



Comparative Health Sciences Graduate Program
PhD and MS Student Handbook
2017 – 2018



Comparative Health Sciences Graduate Program (PhD, MS)

Overview

The program of Comparative Health Sciences is a multi-disciplinary program offering graduate training towards MS and PhD degrees. The program encourages applicants with interest in complex contemporaneous issues that require a multi-disciplinary approach to consider this program. Faculty involved in the program have interests including microbiology, ecology, immunology, nutrition, food science, bio-engineering, veterinary medicine, public health, human health, bioinformatics, mathematical modeling, microbiome, neuroscience and others.

The program encourages co-mentorship from different disciplines, but also accepts students working in traditional fields. The program has a strong international component and diversity of ideas and innovation is valued. Strong student involvement and participation in the program is sought.

The training involves classes, laboratory research, travel/presentations, outreach activities, teaching and direct participation in a seminar series. The students are supported by graduate teaching, graduate research assistantships, and scholarships provided by the program. The students' program is designed individually to support the needs of innovative research. Graduate students are expected to be major participants in the scientific output of the program and are given opportunities to publicly present findings.

Students are encouraged to review "The Guide to Success" on the Graduate School website, which covers all of the basic requirements for receiving a graduate degree at OSU (<http://gradschool.oregonstate.edu/success>). In addition, the Graduate School website has complete graduate course listings, online application and registration, and additional detailed instructions for completing a graduate degree.

[Comparative Health Sciences Website](#)

[Graduate School](#)

[Catalog Details](#)

Please review the graduate school [application process](#) and [Apply Online](#).

Primary Contact: Luiz Bermudez, MD, Biomedical Sciences,
luiz.bermudez@oregonstate.edu

How to apply to the program: Admission Requirements

OSU Graduate Admissions Requirements

Please confirm (link below) that you meet all Oregon State University requirements.

[Graduate Admissions Requirements](#) for all applicants to Oregon State University

Comparative Health Sciences Requirements

If you meet OSU requirements, we encourage you to contact [participating faculty](#) whose research coincides with your interest. Individual faculty member can provide information on their research programs with possible positions for graduate students in their laboratory.

Grade Point Average (GPA)

A minimum GPA of 3.00 is required.

Graduate Record Examination (GRE)

Taking the GRE is recommended for domestic and for international program. [ETS GRE site](#) has information about the test.

Test of English as a Foreign Language (TOEFL)

Foreign applicants must meet the university minimum scores. [Graduate Admissions Requirements](#) has more information about the minimum testing requirements.

Graduate Assistantships

Graduate Research Assistantships (GRAs)

Students may receive GRA support directly from the grant of their major professor. The Program has a limited number of highly competitive scholarships that range from 1 to 2 years for a PhD program.

Laboratory Rotations

Health Insurance

Health insurance is mandatory for all graduate students. GRA employment includes a contribution of 85% of the cost More information is available at [Student Health Services](#).

Student Loans, Scholarships and Fellowships

Graduate students are often eligible for financial assistance in the form of student loans or limited university-wide scholarships. [Financial Aid and Scholarships](#) can provide more information.

How to Apply

Deadline

The deadline for applications is December 15th for the start of the following academic year.

Online Application

Required materials for the online applications include:

- Statement of Objectives
- Three letters of recommendation
- Transcripts
- GRE scores
- English Language test scores (if applicable)

[APPLY ONLINE HERE](#)

Admissions Requirements

Admit Term

Any Term

Required Tests

GRE – Verbal, Quantitative and Analytical. A score in the 50th percentile in each section is desirable. The GRE must be no more than 3 years old from registration.

International students: English Language Requirements

English language requirements for international applicants to this program are the same as the standard [Graduate School requirements](#).

[Graduate School Application Process](#) link

Admission Criteria: No single criterion will serve as a basis for admission or denied to the Comparative Health Sciences Graduate Program.

1. Evidence of excellent scholarship and **research potential** from previous academic records, letters of recommendation and GRE scores.
 2. Professional goals compatible with a graduate degree in Comparative Health Sciences
 3. Scholarship interest compatible with one or more of the faculty who are active in the degree program.
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Significance of Temporary Advisor

At the time of admission to the program the student may be assigned a temporary faculty advisor or the student may select to go on a rotation of research programs. If in the end no faculty advisor has been selected, the coordinator of the program will serve as the temporary advisor the student.

INTO Program

The comparative health Science Graduate Program has a component associate with the OSU INTO (International Students).

If one is going to apply for the INTO, She/he needs to follow the INTO guidelines.
<http://www.intostudy.com/en-gb/universities/oregon-state-university/programs/graduate-pathway-in-comparative-health-sciences>

A GPA of 3.0 is required.

A year of course, followed by the GRE exam (add Wed with the Courses) to prepare the student for a MS or PhD Graduate Program.

Students who complete the year with good academic record will then be in a MS or PhD program.

TERM 1	COURSE TITLE	CREDIT HOURS
ALS 162	Academic Reading and Writing	3
ALS 161	Academic Listening and Speaking	3
BI 314	Cell and Molecular Biology	4
BB 331	Introduction to Molecular Biology	3
	Topics in Comparative Medicine	2
	Total	15
TERM 2	COURSE TITLE	CREDIT HOURS
COMM 111	Public Speaking	3
WR 327	Technical Writing	3
ST 351	Introduction to Statistical Methods	4

TERM 1	COURSE TITLE	CREDIT HOURS
TBD	Laboratory Rotation	4
	GRE Prep	0
	Total	14
TERM 3	COURSE TITLE	CREDIT HOURS
WR 362	Science Writing	3
BI 213	Principles of Biology	4
NUTR 420	Human Nutrition	3
NUTR 421	Applications in Human Nutrition	1
	Introduction to Research Topics	3
	Total	14

Degree Program Components

- 45 credit hour program (M.S.); 108 credit hour program (Ph.D.)
- 0 credit hours apply from Pathway
- 45 credit hours remaining towards degree (M.S.); 108 credit hours remaining toward degree (Ph.D.)

Career Paths

A Graduate Pathway in Comparative Health Sciences is for students with a strong interest in career-oriented research. As a graduate, you might find work in the following fields:

- Human and animal health
- Veterinary medicine
- Biology
- Science

General Aspects when you arrive to the campus

Welcome to the Comparative Health Sciences Graduate Program. This is a multi-disciplinary program intended to offer opportunities to students who wish to carry out research to solve complex problems of health related sciences.

General Information:

Arrival in Corvallis

Corvallis is a small town with approximately 56,535 residents. It lies in the heart of the Willamette Valley, between the Cascade Mountains and the Coast Range, 80 miles south of Portland and 55 miles east of the Pacific coast. The climate is mild, with rainfall averaging about 40 inches annually. The main employers in Corvallis are Oregon State University, Good Samaritan Hospital, and Hewlett-Packard. Major performing arts facilities are found in Portland and Eugene (45 miles south).

When You Arrive:

Contact your major professor.

Your major professor is responsible for providing desk space for you in your College/Department.

Sign up for your ONID account:

If you haven't already done so, you must sign up for an ONID account. This account is used for all registration, records and communication with you and is very important. Please sign up for this account soon, as we will begin sending email information to that account beginning in September. For more information go to <http://onid.oregonstate.edu/> then click "Sign up for ONID" on the left.

University ID Card:

The OSU Card is the official identification card for students, faculty and staff. It functions as a meal card, library card and more! Graduate students may obtain their ID card from one week before and throughout their first term of registration. For Fall term, incoming graduate students may obtain their ID card anytime throughout the summer as well.

The Memorial Union (MU):

The Memorial Union provides many different services to the campus and community including restaurants, campus information, ATM machines, study rooms, a lounge, a convenience store, bowling, and billiards. The MU is also a great place to relax, study, and meet with people. There is also conference rooms located in the MU.

OSU Book Store:

The OSU Book Store is located on the OSU campus, across from Reser Stadium at the intersection of SW 26th Street & SW Washington Way.

Health:

The Student Health Center located in the Plageman Building (across from Weniger Hall) has MD and LPN services, pharmacy, etc. Contact them at 541-737-2721 for more information. The Benton County Health Department and the Benton County Mental Health Clinic (541-766-6835) both located at 530 NW 27th Street, provide a number of services.

Counseling/Community Resources:

A number of University counseling services are available to students and their families. These include the Counseling Center (541-737-2131) for personal, educational-vocational, and marriage counseling. ASOSU Office of Legal Advising was developed to assist and represent all currently enrolled students with their legal issues, especially landlord-tenant disputes and consumer issues among others. To make an appointment or obtain more information about the Office of Legal Advising they can be contacted at 541-737-4165 or by visiting 110 Student Experience Center. The Women's Center located in the Women's Center Building (541-737-3186) offers support for both men and women students. Community Outreach, Inc. located at 8th and Reiman Street offers a number of emergency services. Call 541-758-3000 for more information about the programs and eligibility. Many of their programs have restrictions, so call first to find out the requirements. The Center Against Rape and Domestic Violence (CARDV) provides counseling and support services including crisis intervention and temporary shelter for victims of abuse. For information call 541-758-0219 (office) or 541-754-0110 (hotline).

Program and University Policies

Office Space Policy:

It is the implied, but not guaranteed, intent of the program to provide office space for graduate students during their studies at OSU. In actuality this responsibility generally falls upon your major professor. If your major professor is unable to find office space for you, please let the office know and we will see if something can be found.

Travel to Professional Meetings:

Graduate students who plan to present a paper or poster, or otherwise participate in a professional meeting can also apply for a small grant from the program. It has to have the approval of the Major Professor and the Coordinator of the Program. Deadline for application is one month prior to the meeting. Funds may be used for registration fees or for reimbursement of travel expenses. If granted for registration fees and then the trip is subsequently cancelled, it is expected that the program will be reimbursed for this expense.

The Graduate School also offers a Graduate Student Travel Award that students can apply for. The travel funds from this program are designed to provide graduate students with financial support to cover part of the cost of attending and presenting their scholarly achievements at prestigious conferences and venues. Award details and student eligibility can be found on the Graduate School website http://oregonstate.edu/dept/grad_school/travel.php. The awards are intended to cover up to half of the full cost of attending a conference (air and / or ground transportation, hotel, meals, and meeting registration). Approximately 10 awards will be made per quarter. The maximum award will be \$500 for domestic travel and \$1,000 for international travel.

Insurance Coverage:

OSU recommends that all students maintain adequate health insurance coverage. International students are currently required to enroll in the OSU insurance plan. Graduate assistants and graduate fellows have a separate mandatory health insurance plan through their graduate appointment. You can read more about the insurance plans available to students at the link below.

<http://studenthealth.oregonstate.edu/insurance>

ASOSU Insurance Subsidy: All students who enroll in the OSU International or Domestic plans qualify to apply for the need-based insurance subsidy offered by ASOSU (Associated Students of OSU - student government). The insurance office does not run this subsidy but we feel it is important for students to know that it is available. The deadline to apply for this subsidy is the third Friday of the term, and the insurance charge must be paid in full by the deadline for students to be eligible. ASOSU information can be found at the link below.

<http://asosu.oregonstate.edu/>

GRADUATE PROGRAM GUIDELINES

For general information consult the [Graduate School](#)

Master of Science (M.S.) Program

See [flowchart](#) for successful MS Degree completion

Thesis Committee and Program Meeting

The [M.S. Thesis Committee](#) consists of 4 members of the OSU graduate faculty. The committee includes a Graduate Council Representative, who serves as advocate for appropriate process. A Program Meeting will be held no later than the end of the second term of work in the thesis lab. The Program meeting will cover two aspects: the proposed coursework (Program of Study) and the proposed research (Thesis Outline). This meeting will include all members of the committee. A [Program of Study](#) form should be completed during this meeting.

Program of Study (45 graduate credits required; i.e., 500 or 600 level, half the credits to come from 600 level):

- 24-33 coursework credits consisting of:
 - a. The required core sequence of 4 courses (3 credit and 1 credit courses).
 - b. 18-27 credits from diverse courses relevant to the thesis research offered by other programs IF agreed to by the thesis committee
- 12 Thesis credits
- *Note: 23 of the 45 credits must be graduate stand-alone courses (500/600 level) that are not derived from the 500 component of 400/500 courses. For example, after the 6 required first year core sequence credits and typical 12 thesis credits, 5 further credits must be graduate only.*
- *Note: Full time enrollment is 12 credits per term in the academic year and 9 in the summer. Maximum load permitted is 16 credits.*

Annual Meeting Requirements

Students are required to meet yearly with their committee to evaluate their progress. The student and major professor(s) must complete the Annual Graduate Student Progress Report form, have it signed by **all** members of the student's graduate committee, and return it to the assistant to the program.

Other Requirements

- Students must maintain an overall GPA of 3.0 and will be notified by the Graduate School if their GPA falls below 3.0 for any term. The cumulative GPA must be at or above 3.0 before the final exam can be taken. Grades C (=2.0) or below cannot be used as graduate credit.
- Candidates must complete one term of service as a Graduate Teaching Assistant before graduation. This is considered a valuable experience and an integral part of training towards a higher degree.

Final Defense

The Graduate Committee will conduct the final examination. Substitutions may be made if approved by the Program and Graduate School.

The student must contact members of the committee to arrange the date, time, and place of the defense, and then schedule the exam with the Graduate School not less than two weeks before the examination. One copy of the pre-text pages of the thesis must be submitted to the Graduate School. Copies of the thesis should be distributed to **all** committee members, two weeks prior to the exam. All members of the graduate committee should be physically present at the required graduate exam (for exceptions, see [Remote Participation](#) requirements).

The first part of the exam is the thesis presentation portion and is open to anyone. After the thesis seminar and open questions, the committee and student will continue in closed session with the oral examination of the thesis work and its relationship to microbiology.

- The decision on the outcome of the exam will be based on a Scoring Guide rubric. The committee will use this form to evaluate the student's performance (with specific reference to rubric items) at the conclusion of the defense.
- A copy of the scoring sheet needs to be returned to the office of Biomedical Sciences.

Doctor of Philosophy (PhD) Program see [flowchart](#) for successful PhD completion

Thesis Committee Program Meeting

The [Ph.D. Graduate Committee](#) consists of 5 members of the OSU graduate faculty. A Graduate Council Representative is included to serve as advocate for appropriate process. A Program Meeting will be held no later than the end of the first year of graduate enrollment. The Program Meeting will cover two aspects: the proposed coursework (Program of Study) and the proposed research (Thesis Outline). This meeting will include all members of the committee. A [Program of Study form](#) should be completed during the meeting.

Program of Study (108 graduate credits required, i.e., 500 or 600 level with at least 50% of the credits from the 600 level):

- At least 27 coursework credits consisting of:
 - a. The required core courses that must be taken during Year 1.
 - b. The remaining should be relevant to the thesis research and must be agreed to by the thesis committee.
- At least 36 Thesis credits
- Sufficient additional Thesis credits to reach 108 total credits.

Note: 54 of the 108 credits must be graduate stand-alone courses (500 or 600 level) that are not derived from the 500 component of 400/500 slash courses.

Note: Full time enrollment is 12 credits per term in the academic year and 9 in the summer. Maximum load permitted is 16 credits.

Thesis Outline

Students must prepare and submit to their committee an outline of the thesis project. This outline must be sufficiently detailed to enable the committee to evaluate the progress of the student on a yearly basis.

Annual Meeting Requirements

Students are required to meet yearly with their Graduate Committee to evaluate their progress. The Annual Graduate Student Progress Report Form must be completed by the student and major professor, signed by **all** members of the student's graduate committee, and returned to the assistant to the program.

Other Requirements

- Students must maintain an overall GPA of 3.0 and will be notified by the Graduate School if their GPA falls below 3.0 for any term. The cumulative GPA must be at or above 3.0 before the final exam can be taken. Grades at or below C (= 2.0) cannot be used as graduate credit.
- Candidates must complete one term of service as a Graduate Teaching Assistant before graduation. This is considered a valuable experience and an integral part of training towards a higher degree.
- Candidates must present two public presentations of their research in a national/international meeting/conference.

Preliminary Qualifying Examination

As outlined by the [Graduate School](#), to be admitted for the doctoral degree, students must pass a comprehensive Preliminary Examination conducted by the Graduate Committee. The purpose of this exam is to determine the student's understanding of their major and minor fields and to assess their capability for research. It involves a written research proposal on a topic that is or not from the student's thesis research, followed by an oral examination that features a presentation and then questions on the proposal topic. There will also be questions on more general topics drawn from the student's coursework and/or general area of thesis research. The Preliminary Examination is best taken after about two years, near the completion of the coursework on the Program of Study.

Scheduling the Preliminary Exam

The committee is contacted for:

- (1) Agreement on the research proposal topic
- (2) Setting the target date for completion of the written proposal
- (3) Acceptance of written proposal
- (4) Arrangement of a date, time, and place for the exam

Written Proposal

Students must write a proposal on an approved topic.

- The student will provide the committee with a brief summary of the topic.
- The topic may be on anything including a topic close to the student's thesis project and is at the discretion of the student's committee.
- The committee must approve the topic with no more than 1 dissenting vote (email votes are acceptable).

Unless otherwise specified by the committee, the proposal shall be based on the format of an NSF or NIH postdoctoral proposal. The format and length should be discussed with the committee; a general guideline follows.

- The length shall be 5-7 pages (single-spaced, not including references).
- The proposal should include the following sections:

Specific aims

Background and Significance

Research Design and Methods

Literature cited (not included in the page limit)

- Within these sections, the committee will be looking for the following components:

Clearly stated research problem

Clearly developed, testable hypothesis

Focused experimental aims

Contingency plans for aims/objectives

Appropriate experimental design

Appropriate data analysis methods

Justification for, and impact of, the proposed research

A realistic project timeline

The proposal should be submitted to the committee within the specified period after the committee has approved the topic (typically 4-6 weeks). The individual committee members must review the proposal and determine if the written proposal is acceptable for an oral exam defense. This review should take place within 1 week of submission.

- In the event revisions are required (i.e., the proposal is judged as being insufficiently developed to proceed with the oral exam), the student will have 4 weeks to modify and re-submit the proposal to the committee for a second decision.
- Once there is a decision to accept the proposal, the student must schedule the oral exam.

Oral Examination

The exam is scheduled with the Graduate School using the [Exam Scheduling Form](#).

- The oral exam must be at least 2 hours in length and is typically up to 3 hours long. The oral exam covering the thesis proposal should constitute about half of the exam time.
- All members of the graduate committee should be physically present at the required graduate exam (for exceptions, see [Remote Participation](#) requirements).
- The defense of the proposal should include a presentation of the proposal by the student (30 minutes), followed by questions from the committee members that are answered by the student.

Approximately half of the exam will be devoted to open questions

(a) The open questions may include anything related to science or the training of the student that the committee members deem relevant.

(b) It is recommended that the candidate practice answering questions with their advisor(s), committee members and/or other students.

- The decision to pass the individual is subject to the rules of the Graduate School, which gives the committee the options (i) to pass, (ii) not to pass and to terminate the student's work, (iii) not to pass and to allow a re-examination, or (iv) to recess and re-convene within two weeks.
- A copy of the scoring sheet needs to be returned to the office of Comparative Health Sciences.

Final Oral Examination

The examination committee will consist of the same members as for the Preliminary Examination, although substitutions may be made if approved by the Program and the Graduate School. The student must contact members of the committee to arrange the date, time and place, **then schedule the exam with the Graduate School not less than two weeks before the examination.** One copy of the pre-text pages of the [thesis](#) must be submitted to the Graduate School when scheduling the exam. Examination copies must be distributed to **all** committee members two weeks prior to the examination. All members of the graduate committee should be physically present at all required graduate exam (for exceptions, see the [Remote Participation](#) requirements).

The first part of the exam is the thesis presentation portion, which is open to all interested parties. After the thesis seminar, the committee and student will continue in closed session to examine the thesis and its broader relationship to microbiology.

- The decision on the outcome of the exam will be based on a Scoring Guide/Rubric Sheet provided by the student and the major professor for the Ph.D. thesis defense. After the major professor explains how the guide will be used, each graduate committee member will be asked to use the form in documenting their assessment of the student. At the conclusion of the exam the committee will discuss the student's performance (per the Scoring Guide). The major professor will collect the completed forms for filing in the Biomedical Sciences Office.

**Comparative Health Sciences Degree Program
Participating Faculty**

College of Veterinary Medicine

Wendy Baltzer
Luiz Bermudez
Rob Bildfell
Shay Bracha
Chris Cebra
Patrick Chappell
Morrie Craig
Lia Danelishvili
Helio de Morais
Brian Dolan
Chuck Estill
Jana Gordon
Elena Gorman
Jean Hall
Claudia Hase
Michael Huber

Ling Jin
Deidre Johns
Anna Jolles
Mike Kent
Nicole LeBlanc
Christiane Löhr
Kathy Magnusson
Erica McKenzie
Jan Medlock
Milan Milovancev
Hernan Montilla
Sarah Nemanic
Fikru Nigussie
Jill Parker
Manoj Pastey
Stephen Ramsey

Dan Rockey
Duncan Russell
Mahfuzur Sarker
John Schlipf
Katherine Scollan
Stacy Semevelos
Natalia Shulzhenko
Susanne Stieger-Vanegas
Susan Tornquist
Katy Townsend
Beth Valentine
Katja Selmer
Sreekanth Puttachary

College of Pharmacy

Theresa Filtz
Arup Indra
Jane Ishmael
Chrissa Kioussi

Mark Leid
Andriy Morgun
Aleksandra Sikora

College of Public Health and Human Services

Anna Harding
Molly Kile

Don Jump
Andy Houseman

College of Agricultural Sciences

Gerd Bobe
Gita Cherian
Michelle Kutzler

Neil Shay
Antonio Torres

College of Engineering

Elain Fu
Adam Higgins
Joseph McGuire
Karl Schilke

Environmental & Molecular Toxicology

Siva Kolluri

Required core courses that should be taken during year 1

- VMB 501 Research Perspectives Lab Rotations (3) (if necessary)
- ST 511 Methods of Data Analysis (4)
- GRAD 520 Responsible Conduct of Research (1)
- MCB 525 Molecular and Cellular Biology Techniques (3) or Molecular Tools (VMB 671)
- VMB 669 Introduction to Grant Proposal Writing (1)
- VMB 607 Seminar (1)

Elective courses relevant to the thesis research from the VMB listing or other programs agreed by the thesis committee.

- VMB 521 Animal Models (3)
- VMB 523 Zoonoses (3)
- BB 485/585 Applied Bioinformatics (3)
- VMB 630 Mechanisms of Disease (3)
- VMB 631 Mathematical Modeling (3)
- VMB 673 Comparative Immunology (3)
- VMB 670 Systems Biology & Bioinformatics (1)
- VMB 671 Molecular Tools (3)
- VMB 674 Vaccines and New Therapies (3)

Blanket courses

- VMB 603 Thesis (36)
- VMB 607 Reading & Conference or Seminar/Colloquium (1-16)

Appendix 1

Scoring Guide (Rubric) for Graduate Learning Outcome Assessment

Characteristics desired in a **MS DEFENSE EXAM**

Evaluation/Guidance
1. Problem Definition: Has stated the research problem clearly, providing rationale for undertaking the research.
2. Literature and Previous Work: Demonstrated sound knowledge of literature in the area and of prior work on the specific research problem.
3. Impact of Research: Demonstrated the potential value of solution to the research in advancing knowledge within the area of study.
4. Solution Approach: Has applied sound state-of-the-art research methods/tools to solve the defined problem and has described the methods/tools effectively.
5. Results: Analyzed and interpreted research results/data effectively.
6. Quality of Written Communication: Communicated research results clearly and professionally in written form.
7. Quality of Oral Communication: Communicated research results clearly and professional in oral form.
8. Critical Thinking: Has demonstrated capability for independent research in the area of study and expertise in the area.
9. Broader Impact: Demonstrated awareness of broader implications of the concluded research. Broader implications may include social, economic, technical, ethical, business, etc. aspects.
10. Publications: Journal or conference publications have resulted (or are anticipated) from this research.

Appendix 2

Characteristics desired in PhD ORAL PRELIMINARY EXAM

Evaluation/Guidance
1. Problem Definition: Has stated the research problem clearly, providing rationale for undertaking the research.
2. Literature and Previous Work: Demonstrated sound knowledge of literature in the area and of prior work on the specific research problem.
3. Impact of Research: Demonstrated the potential value of solution to the research in advancing knowledge within the area of study.
4. Solution Approach: Has applied sound state-of-the-art research methods/tools to solve the defined problem and has described the methods/tools effectively.
5. Results: Analyzed and interpreted research results/data effectively.
6. Quality of Written Communication: Communicated research results clearly and professionally in written form.
7. Quality of Oral Communication: Communicated research results clearly and professional in oral form.
8. Critical Thinking: Has demonstrated capability for independent research in the area of study and expertise in the area.
9. Broader Impact: Demonstrated awareness of broader implications of the concluded research. Broader implications may include social, economic, technical, ethical, business, etc. aspects.
10. Publications: Journal or conference publications have resulted (or are anticipated) from this research.

Appendix 3

Characteristics desired in PhD DISSERTATION DEFENSE EXAM

Evaluation/Guidance
1. Problem Definition: Has stated the research problem clearly, providing rationale for undertaking the research.
2. Literature and Previous Work: Demonstrated sound knowledge of literature in the area and of prior work on the specific research problem.
3. Impact of Research: Demonstrated the potential value of solution to the research in advancing knowledge within the area of study.
4. Solution Approach: Has applied sound state-of-the-art research methods/tools to solve the defined problem and has described the methods/tools effectively.
5. Results: Analyzed and interpreted research results/data effectively.
6. Quality of Written Communication: Communicated research results clearly and professionally in written form.
7. Quality of Oral Communication: Communicated research results clearly and professional in oral form.
8. Critical Thinking: Has demonstrated capability for independent research in the area of study and expertise in the area.
9. Broader Impact: Demonstrated awareness of broader implications of the concluded research. Broader implications may include social, economic, technical, ethical, business, etc. aspects.
10. Publications: Journal or conference publications have resulted (or are anticipated) from this research.

Appendix 4

To the Committee to fill out

Student: _____

Do you feel that the student was prepared?

Yes _____

No _____

Comments:

Do you feel the committee participated actively in advising the student about her/his research?

Did _____

Could do better _____

Was not very helpful _____

Comments:

Any suggestion to the program that in the future could improve the student and members of the committee's experience?

No _____

Yes _____

Suggestions:

APPENDIX 5

Clinical Science option Program Requirements

This option will be available only to dual clinical residents/graduate students of the College of Veterinary Medicine, in conjunction with 2-, 3- or 4-year residencies in a veterinary specialty. These residency programs are structured according to the guidelines defined by the individual Specialty Colleges (e.g. American College of Veterinary Surgeons, etc.). Dual clinical residents/graduate students enrolled in the Clinical Sciences option must fulfill programmatic requirements of their individual specialty college residencies including satisfactory annual performance evaluations, in addition to graduate degree requirements for successful completion of their concurrent MS or PhD degree.

Residency training programs provide in-depth knowledge of veterinary clinical specialties and supporting disciplines under the guidance and supervision of Diplomates of specialty colleges. The objectives of these programs are to promote aptitude and clinical proficiency in the diagnosis, treatment, and management of animals with specific issues (dependant on specialty), as well as to instruct the resident in the science and practice of veterinary specialties, and to provide the resident with the opportunity to pursue career goals in teaching, research, clinical service, and/or specialty practice. Clinical skills and judgment are built through clinical experience, teaching of professional students, and participation in veterinary specialty rounds and seminars.

Dual clinical residents/graduate students on a clinical specialty service shall be responsible for receiving clinic appointments and obtaining history and pertinent information from clients, supervising daily management of hospitalized animals, participating in clinical teaching, and providing optimal clinical service and prompt professional communications. Duties will also include a limited number of didactic lectures and participation in laboratory and continuing education courses. Responsibilities will include night and weekend emergency duty in the hospital. These assignments are rotated among the residents, clinical fellows, and interns. These responsibilities are integral to residency training and required coursework for the Clinical Sciences option, including Postgraduate Medicine, Surgery or other specialty (VMC 632, VMC 634, or similar) and Topics in Medicine, Surgery, or other specialty (VMC 682, VMC 684, or similar courses).

Master's of Science (Comparative Health Sciences): Quick Reference Guide

Year one:

1. Application to the Graduate School by the student before August 15 for Fall quarter. Acceptance of the student by the CVM Graduate Committee, and notification to the Graduate School.
2. Beginning of coursework in Fall quarter. Selection of major professor and student graduate committee by the end of the second quarter, initiation of thesis research project.
3. Development of [Program of Study](#) by major professor and student before completing 18 credits of coursework (before end of second quarter). Student's graduate committee should meet and approve Program of Study (plan for completing degree). Program of Study must be signed by major professor, minor professor (only if taking minor) and Clinical Science Department Head. Submit signed Program of Study to College Graduate Committee for approval.
4. Complete and submit first Self-Evaluation Form (Appendix 2) by July 1 (end of first year). Major Advisor must submit annual review form (Appendix 3) by July 15 (signed by committee members).

Year two and three:

5. Complete approved coursework and continue thesis research.
6. Meet with student's graduate committee for annual progress report. Complete and submit Annual Self-Evaluation Forms each year by July 1. Major Advisor must submit annual review form by July 15 (signed by committee members).

Year three:

7. Finish thesis research and write Thesis/Dissertation (see Thesis Guide--<http://gradschool.oregonstate.edu/success/thesis-guide>).
8. At least 15 weeks before your final oral exam (thesis defense), submit final approved Program of Study to the Graduate School and select Graduate Council Representative if you have not already done this.
9. At least 2 weeks before your oral defense: 1) schedule your final oral exam online, 2) distribute a defensible copy of your thesis to your committee, 3) deliver or email pretext pages of your thesis/dissertation to the Graduate School, and 4) submit a diploma application to Graduate School.
10. Defend Thesis/Dissertation in a public seminar, followed by an oral exam by the student's graduate committee. Schedule thesis defense before end of spring quarter, so additional fees for summer quarter are not incurred.
11. Submit final revised Thesis/Dissertation to Graduate School for approval within 6 weeks of oral defense.

Coursework Requirements for Comparative Health Sciences Major (MS, PhD): Clinical Sciences Option

Students enrolled in the MS degree in Comparative Health Sciences will complete a total of 45 graduate credits, including 12 thesis credits. Students enrolled in the PhD degree will complete a total of 108 graduate credits, including 36 credits of non-blanket coursework. The following tables list the courses required to obtain the Clinical Sciences option in Comparative Health Sciences. Highlighted courses are option-specific, while the remaining courses are required for the major.

Course Title	Course number	Number of credits
Topics in Medicine, Surgery, or other clinical specialty	VMC 682, VMC 684, or similar	6
Postgraduate Medicine, Surgery or other clinical specialty	VMC 632, VMC 634, or similar	6
Research Perspectives	New (PhD only)	3 (1 per quarter) (PhD only)
Methods of Data Analysis	ST 511 or similar	4
Biomedical Ethics	GRAD 520 or equivalent	1
Introduction to Grant Proposal Writing	VMB 669	1
Seminar	VMB 507	1
Thesis	VMC 503(MS), VMC 603 (PhD)	12 (MS), 36 (PhD)
Electives (including required electives chosen below, additional thesis credits (PhD only), and other)	Various	14 (MS), 50 (PhD)

Required Electives - must include at least 2 of the following courses (or similar courses approved by student's graduate committee and College graduate committee):

Course Title	Course number	Number of credits
Biochemistry	BB 550 or similar	3
Molecular and Cellular Biology Techniques	MCB 524 or similar	1
Systems Biology and Bioinformatics	VMB 670	1
Animal Genomics	VMB 769	1
Comparative Immunology	VMB 673	3
Other elective courses approved by student and college graduate committees		

Research

In addition to coursework required in the student's program of study, MS thesis and PhD students will complete an interdisciplinary research project in comparative health sciences, under the support and direction of their major professor.

Learning Outcomes and Assessment

MS

1. Conduct research with the outcome being an original manuscript.
 - Assessed by the production and evaluation of a written thesis and during oral exam, with Grad Council Rep having specific responsibility for assessment
2. Demonstrate mastery of subject material
 - Assessed by coursework grades and during oral exam
3. Be able to conduct scholarly activities in an ethical manner
 - Documentation of training activities in Program of Study (GRAD 520)
4. Fulfill residency program requirements of veterinary specialty college
 - Assessed by annual evaluations by Resident Advisor and/or specialty section, completion of residency training log (ACVS only) and/or specialty board examination(s)

PhD

1. Produce and defend an original significant contribution to knowledge
 - Assessed by written thesis and during final oral exam with Grad Council Rep having specific responsibility for assessment
2. Demonstrate mastery of subject material
 - Assessed by coursework grades, during oral exam
3. Be able to conduct scholarly activities in an ethical manner
 - Documentation of training activities in Program of Study (GRAD 520)
4. Fulfill residency program requirements of veterinary specialty college
 - Assessed by annual evaluations by Resident Advisor and/or specialty section, completion of residency training log (ACVS only) and/or specialty board examination(s)

Statement Regarding Students with Disabilities

"Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at (541) 737-4098."

Link to Statement of Expectations for Student Conduct, i.e. cheating policies

<http://oregonstate.edu/studentconduct/http://%252Fforegonstate.edu/studentconduct/code/index.php>

Satisfactory Progress Criteria.

**Criteria to Define Satisfactory Progress in the
MS Graduate Program of the
College of Veterinary Medicine**

A graduate student will:

1. Maintain good academic performance, GPA of 3.0 or higher.
2. Participate in the academic activities of the Department/College/or important activities as directed by the mentor.
3. Demonstrate interest in the project by keeping abreast of the literature.
4. Communicate data generated in the project, either/or in meetings and publications.
5. Keep a good level of collegiality with peers and faculty.

Enrolled students will undergo annual review by the Graduate Committee, the mentor and the College Graduate Committee. If appropriate progress has not been made, the College Graduate Committee will make recommendations to the mentor and the student.

Two consecutive unsatisfactory reports should trigger a review by the student's Graduate Committee.

Appendix 6: Annual Self-Evaluation Form to be completed by graduate student, due July 1st.

**College of Veterinary Medicine
Graduate Student Annual Self-Evaluation Report**

Fill out this form (items 1-10) and have it evaluated by your Major Advisor. Write the self-evaluation based on the criteria listed in "Criteria to Define Satisfactory Progress" document.

Date of this report:

1. Name of student: _____ Year/Term GPA: _____
2. Program start date: _____ Total years in the program: **0.0**
3. Name of Major Advisor: _____ Expected graduation date: _____
4. Names and affiliations of Graduate Committee members: _____

5. Research project: _____

6. Progress to date/self-evaluation: _____

7. Plan for the coming year: _____

8. Publications, presentations, abstracts: _____

9. Additional information (awards, scholarships, etc.): _____

10. Signature of student: _____
11. Signature of Major Advisor: _____

Appendix 7. Annual Review Form to be completed by Major Advisor and Student’s Graduate committee. Due July 15th.

MS Annual Review

Candidate Name:

Year Program Began:

Current Year:

Check list	Does not meet expectations	Meets expectations	Exemplary performance	N/A
1. Problem definition				
2. Literature knowledge				
3. Approach				
4. Results				
5. Quality of written communication				
6. Quality of oral presentation				
7. Critical thinking				
8. Publications				

N/A = Not Applicable

Comments:

_____ Student Signature	_____ Date	_____ Advisor Signature	_____ Date
_____ Committee Member	_____ Date	_____ Committee Member	_____ Date
_____ Committee Member	_____ Date	_____ Committee Member	_____ Date

Appendix 8. OSU University reference guide for MS deadlines.

Before completing 18 credits of coursework:

Develop a [Program of Study](#) *with your program.* This is your plan for completing your degree. Your advisor, department chair, or departmental graduate coordinator will help you. [***This should take place before the end of winter quarter in the FIRST year of the program for CVM Residents]

Before your Final Oral Examination

At least **15 weeks** before your Final Oral Examination:

1. Submit your approved [program of study](#) to the Graduate School
2. Select a [Graduate Council Representative](#) (if required) for the Final Oral Examination

At least **2 weeks** before your Final Oral Examination:

1. Submit a [diploma application](#). For Spring term diplomas, submit an application **no later than April 12, 2013**. (see other Spring deadlines [below](#))
2. Use online form to schedule your [final oral examination](#).
3. Distribute a defensible copy of your thesis to your committee.
4. Deliver or email pretext pages of your thesis to the graduate school.

Submit the final copy of your thesis (if required for your degree) to the Graduate School within **6 weeks** after your Exam or **before the first day** of the following term, *whichever comes first*, to avoid [having to register for a minimum of three graduate credits](#) the next term.

Scheduling Exams with the Graduate School

Use the [exam scheduling form](#) to schedule examinations.

Please submit your exam scheduling form as soon as you schedule your exam but no later than **two weeks** before the exam date.

Thesis Submission Deadline

The final, corrected, and signed copy of your thesis or dissertation must be submitted to the Graduate School within **6 weeks** after your Exam or **before the first day** of the following term, *whichever comes first*, to avoid having to register for a minimum of three graduate credits the next term.

Note: Continuous Enrollment Policy Applies. You must be registered for a minimum of three graduate credits until all degree requirements are completed. To avoid registering for the term following your defense, submit the final corrected and signed thesis or dissertation to the Graduate School **before the**

first day of the term following the term in which you defend. For details on this policy see "Continuous Enrollment, I. Minimum Registration" in the Graduate Catalog, <http://catalog.oregonstate.edu/ChapterDetail.aspx?key=38#Section1804>.

Students must register for a minimum of 3 credits and pay fees if they will be using university resources (e.g. facilities, equipment, computing and library services, or faculty or staff time) during any given term, regardless of the student's location. If degree requirements are completed between terms, the student must have been registered during the preceding term.

Graduate students who have successfully completed all course and noncourse requirements in accordance with diploma deadlines (see the [Graduate School website](#)) are not required to register during the subsequent term.