCE AND COUNSELING FOR DVM-PhD STUDENTS

A. General Guidelines for Finding Support Personnel and Resources

The OGE, which is managed by Arla Hourigan generally should be the starting point for all information gathering by DVM-PhD students – particularly for students in their early years in the Program. Each student will also be assigned a current DVM-PhD student as mentor. In addition, the DVM Office of Student Services, which is directed by Dr. Jai Sweet, is a resource for DVM-PhD Degree students.

The Co-Chairs of the CDOC acts as the Program Directors. They serve as an effective liaison between the DVM Program and the Graduate School. Questions relating to academic guidance usually are referred to the Program Directors or the DGS. In addition to these formal mechanisms, DVM-PhD students are encouraged to consult with their faculty research mentor and student advisors.

B. Faculty Advisor (during DVM training)

Each student in year 1 of the DVM program is assigned a Faculty Advisor. The Student Handbook, published annually in the College, contains a list of all of the requirements, policies and opportunities that pertain to your DVM education. Because the DVM curriculum is highly structured, with a list of required courses and laboratories, students do not always choose to consult with their assigned faculty advisor. Rather, they self-select one or more faculty advisors on an informal basis and consult directly with Ms. Paige Frey, the College Registrar regarding scheduling of courses and clinical rotations. However, it is your faculty advisor who will be your advocate if for some reason you have any concerns with a course leader or circumstances require you to bring a formal appeal to the College faculty. It is important to inform a member of Dr. Jai Sweet's office if you change your faculty advisor. You should also inform the OGE and the program director about your faculty advisor.

C. The Advisory Committee

The director of the program and the DGS of BBS will begin advising students before the first summer rotation. Students need to select their thesis research advisor by the end of the second summer. When a student select a thesis mentor, the director of the program and the DGS will communicate to the student and the mentor the expectations and responsibilities of the student and mentor in the DVM-PhD program.

D. The Graduate Special Committee

This committee of graduate faculty is established by the student and their research mentor (see section V-B, Choosing a Thesis Advisor,). The purpose of this Graduate Special Committee is to guide the student through their PhD training. DVM-PhD students are on an accelerated track when they enter their research years, and it is advised that they select their Special Committee no later than 6 months into their graduate studies. The function of this committee is to guide students and evaluate their progress. More detailed information about this committee can be found in section V-C.

IV. THE VETERINARY MEDICINE CURRICULUM

A. Overview

The professional curriculum at Cornell reflects the leading edge of scientific knowledge and clinical medicine. It is comprehensive, interdisciplinary, and continually evolving to prepare veterinarians to pursue diverse career paths within the veterinary profession including basic and/or translational research. It provides a broad-based education in all of the traditional subjects and, in an era of increasing specialization, gives students the opportunity to develop an area of greater expertise. In addition to a strong foundation in biomedical and clinical disciplines, the educational program also

emphasizes important related topics in veterinary medicine including communication skills, client relations, ethics, public health, practice management, and professional development.

The goals of the professional curriculum at Cornell are to:

- provide each student with the knowledge and skills that form the foundation on which to build a career in the profession;
- foster critical thinking and scientific curiosity;
- inculcate a rigorous approach to problem-solving;
- emphasize the scientific principles underlying veterinary medicine;
- foster habits of self-education and lifelong learning;
- stress preventative as well as curative medicine;
- promote ethical behavior and a sensitivity to the role of the veterinarian in society;
- provide each student with a broad general veterinary education, but also the opportunity to pursue an area of interest from among the many opportunities available to veterinarians;
- teach students to recognize the limits of their skill and knowledge and to make effective use of additional resources and expertise.

Course descriptions are found at the following website:
http://courses.cornell.edu/preview_program.php?catoid=12&poid=3518

V. GRADUATE STUDY

The three major Graduate School requirements for the PhD degree are six semesters of study, two oral examinations (the A and B exams) and the written dissertation. DVM-PhD Degree students are admitted to the graduate Field of BBS.

Graduate students are expected to:

1. Make an original and substantial contribution to their field of research.
2. Demonstrate in-depth knowledge of one sub-discipline in their field.
3. Demonstrate a broad knowledge of theory and research across several sub-disciplines.
4. Learn and follow ethical guidelines for research scientists and academic professionals.
5. Write and speak effectively to professional and lay audiences about major issues in their research area.

DVM-PhD students are expected to complete 3 research laboratory rotations and select a thesis research mentor before entering the second year of the veterinary curriculum. Major differences between traditional graduate education and the DVM-PhD are that DVM foundation courses contribute a greater breadth of knowledge, while graduate courses are designed to explore unsolved problems that can be addressed by employing the scientific method. To achieve the goals for any researcher, whether they earn PhD or DVM-PhD degrees, requires them to understand that their success in achieving a depth of knowledge in any subject is proportional to their efforts to educate themselves.

A. Laboratory Rotations

DVM-PhD students are required to rotate through the laboratories of three graduate faculty members prior to selecting their Special Committee Chair. Although the time spent in each laboratory may vary between 8 and 10 weeks, it is expected that each rotation will be a meaningful experience. Students are strongly encouraged to discuss potential rotations with the DGS and Combined Degree Program

Director. When selecting rotation laboratories, students should review faculty web sites, read their recent research publications, and meet with selected faculty members to discuss potential rotation projects and to inquire about the financial capacity of the lab to support a PhD student. There is a compressed timeline for the PhD component of the CD so that it is in the student's own interest and that of the CD program in general to select lab rotations with this pragmatism in mind.

Each student and faculty mentor is required to complete an evaluation form at the end of each rotation: https://www.vet.cornell.edu/education/biomedical-biological-sciences-bbs-phd-program/phd-program/current-students/lab-rotations

B. Choosing a Thesis Advisor

Any faculty member of a graduate field associated with the BBS program can serve as the research advisor for DVM-PhD students. It is important to recognize that the student-mentor relationship should be one where there is trust and mutual respect since it is going to be a close working relationship for the years of the research, and beyond when you are looking for future training and employment. Typically, the research mentor is also the Chair of the Special Graduate Committee, but this is not obligatory, as any member of the graduate faculty can serve as Chair. For example, if two labs are collaborating closely with you on your project, you may be doing most of your research in one laboratory, but your committee chair may be your main collaborator. For the Combined DVM-PhD Program, the responsibility for a student's research guidance and progress rests with the head of the laboratory in which the student is working. The thesis advisor is responsible for the following:

- Providing financial support for the PhD degree portion of the program, to include stipend in accordance with the BBS stipend level, tuition and health insurance
- Providing ongoing research mentorship throughout the program
- Providing support in all research-related costs
- Providing laboratory space and access to necessary research equipment, research and office space

C. Graduate Special Committee:

A student's PhD degree program is developed and supervised by a Special Committee. This committee will be composed of 4-5 members:

- The Chairperson who directs the student's thesis research. If the Chair is not the research mentor, it is expected that the research advisor also be a member of the Special Committee.
- Two faculty members representing two minor concentrations (a major minor and a minor minor). The student is encouraged to form a committee that will bring breadth and diversity to their training.
- A field appointed member. The Field Appointed Member is the only member appointed by the Executive Committee of the Field soon after the student's Special Committee is formed. They are a voting member of the graduate field whose role is to insure the fulfillment of high standards during the student's training.
- A member of the Combined Degree DVM-PhD Oversight Committee. This member must be a current member of the CDOC at the time the Special Committee is formed. This person may or may not be the Field appointed member, but they cannot be the student's research advisor or chairperson.

- Once constituted, the committee must be registered with the Graduate School.
- A student may propose changes in the Committee composition as their research interests evolve. Any such changes must be approved by the Graduate School.

It is the responsibility of the student to hold a formal meeting annually with the members of their Special Committee. During the first meeting of the Special Committee, the student will present their research plan to their committee and the committee will suggest appropriate foundational coursework. The opportunity to participate in elective coursework may be limited by the compressed timeline of the CD student's PhD. Annual research progress reports to the Special Committee, which will be shared with the CDOC, will be the basis for their continued guidance during the PhD training period. The progress report form can be found at: https://www.vet.cornell.edu/education/biomedical-biological-sciences-bbs-phd-program/phd-program/current-students/annual-reports The reports are due on May 15th of each year.

D. Graduate School Requirements and Field Recommendations

The Graduate School has very few specific requirements for the PhD degree. Official requirements are purposely minimal since graduate education at Cornell University is considered to be the purview of the Graduate Faculty serving on the Special Committee which includes a Field Appointed member to ensure that program expectations are met. DVM-PhD Degree students are in the Field of BBS and its members follow the guidelines of the BBS program in the CVM. Students are expected to do the following:

- Conduct an Annual Meeting of the Special Committee (deadline: May 15). Individual reports by the student and the mentor should be submitted to each committee member prior to this meeting. A report of the meeting must be submitted to the Office of Graduate Studies by the Field-appointed member or by a minor member of the committee. The form for these reports can be found at: https://www.vet.cornell.edu/education/biomedical-biological-sciences-bbs-phd-program/phd-program/current-students/annual-reports
- Take the Admission to Candidacy Exam (A-Exam): Before the end of Year 3 of the program, the PhD student must prepare and defend a research proposal before their Special Committee in order to be admitted to doctoral candidacy. This examination is comprised of a written and an oral exam. The passing of this examination certifies that the student is eligible to present a dissertation to the graduate faculty. Normally students have completed their course requirements before taking the A Exam. An exception may be made by the student's Special Committee if a student has not yet taken a recommended course that was not offered during their first three years as a graduate student.
- Thesis Defense (B-Exam): This is an oral examination by the Special Committee based on the content of the Ph.D. dissertation and the expectations of scholarship in the student's discipline. A minimum of two registration units must be earned between passing the A exam and the B exam.
- A doctoral candidate takes the B-exam upon completion of all requirements for the degree but no earlier than one month before completing the six registration unit requirement.
- Thesis Document: DVM-PhD degree students must present a dissertation of acceptable scholarship and literary quality. A relatively polished draft of the thesis including all tables, figures, appendices and references must be presented to all members of the Special Committee before the final examination. The duration of the period reserved for the reading of the dissertation is to be established by the members of the committee with the student in advance of scheduling the B-exam. Acceptance of the thesis or dissertation requires the approval of all the Special Committee members.

E. Publications

It is the expectation that DVM-PhD students will have at least one first-author publication in press in a peer-reviewed journal by the time they graduate from the Program. Additional publications before or following the B-exam are a hallmark of a strong thesis.

VI. INTEGRATION OF DVM AND PhD STUDIES

The purpose of a temporal intermingling of DVM and PhD training is to facilitate an intellectual synergy between the scientific and clinical disciplines. It is also anticipated that this program will allow students to reduce the overall time it takes to earn both degrees sequentially.

Research may be conducted during the DVM curriculum in the form of laboratory rotations during summer breaks and during 4-8 week periods in distribution blocks. During PhD training students are encouraged to maintain their clinical skills by completing their teaching assistantships in clinical laboratories and periodically volunteering for supervised clinical training. Students should plan on spending up to approximately 10% of their effort during their PhD dedicated to clinical opportunities in agreement with their PhD mentor.

A. Laboratory Rotations

Two of the three laboratory rotations are completed during summer breaks from the DVM program through two structured programs that foster critical thinking skills (see Appendix B). Both programs feature discussions with exceptional researchers from Cornell and outside.

C. Clinical Training Opportunities

DVM-PhD students should plan to participate in formal and informal veterinary experiences up to 10% of their time while enrolled in the PhD portion of their program. Oversight of the types of opportunities chosen, timing of the experiences and the number of hours dedicated to clinical opportunities will be the responsibility of the combined degree candidate and their Ph.D. thesis mentor. Identified options include, but are not limited to, TA or informal shadowing in clinical labs (i.e. Block VII, Junior Surgery, Equine Lameness, Anatomy), Volunteer at Shelter Program or Wildlife clinic, and Community Practice Service, subject to permission from the Ph.D. thesis mentor and the clinical lab/service coordinator.

There may be opportunities to participate in, and audit, clinical service rounds which occur on a daily basis in different specialty services throughout the year. Case presentations are made by 4th-year students, residents, or faculty members. The case presentation and discussion centers on animals that are currently under clinical care. The presentations include a complete history of the animal, radiographs, summaries of how the case has been handled to date. To keep connected to veterinary practice, students can arrange to attend these rounds when time permits and with their PI approval and permission of the respective service chief.

D. Teaching Requirement

All BBS students are required to complete a one-semester teaching experience. The Office of Graduate Education coordinates teaching assistantships assignments each year. As a combined degree student, you should seek opportunities to teach in veterinary courses that you have already taken.

VII. EVALUATION

A. Grade Expectation

Satisfactory academic performance for a DVM-PhD student is fulfilled when a student has received a B grade average or better in a given semester. Please note that the level of an acceptable grade in the DVM program is lower than in the PhD or DVM-PhD programs. For this reason, a DVM-PhD student's progress may be considered inadequate, while their work may be deemed adequate in the DVM program.

The DVM-PhD Oversight Committee conducts an annual review of the academic standing of all students. Any student who has not met program academic expectations should expect an informal warning or a letter from the Program Director depending upon the level of concern provoked by poor grades and/or poor research progress. Written notification will include an invitation to the student to explain the circumstances of their academic deficiency to the CDOC. This may stimulate a formal review of the student's suitability for the combined degree program.

B. Laboratory Rotation Evaluations - by professor and student

For each research laboratory rotation the head of the lab will submit a written report on the students' performance to the OGE, and they are shared with the CDOC. The student will also evaluate their research experience in the lab. More information can be found at: https://www.vet.cornell.edu/education/biomedical-biological-sciences-bbs-phd-program/phd-program/current-students/lab-rotations

C. Annual Progress Reports [Student Progress Report (SPR)]

It is the responsibility of the student to have an annual meeting with their Special Committee. Individual reports by the student and the mentor should be submitted to each committee member prior to this meeting. A report of the meeting must be submitted to the Office of Graduate Studies by the Field-appointed member or by a minor member of the committee. More information can be found at: https://www.vet.cornell.edu/education/biomedical-biological-sciences-bbs-phd-program/phd-program/current-students/annual-reports

D. Admission to Candidacy Examination (A-exam)

The A-exam consists of a written and oral component, and the student is expected to be entirely responsible for developing both components. The written format is typically a fellowship, generally similar to an NIH R21 application. Students will be provided written guidelines for the A-exam as part of the handbook. For the oral part of the exam, the primary format will be a chalk talk. The purpose of using a chalk talk format is to enable focusing on the student's thought process rather than on the data. Students will have practice with the chalk talk format through BioAP7100, whose explicit goal is to prepare students for the A-exam.

E. Defense of Thesis (B-exam)

The Special Committee reads the thesis, attends a public presentation by the degree candidate, and administers an oral examination on the subject matter presented. The Special Committee decides if the student passes, fails or receives a conditional pass; this becomes part of the record with the Graduate School.

VIII. TRANSITIONS

A. Matriculation into the DVM-PhD Program

Are you a DVM-PhD student or a DVM or PhD student? You are all things at all times! You will work in the laboratory and be in the classroom during the first year and a half of veterinary professional training. You will be co-mingled with a large class of DVM students and become a full-fledged member of that class. You will be graduating in a different DVM class than you started in.

B. From Professional Program to Graduate School

Your DVM Program is predictable and your life is structured by the curricular demands. Laboratory research, in contrast, is inherently less structured and routinely obtaining good quality data takes practice. You need to identify a suitable thesis project, which despite the best planning may turn out to be a dead end – or cause unexpected difficulties. You also will worry about how you will "fit" into the laboratory: will you get along with your advisor; will your thesis project continue to excite you? These concerns are common for all PhD students. Even though the concerns are real, they are manageable – and your predecessors in the Program have managed them successfully!

C. From Graduate School Back to the Professional Program

The transition from Graduate School back to the Professional Program poses yet another shift. You leave the relative freedom of the laboratory for the structure of the clinical training, where you are part of a team and where your activities are to a large extent dictated by your responsibilities for your patients. It is difficult to make the transition from a recognized expert in your field of research to a (somewhat unprepared "rusty") DVM student. You have been away from the Professional Program for 3 or 4 years, or more. Fortunately, you are reentering the DVM Program in Block 5a, which may be described as the pre-clinical lectures and labs. Do not underestimate the impact of what you have learned during your thesis research and how it will help you in the clinic. Your animal handling and procedures skills may be rusty, but the depth of understanding you bring to the practice of medicine should be enhanced.

D. From the DVM-PhD Program to Postgraduate Clinical/Postdoctoral Training

The search for internship and residency programs, or for a post-doctoral research position is another daunting goal post. You will apply when you have been through only a fraction of your clinics, and you are likely to be uncertain about your goals. You may also feel that your skill set is not as developed as it should be. The decisions you make are important, but medicine and biomedical research are changing rapidly, and nobody can plan for more than three years, or so, into the future. Maintain as much flexibility as possible. Remember the postgraduate clinical training programs are looking for clinicians, people who take good care of patients. That you are trained in research is a plus, but no amount of research training (or publications) will make up for a poor record in your Professional Program! **Grades matter, and it is important to "make a good impression" – as a future clinician.**

IX. ADMINISTRATIVE ISSUES

A. Funding

DVM-PhD degree students will receive substantial financial incentives to complete both degrees. Stipends will be paid during summer laboratory rotations and throughout the PhD portion of the program. Stipends will be in accordance with the BBS Graduate Program stipend rate and will be funded by the faculty mentor. Stipends will not be provided while in the Professional Degree program.

Graduate school tuition and fees will be paid by the student's faculty mentor during the PhD portion of the program. However, the College will provide a tuition loan for the veterinary school tuition covering the years that the student is part of the program, which the College will forgive once both the DVM and PhD degree programs are completed. Health insurance, through Cornell's SHP (Student Health Plan), will be provided throughout the length of your Combined Degree training. While a DVM student, the CVM will pay for this. While a graduate student, the faculty mentor will provide support for health insurance.

B. Interview/Recruitment/Mentorship

DVM-PhD students participate in the interview/recruitment of new Combined Degree students during the Interview Days (in February and March). They can also be asked to mentor the new students coming into the program.

C. Publications and Acknowledgments

Students, who are /have been supported by any fellowship, should acknowledge that support as well as the source of funds supporting the research in any publications. Money begets money; previous funding support is a sign of success. Students should provide the OGE with two copies of any publication (except abstracts and their thesis) on which they are an author or co-author. The Office will collect the publications from each year in bound volumes, so please provide reprints or the URL for your article to the Program Office as soon as possible after publication.

D. Vacation

Students may take an annual vacation in accordance with policy set by the Graduate School and their research mentor. Although, vacation time during the DVM years will follow the academic calendar and the policy of the DVM Program, as a DVM-PhD Degree student you are expected to consult with your research mentor regarding vacations. For students doing their thesis research, the timing of vacations should be agreed upon between student and thesis advisor. Grievances can be brought to the Program Director. Graduate students appointed on any combination of full assistantships or fellowships for spring, summer, and fall terms are entitled to two weeks (ten weekdays) of annual vacation each 12-month period (August 21 through August 20) in addition to Cornell University holidays (when the university is officially closed); vacation time will be prorated for students appointed for shorter periods of time (e.g., 4 days for a student appointed on an assistantship or fellowship for only one semester during the calendar period August 21-August 20). University holidays generally include twelve days: Martin Luther King Jr. Day, Memorial Day, Independence Day, Labor Day, Thanksgiving and the following day, and winter break (generally six working days from December 25 through January 1). Days on which classes are not in session but the university is open (e.g., institutionally-scheduled academic breaks in Fall Semester, January intersession, Spring Semester) are not automatic vacation time nor holidays for graduate students appointed on assistantships, but graduate students appointed on assistantships may request in advance to take a vacation during such periods.

E. Sick Leave

As a PhD Degree student, you may continue to receive stipends for up to 15 days of sick leave per year.

F. Parental Accommodation

While in the PhD degree program, students may receive a six-week paid accommodation for parental needs surrounding childbirth, adoption, newborn care, foster care, and acute child health care (or eight weeks for the birth mother for a cesarean section delivery).

The use of parental accommodation must be requested at least 90 days in advance of the anticipated beginning, please see this website for maternity and paternity options. There is no parental leave for DVM students; student will need to take a Leave of Absence from the DVM Program.

G. Unpaid Leave

While in the PhD degree program, students requiring extended periods of time away from their training experience, which could include more than 15 days of sick leave and/or more than 56 days of parental leave, must seek approval from the chair of their Special Committee and from the Program Director for an unpaid leave of absence. Whenever possible, approval for a leave of absence must be requested in advance of the leave.

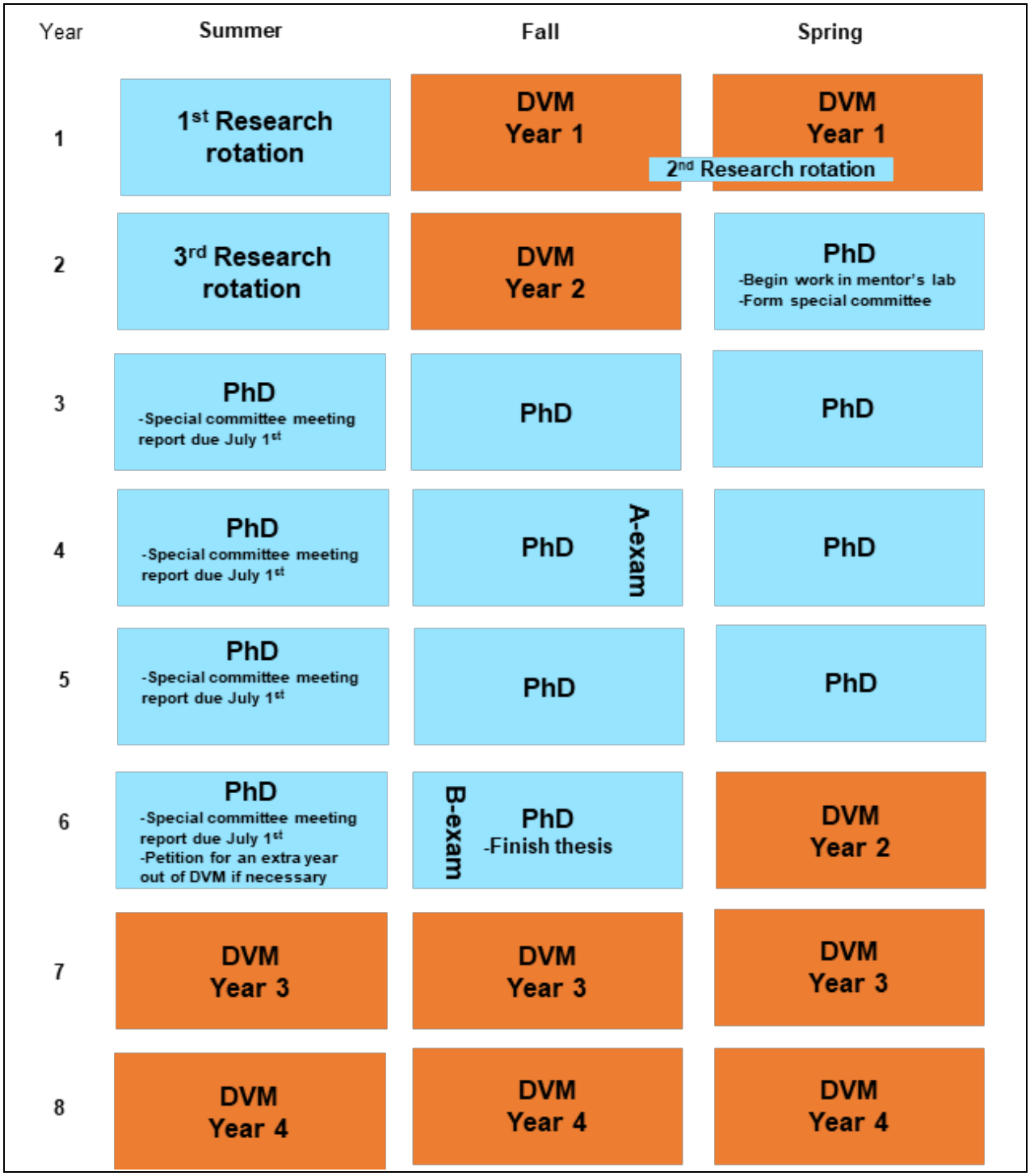
H. Withdrawal from the Program

Students who contemplate withdrawal from the DVM-PhD Program should recognize that withdrawal has serious repercussions, as they will lose all DVM-PhD "privileges" including stipend and tuition support. Assuming they otherwise are in good academic standing, and with the permission of the Program Director, students who withdraw from the Program can matriculate in the Professional Degree Program or the Graduate School, where they will be subject to the policies and graduation requirements that apply to single-degree DVM or PhD students.

I. Protection of Intellectual Property Rights

A student may not enter into any legal agreement involving their research without consulting their advisor and the DVM-PhD Program Director. Many organizations and investigators that supply research materials, which could be in the form of access to proprietary databases, insist that a Materials Transfer Agreement, or a similar document, be signed by the recipient. These are legal documents, and their wording may place (severe) restrictions on the use, and outcome of any use, of the supplied materials. Therefore, do not view such documents lightly, and do not sign any agreement that has the potential to limit you rights to any discovery without seeking advice. Generally, students should avoid signing any such documents and refer the matter to their advisor.

Appendix A: Outline of the 8-Year Training Program for DVM-PhD Students



Appendix B. Getting Started: Summer Programs and Research Rotations

Students are expected to complete all necessary information required to matriculate in the DVM program as per the Cornell DVM Program guidelines, and communicated by that office. While it is possible to enroll in the DVM program before completing a bachelor's degree, all students enrolling in Cornell's graduate school are required to have completed a bachelor's degree or equivalent before they matriculate, and the Graduate School must have received final, official degree bearing transcript(s) from the undergraduate institution(s).

First Summer and Second Summer. The DVM-PhD Degree Program requires newly accepted students to complete their first research rotation in the summer before entering the DVM program. Students should apply to the Cornell Veterinary Investigator Program by January 31st to ensure that their summer research rotation is organized before they arrive, and to receive a summer stipend. Incoming students are requested to consult with the Program Director and the DGS of BBS before submitting their VIP rotation selection. It is imperative that students rotate in labs that are well funded and that can assume the responsibility of training a new graduate student.

1. Cornell Veterinary Investigator Program (VIP)

The VIP program is designed to provide first- and second-year veterinary students with a focused biomedical research experience. The main objectives of the program are to provide veterinary students with a rigorous and rewarding exposure to biomedical research at the highest level of inquiry and to motivate students to pursue the study of research problems that are relevant to veterinary medicine. Specifically, each student will develop:

- research skills
- an appreciation for the value of biomedical research in veterinary medicine
- a desire to pursue a career that involves biomedical research

More information is found at:
https://www.vet.cornell.edu/education/other-educational-opportunities/veterinary-investigators-program-vip

2. Leadership Program for Veterinary Students

The Leadership Program for Veterinary Students at Cornell University is a unique summer experience for those who seek to broadly influence the veterinary profession through a science-based career. It is an intensive, research-oriented program combining faculty-guided research with vocational counseling, student-directed learning, and other professional enrichment activities. Approximately 25 veterinary students from the United States and abroad are accepted into the program annually. Qualified applicants are highly motivated individuals who have distinguished themselves in a variety of professional and personal pursuits. The life experiences, culture, and academic backgrounds of qualified applicants are diverse, but all possess the ability to become future leaders in academic veterinary medicine and the biomedical sciences at large. More information is found:
https://www.vet.cornell.edu/education/other-educational-opportunities/leadership-program-veterinary-students-cornell-university

Appendix C. Advice on Preparing Petitions

There are two times during your program that you may be asked to prepare formal petitions. Here are the procedures and tips in order to prepare a successful petition.

1. Research for DVM Course Credit

DVM students may register for research in the (VTMED 6X99) distribution block periods, for up to 4 credits per year for a total of 11 credits. For DVM-PhD students, this opportunity is most useful in their 1st year of the DVM program when they are seeking to complete their 2nd lab rotation.

The appropriate form can be obtained from the College Registrar, Ms. Paige Frey. You will need to provide a brief description of your research objectives and you will need the signature of a faculty member in the CVM. If your research will be done in the laboratory of someone who is not on the College faculty, you should request that a CDOC member or a member of your Special Committee signs the form. Please be aware, the person signing the form is responsible for your grade, even if it is an S/U. You must meet with them to discuss your research on whatever schedule they suggest or you may not receive credit for your work.

2.Extension of Thesis Research Period

The goal for completing the DVM-PhD training is eight (or seven) years. To accomplish this, students take a 4(3)-year leave from the DVM program to do their thesis research before returning to the DVM curriculum. We recognize that each student's training program will be unique, and that it is difficult to predict the rate of progress. Students therefore are encouraged to consult with their research mentor and the DVM-PhD Program Director regarding any difficulties that they may encounter that are likely to affect their progress through the Program.

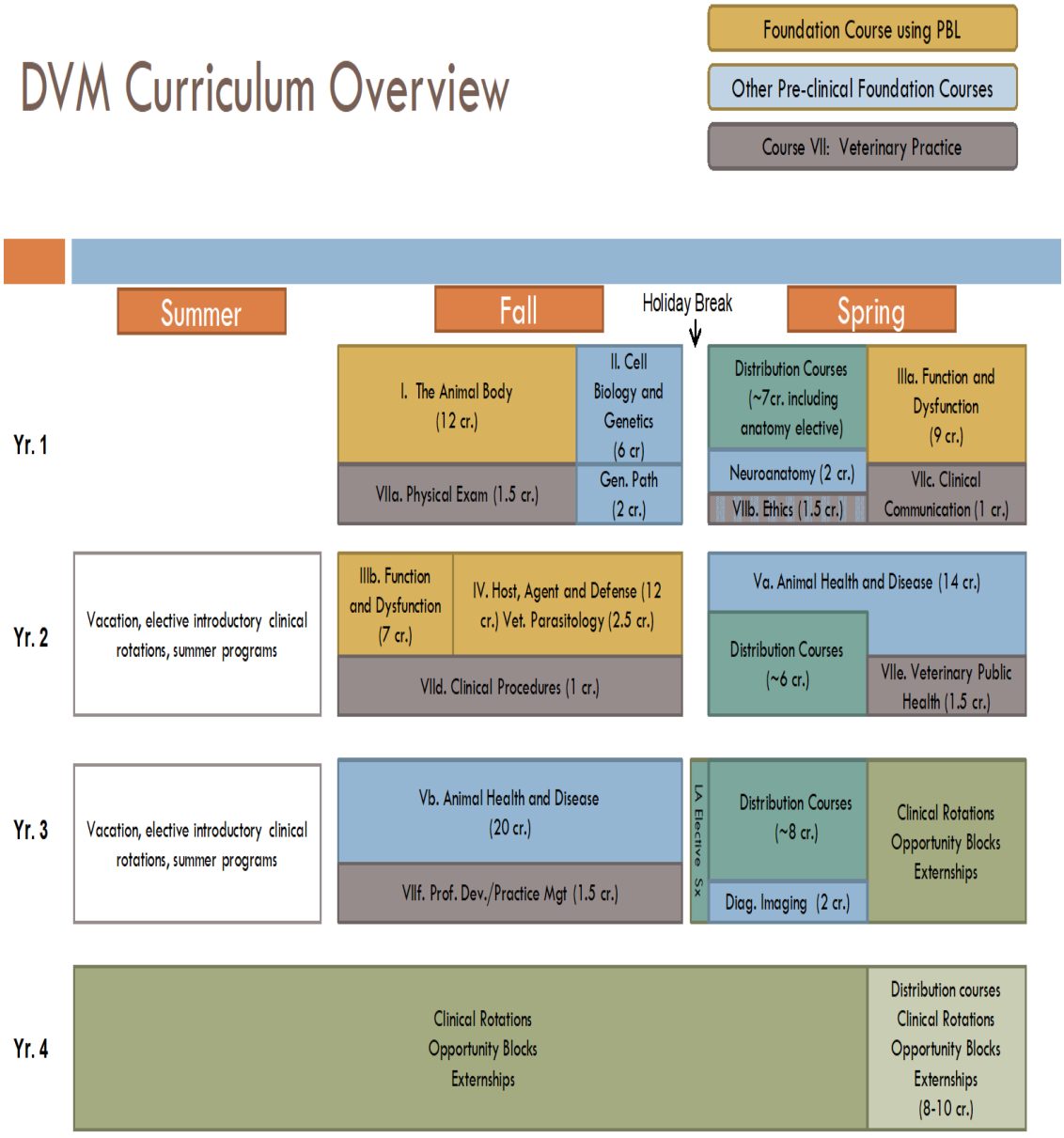
According to a policy approved by the CVM faculty in 2022, if a student in good standing is not ready to return to the DVM program after 4 years of thesis research, and they have sufficient evidence that they will be able to finish their research in a 5th year, they may petition the CDOC and the DVM Curriculum Committee for a 1-year extension of their thesis research period. If they fail to do this in a timely way, they must return to the DVM class. Failing to petition or return to the DVM class will require reapplication for admission to the DVM program.

Procedures:

Please submit your petition to the CDOC in the summer of Year 6. Do not hesitate to seek advice from a CDOC member while preparing this document.

- Items to include in the petition:
    - Summary of current research project.
    - Plans for additional year of research (including timetable).
    - Address how veterinary skills will be maintained during this period.
    - Letter of support from Special Committee Chair.
- Student submits petition to the CDOC for review and their vote.
    - Student will receive communication from the CDOC.
    - If approved, CDOC will inform the DVM Curriculum Committee of their endorsement and ask them to review and vote on the petition as well.
    - Both the CDOC and DVM Curriculum Committee need to approve the petition.

Appendix D: DVM Curriculum



Updated 11/2017

Appendix E. Professional Conduct

As DVM-PhD students you are entering a profession, and you will from your first day in the Program be regarded as junior members of that profession. You should behave accordingly. The term Professional Conduct has many implications and all students should familiarize themselves with the Cornell Code of Academic Integrity and the Honor Code of the DVM Program.

The aim of the Code is to foster an atmosphere of academic and professional integrity, in which each individual accepts responsibility for their behavior. The Code establishes norms that will guide you as you struggle with the, at times difficult, moral and ethical questions that will arise in your career as a biomedical investigator. The nature of the questions that arise will change over time, as will your own appreciation of the issues involved; but the basic principles will remain invariant.

Some norms are self-evident, such as the absolute prohibition against plagiarism and other scientific misconduct. Other norms are more subtle, such as those pertaining to your interactions with your colleagues, advisors and other faculty, and eventually your patients. This involves three related issues: how you behave, how you communicate, and how you treat the information you receive.

You are in training to become a clinician-scientist, which means that you will have clinical responsibilities – at least while you are completing your clinical training in the Professional Program. You will be responsible for your patients' lives and well-being, which means that you must have the competencies needed to practice your chosen profession. You also have special responsibilities in terms of how you behave toward your patients – you show compassion and respect. Your interactions with colleagues and faculty should be at the same high level.

Science progresses because scientists exchange information, and it is important that you communicate accurately, effectively and with appropriate consideration for the people you communicate with. This requirement goes beyond the mere exchange of scientific information; it applies to all your professional interactions – including those pertaining to your medical education and clinical activities – from your first day in the Program.

You will be the beneficiary of confidential information: fellow students will discuss their newest results and you will exchange information about different laboratories; at lab meetings you learn about your colleagues' exciting results; you read their grant applications and manuscripts; and you will be given manuscripts to review for journals. Some of the information that comes your way can be disseminated freely; but much of the information is privileged, meaning that it can be disseminated only with the explicit approval of the individuals who gave you the information. If you are in doubt whether some information is privileged, you should assume it to be so until you have permission to discuss it with others. Breaches of confidentiality are serious violations of professional conduct. You need to use your judgment – at all times!

This combination of competency, honesty and confidentiality is the hallmark of professional integrity.

Finally, as DVM-PhD student you have many privileges. These privileges are not entitlements; you must earn them – by performing at a consistently high level. Noblesse oblige!