Category I and Abbreviated Category I Proposal Transmittal Sheet

Submit proposals to: Office of Academic Programs, Assessment, and Accreditation,
500 Kerr Administration Building – Oregon State University

For Instructions, see http://oregonstate.edu/admin/aa/apaa/academic-programs/curriculum/category-1-proposals. Please attach Executive Summary, Proposal, Library Evaluation (performed by the Library), Accessibility Form, Letters of Support (External to OSU), Liaison Correspondence (Internal to OSU), Faculty Curriculum Vitae, and Budget Sheets, as appropriate.

Check One:

Full Proposal (Category I) [Category I Final Approval: Oregon State Board of Higher Education]

X New degree program
___ New certificate program or Administrative unit
___ Major (substantive) change in existing program
___ Establishment of a new college

Abbreviated Proposal (Abbreviated Category I) [Abbreviated Category I Final Approval: OSU Provost]

___ Rename of an academic program or unit
___ Establishment of a school, department or program
___ Reorganization – moving responsibility for an academic program from one unit to another
___ Merging or splitting an academic unit
___ Termination of an academic program or unit
___ Suspension or reactivation of an academic program or unit

For proposals to establish a new center or institute, contact the Research Office (541-737-3467)

For requests to offer existing certificate and degree programs at new locations, use the Memorandum of Understanding form available at http://oregonstate.edu/admin/aa/apaa/academic-programs/curriculum/mou-process

Title of Proposal: Interdisciplinary Graduate Program in Comparative Health Sciences

Effective Date: January, 2013

School/Department/Program:

N/A

College:

College of Veterinary Medicine/Division of Health Sciences

I certify that the above proposal has been reviewed by the appropriate Department, School, and College Committees. I approve this proposal.

N/A

Sign (Department Chair/Head; Director)  Date

Print (Department Chair/Head; Director)

4-23-12

Cyril R. Clarke

Sign (Dean of College)  Date

Print (Dean of College)
Executive Summary

The College of Veterinary Medicine in collaboration with partners in the Division of Health Sciences proposes to establish a new interdisciplinary graduate program in Comparative Health Sciences. This program will offer both MS and PhD degrees and will replace a recently terminated PhD program in Comparative Veterinary Medicine and an existing MS program in Veterinary Science. Focusing on health sciences graduate education and research at the whole animal level, the program will be complimentary to and supportive of existing programs that are focused primarily at the molecular and cellular level, such as the OSU MS and PhD in Molecular and Cellular Biology program.

Students will be required to complete a program core curriculum as well as an option-specific curriculum. The latter will be tailored to meet the needs of the participating academic unit and the individual student. Initially, the program will have one transcript-visible option, Biomedical Sciences, which will accommodate students with advisors in the College of Veterinary Medicine. There will be opportunity, however, to add other options as the interdisciplinary program expands to include related areas of emphasis in the health sciences.

Administered by the Graduate School, this interdisciplinary program will provide an opportunity for all units in the College of Veterinary Medicine to participate in graduate education and encourage the integration of several related areas of emphasis currently existing in other units. This program proposal represents a deliberate effort to achieve critical mass in a disciplinary area identified by Oregon State University and the OSU Division of Health Sciences for priority development.
New Degree Program Proposal
MS, PhD in Comparative Health Sciences

Status: Pending Review - Graduate Council Chair (Previous Version)

Hide All Reviews

1. Review - College Approver - Veterinary Medicine
Approved by Patrick Kamins Coord-Student Services / Veterinary Medicine, April 24, 2012 3:53pm

2. Review - Curriculum Coordinator
Sent Back by Gary Beach Coord-Curriculum / Acad Prgms/Assess/Accred, May 15, 2012 1:53pm

Comments
Gary Beach (Curriculum Coordinator) May 15, 2012 1:53pm
Sent back to the originiator in order to post the Library Evaluation report.

--Gary

3. Originator Response
Beth Chamblin Asst to Dept Head / Vet Biomedical Science, May 15, 2012 2:00pm

4. Review - Curriculum Coordinator
Sent Back by Gary Beach Coord-Curriculum / Acad Prgms/Assess/Accred, May 23, 2012 4:58pm

Comments
Gary Beach (Curriculum Coordinator) May 23, 2012 4:58pm
Returning for revisions following the Academic Programs Committee meeting.

--Gary

5. Originator Response
Beth Chamblin Asst to Dept Head / Vet Biomedical Science, May 31, 2012 2:32pm

6. Review - Curriculum Coordinator
Sent Back by Sarah Williams Coord-Curriculum / Acad Prgms/Assess/Accred, May 31, 2012 3:12pm

Comments
Sarah Williams (Curriculum Coordinator) May 31, 2012 3:12pm
Returning to Originator at her request.

7. Originator Response
Beth Chamblin Asst to Dept Head / Vet Biomedical Science, May 31, 2012 3:14pm

Comments
Beth Chamblin May 31, 2012 3:14pm
The recommendations and comments made by the Curriculum Coordinator, Academic Programs Committee and Library have been addressed in the revised proposal documents.

8. Review - Curriculum Coordinator
Approved by Sarah Williams Coord-Curriculum / Acad Prgms/Assess/Accred, June 4, 2012 10:57am

Comments
Sarah Williams (Curriculum Coordinator) June 4, 2012 10:57am
This proposal is ready for review by Budgets and Fiscal Planning.

9. Review - Budgets and Fiscal Planning Committee
Sent Back by Walter Loveland, October 14, 2012 8:54pm
Comments

Walter Loveland (Budgets and Fiscal Planning Committee) October 14, 2012 8:54pm
This proposal was sent back to the proposers for clarification of the budget in the following areas: (a) The Library Assessment must be fully funded in each year of the budget, not partially funded. (b) The total incremental funding relative to today should be indicated in the budget. Thus if the $207K is to be spent in each of the four years, it should be indicated in each year in addition to new expenditures in succeeding years. (c) The salaries of the graduate assistants need to be clarified. It appears the grad students are paid $30,000 per year with a small $5000 OPE charge. Is that for a 0.49 FTE per person or is it (as suggested by the budget) 1.0 FTE /person? How is the OPE calculated? (d) The narrative speaks of an investment of $560K from the College. Where does that appear in the budget? (e) The narrative mentions a director + staff position. Where is that in the budget? (f) The distinction between “student” and “resident” needs to be clarified.

10. Originator Response

Beth Chamblin Asst to Dept Head / Vet Biomedical Science, October 25, 2012 5:06pm
Comments

Beth Chamblin October 25, 2012 5:06pm
Thank you for the review of our proposal for a new graduate program, Comparative Health Sciences. We answered your specific questions below and have modified the proposal accordingly.
a) The library assessment must be fully funded... answer: It is. As specified in the proposal, the library has recommended the subscription of a journal (Infection Control & Hospital Epidemiology) that we already have in our library. It will be available to students.
b) The total incremental.... answer: Each year (1st to 4th) has its own budget that is shown in the budget pages. All four years together will have a budget of $1,053,600.
c) Salaries and OPE.... answer: The College of Veterinary Medicine has a program of residency (in Medicine, Surgery, etc.) Those residents are enrolled in the MS (current MS of Veterinary Medicine) program. The resident position is 1.0 FTE and is paid $30,000 with $5,000 of OPE.
d) The narrative speaks of an investment of $560K... answer: This represents the total investment of the College in the program. It has been updated.
e) The narrative mentions a director.... answer: The positions do not represent new faculty, but re-assignments. Because of that, they do not infer new money. However, we have changed the budget page to show those costs.
f) the distinction between.... answer: As mentioned before, resident/graduate student (MS) is a program existing in the College. Professional schools have MD/MS, MD/PhD, DVM/MS, DVM/PhD, that follows a different model compared with other programs in the University. We added a few sentences in the text to make it clearer.
We appreciate the comments and the opportunity to improve the presentation of our proposal.

11. Review - Budgets and Fiscal Planning Committee

Sent Back by Sarah Williams Coord-Curriculum / Acad Prgms/Assess/Accred, November 13, 2012 10:47am
Comments

Sarah Williams (Budgets and Fiscal Planning Committee) November 13, 2012 10:47am
Per email from Gary Beach on 11/12/12, I am returning this proposal to the Originator at the request of the Budgets and Fiscal Planning Committee for requested changes. SW

12. Originator Response

Beth Chamblin Asst to Dept Head / Vet Biomedical Science, November 14, 2012 9:33am
Comments

Beth Chamblin November 14, 2012 9:33am
Budget documents were updated.

13. Review - Budgets and Fiscal Planning Committee

Approved by Walter Loveland, December 4, 2012 10:22am

14. Review - Graduate Council Chair
New Interdisciplinary Graduate Degree Program Proposal: M.S., Ph.D. in Comparative Health Sciences

College of Veterinary Medicine
College of Public Health and Human Sciences
College of Pharmacy
Graduate School

May 2012
Proposed Effective Term: Winter Term 2013 (201302)

CPS Tracking #: 84096

Institution: Oregon State University
College/School: Division of Health Sciences (DHS), including the College of Veterinary Medicine (CVM), the College of Public Health and Human Sciences (PHHS) and the College of Pharmacy (CoP)
Department/Program: Interdisciplinary graduate program in Comparative Health Sciences (CHS)

1. Program Description

a. Proposed Classification of Instructional Programs (CIP) number: 51.2509

CIP #: 512509
Title: Comparative and Laboratory Animal Medicine
A program that focuses on the scientific study of animal models of human disease and related experimental procedures, and prepares veterinarians and animal health specialists to manage the laboratory use and care of experimental animals. Includes instruction in laboratory animal husbandry, laboratory animal disease, biohazard control, gnotobiology, breeding, comparative anatomy and physiology, comparative gene mapping, protein function, physical and mathematical modeling, computer modeling, stem cell technology, colony and genetic stock management, cryopreservation, applicable regulations, and bioethics.

b. **Brief overview (1-2 paragraphs) of the proposed program, including its disciplinary foundations and connections; program objectives; programmatic focus; degree, certificate, minor, and concentrations offered:**

An interdisciplinary MS, PhD graduate program in Comparative Health Sciences (CHS) is needed to complement the existing MS, PhD Molecular and Cell Biology (MCB) graduate program, which focuses on studies at the molecular level. The CHS program will offer both MS and PhD degrees and focus at the whole animal level, particularly the use of animal models of disease. It will replace a PhD program in Biomedical Sciences (recently terminated) and an MS program in Veterinary Science, and provide an opportunity to achieve critical mass in a disciplinary area identified by the Division of Health Sciences (DHS) for priority development. This program will provide an opportunity for students to be trained in multidisciplinary approaches to address biological and medical problems.

Administered by the Graduate School, this interdisciplinary program will provide an opportunity for all units in the College of Veterinary Medicine to participate in graduate education and encourage the integration of several related areas of emphasis currently existing in other units.

### New Graduate Degree

- **Proposal Title:** MS, PhD in Comparative Health Sciences
- **Proposal Type:** Full Category I
- **CPS #:** 84096
- [https://secure.oregonstate.edu/ap/cps/proposals/view/84096](https://secure.oregonstate.edu/ap/cps/proposals/view/84096)
- **CIP #:** 512509
- **SIS #:** To Be Determined (by the Registrar's Office)
- **College Code:** 09 – Graduate School
- **Program Type:** Graduate
- **Credential Type:** Master of Sciences (MS), Doctorate of Philosophy (PhD)
- **Academic Home:** Graduate School
- **Participating Academic Units:** College of Public Health and Human Sciences, College of Pharmacy, College of Veterinary Medicine, Graduate School
- **Program Location:** OSU – Main (Corvallis)
- **Options:** Biomedical Sciences
- **Areas of Concentration:**
  - Undergraduate Minors: Not Applicable
  - Graduate Minors: Comparative Heath Sciences
- **Course Designators:** VMB and VMC
- **Credit Hours:** MS Degree = 45 (minimum); PhD Degree = 108 (minimum)
- **Delivery Mode and Location:** On-Campus in Corvallis
- **Admission Requirements:** Baccalaureate Degree; 3.0 GPA; GRE; Transcripts; Letters of Recommendation (3); and Personal Statement
- **Enrollment Limitations:** None
- **Accreditation:** None
- **Proposed Start Date:** **Winter Term 2013** (Banner 201302)

### Termination

- **MS in Veterinary Science** (to be submitted separately via an Abbreviated Category I proposal.)
c. **Course of study – proposed curriculum, including course numbers, titles, and credit hours:**

Students enrolled in the MS degree 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 beyond the bachelor’s or professional (DVM, MD) degree, including at least 36 credits of non-blanket course work.

In Year 1 of either the MS or PhD programs, students will be required to complete three laboratory rotations (organized under a course title “Research Perspectives”) that will provide an opportunity to experience several research environments and investigators that they may consider for their thesis research. These rotations will run congruently with academic quarters. In addition, all students will be expected to complete the following program core curriculum, including all required courses and a selection of at least two of the listed electives, for a total of 12 credits:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Course Number</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Perspectives</td>
<td>New (600)</td>
<td>3 (1 per quarter)</td>
</tr>
<tr>
<td>Methods of Data Analysis</td>
<td>ST 511 or similar</td>
<td>4</td>
</tr>
<tr>
<td>Biomedical Ethics</td>
<td>New (600)</td>
<td>1</td>
</tr>
<tr>
<td>Grant Application Preparation</td>
<td>New (600)</td>
<td>1</td>
</tr>
<tr>
<td>Seminar</td>
<td>New (507)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Electives:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molecular and Cellular Biology Techniques</td>
<td>MCB 524 or similar</td>
<td>1</td>
</tr>
<tr>
<td>Introduction to Bioinformatics</td>
<td>New (600)</td>
<td>1</td>
</tr>
<tr>
<td>Introduction to Epidemiology</td>
<td>New (600)</td>
<td>1</td>
</tr>
<tr>
<td>Introduction to Genomics</td>
<td>New (600)</td>
<td>1</td>
</tr>
<tr>
<td>Introduction to Immunology</td>
<td>New (600)</td>
<td>1</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>BB 550 or similar</td>
<td>3</td>
</tr>
</tbody>
</table>

In addition to the program core curriculum, students will be required to complete option-specific curricula, as approved by respective graduate committees. Initially, the program will have one option, Biomedical Sciences, which will accommodate students with advisors in the College of Veterinary Medicine. There will be opportunity, however, to add other options as the interdisciplinary program expands to include related areas of emphasis in the health sciences. The option-specific curriculum for the Biomedical Sciences option will be as follows:

<table>
<thead>
<tr>
<th>Option</th>
<th>Degree</th>
<th>Course Title</th>
<th>Course Number</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biomedical Sciences</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS</td>
<td>Animal Models</td>
<td>VMB 521</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elective courses</td>
<td>Various</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research</td>
<td>VMC/VMB501</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thesis</td>
<td>VMC/VMB503</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seminar</td>
<td>New</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>PhD</td>
<td>Animal Models</td>
<td>VMB 521</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
An abundance of graduate courses are currently available to complete the elective course requirements in each of the options, including courses with the VMB (Veterinary Medicine Biomedical), VMC (Veterinary Medicine Clinical), PHAR (Pharmacy), H (Public Health), NUTR (Nutrition), EXSS (Exercise and Sport Science), Molecular and Cell Biology (MCB), Microbiology (MB), and TOX (Toxicology) prefixes. For a complete listing, please refer to the OSU Graduate Catalog (http://catalog.oregonstate.edu/CourseDescription.aspx?level=grad).

d. Manner in which the program will be delivered, including program location (if offered outside of the main campus), course scheduling, and the use of technology (for both on-campus and off-campus delivery).

The program will be delivered on the Corvallis campus. Depending on individual courses, instruction will include both lecture and laboratory experiences, with an emphasis placed on small group discussion and relevant experiential contexts. There are no plans for off-campus delivery at present, although it is anticipated that opportunities to provide students access to rich educational resources available at other locations, such as at Oregon Health Sciences University and international sites, will be explored.

e. Ways in which the program will seek to assure quality, access, and diversity.

Once a student is admitted into the program and a mentor(s) is selected, the following required steps will assure appropriate advisement and assessment of student progress at the department level:

1. Before the end of the second quarter, the advisory committee must be established, necessary documentation required by the Graduate School must be submitted, and the student must meet with the graduate committee.

2. The student and mentor must provide an annual report to the departmental/college-based graduate committee for review of progress and accomplishment of any program option benchmarks (student/mentor assessment form included as Appendix 1).

The program will be reviewed by the Graduate School five years after initial approval and every 10 years thereafter, in a manner consistent with the Guidelines for the Review of Graduate Programs published by the OSU Graduate Council.

In addition to promoting racial, ethnic and gender diversity, effort will be committed to include students from rural, international and different socioeconomic communities. Specific strategies that are used to advance diversity in professional degree programs will be employed, such as partnering with undergraduate programs to reach promising students in high schools with high proportions of underrepresented populations.
f. **Anticipated fall term headcount and FTE enrollment over each of the next five years.**

Program enrollment in the MS degree is at least expected to equal the total headcount in the existing MS in Veterinary Science program (15 students). All these students are also residents (residency/MS program).* Two additional students are scheduled to be added to the MS program in September, 2012, bringing the total to at least 17. Five prospective students have already expressed an interest in enrolling in the PhD program.

Enrollment is expected to increase by at least 10-20% per year for the first 5 years, based on: (1) applications submitted to the existing MS program and expressions of interest in the PhD program; and (2) strategic investments that will be made in student support, resulting partly from growth of extramurally-funded research programs.

*The College has an MS/residency program. In the future it may have an MS/DVM and PhD/DVM program.

g. **Expected degrees/certificates produced over the next five years.**

The numbers of degrees anticipated are expected to exceed the following:

MS program: 5/year

PhD program: 3/year from the third year

h. **Characteristics of students to be served (resident/non-resident/international; traditional/nontraditional; full-time/part-time; etc)**

The goal of the program is to attract bright students, including residents, non-residents, international, minority, and economically disadvantaged. Scholarships will be offered on a competitive basis. Many approaches will be used to recruit students, including advertisement of the program, word of mouth, recruitment at foreign institutions with which the College has established relationships, etc. The effectiveness of recruitment efforts will be evaluated on an annual basis by consulting faculty advisors and by monitoring academic progress of students.

i. **Adequacy and quality of faculty delivering the program.**

Graduate faculty from the College of Veterinary Medicine and other health sciences units will deliver the program (see Appendix 2). These faculty collectively have a large commitment of FTE to extramurally-funded research, primarily from the NIH, but also NSF, USDA, CDC and the Bill and Melinda Gates Foundation.

j. **Faculty resources – full-time, part-time, adjunct.**

Consistent with other interdisciplinary programs in the life sciences, participating professorial faculty will represent several OSU colleges and will primarily be tenure-track/tenured appointments with significant assignments to research and scholarship (Appendix 2). Faculty members from a number of departments in
DHS as well as outside of the Division have shown interest in participating in the program by co-mentoring students.

The program will be managed by a director who will be a participating tenured faculty member (20% assignment), appointed to a 2-year renewable term. The duties of the director will involve general administration of the program, including: (1) organizing activities such as student seminars and workshops; (2) monitoring student progress and responsibilities of advisory committees, in conjunction with the departmental/college graduate committees; (3) resolving disputes or referring them to appropriate University offices; and (4) student recruitment.

k. Other staff.

Support staff (at least 0.5 FTE), funded by the College of Veterinary Medicine, will provide administrative support. Also, the program will partner with the Graduate School administration to accomplish necessary organizational functions such as recruitment and admission.

l. Facilities, library, and other resources.

Classrooms, seminar rooms, IT and library resources are already available centrally on campus and in participating academic units. Other research resources, such as laboratories and core facilities for genomics, proteomics, electron microscopy, etc., are available on campus.

m. Anticipated start date.

Winter term 2013, or as soon thereafter as approved.

2. Relationship to Mission and Goals

a. Manner in which the proposed program supports the institution’s mission and goals for access; student learning; research, and/or scholarly work; and service.

There is an urgent need for cross-disciplinary graduate programs in underserved areas of clinical and translational research involving animal models of disease and biomedical investigation. The proposed program will be used as an organizational infrastructure to facilitate development of a community of students and faculty across DHS and other life sciences units on campus. It will be complimentary to existing graduate programs focusing on molecular/cellular biology and social/behavioral studies.

In anticipation of the establishment of this graduate program, the CVM recently terminated its doctoral program in Biomedical Sciences. Rather than invest in an independent PhD program with research ranging from the molecular to whole animal levels, the College decided instead to be an active participant in the existing interdisciplinary Molecular and Cell Biology (MCB) program and then create a new interdisciplinary Comparative Health Sciences program to address the developing interest in whole animal studies, including clinical sciences. This
interdisciplinary approach provides an opportunity for multiple academic departments to create and sustain the critical mass of students and extramurally-funded research activity necessary for long-term success of graduate programs. At the masters level, the new interdisciplinary program will replace the MS in Veterinary Science program. Although the existing MS program had low enrollment in the past, it now has 15 students, primarily with clinical sciences interests. This area of graduate education is projected to continue its rapid growth as additional pathology graduate students are enrolled. Incorporation of the existing program into the new interdisciplinary Comparative Health Sciences program will provide a core strength that will serve as a basis for further program development.

Consistent with the interdisciplinary/integrative philosophy of the new program, faculty from other colleges will be invited to participate in instruction of the core curriculum. The option-specific curricula are anticipated to become increasingly interdisciplinary as a community of scholars collaborates to address complex biomedical challenges, such as the diagnosis and management of chronic diseases. This process will be encouraged through the use of internal interdisciplinary research grants (DHS has already implemented these) and grantsmanship workshops (already initiated in 2009-2010). An annual symposium will be organized to bring all the program members and students together to share their research interests and findings.

b. **Connection of the proposed program to the institution’s strategic priorities and signature areas of focus.**

Phase II of OSU's strategic plan ([http://oregonstate.edu/leadership/strategic-plan](http://oregonstate.edu/leadership/strategic-plan)) seeks to advance three signature areas of distinction: Advancing the Science of Sustainable Earth Ecosystems; Improving Human Health and Wellness; and Promoting Economic Growth and Social Progress. As stated in the plan, improving human health and wellness depends on “building more holistic and interdisciplinary approaches to healthy aging, chronic infectious disease control, new drug development, mental health, and disease prevention to enhance the human lifespan, decrease health care costs, and maintain a healthy population.”

Consistent with the strategic plan, the 11 discipline-based colleges of the university were aligned into four divisions in 2010. The overriding goal of this realignment was to facilitate collaboration across colleges and departments and to promote the development of interdisciplinary programs. One of the divisions, the Division of Health Sciences, has developed a strategic plan that states as its first priority the development of integrative, cross-disciplinary research, together with interdisciplinary graduate programs.

c. **Manner in which the proposed program contributes to Oregon University System goals for access; quality learning; knowledge creation and innovation; and economic and cultural support of Oregon and its communities.**

As noted above, the proposed program will promote translational biology/medicine research, which involves the integration of research across the
basic sciences and application of biological discoveries to optimize patient care and disease prevention. The new knowledge created in this interdisciplinary research environment will serve as a rich experiential context in which graduate students will be educated to serve Oregon and its communities. Without the contribution of such graduates, complex challenges relating to healthcare cannot be solved.

To ensure that students benefit from the interdisciplinary structure of the program, they will be challenged to study topics that bridge two distinct areas of study such as immunology and nutrition or infectious disease and exercise or nutrition under the mentorship of experts in each of the areas. DHS already has made significant progress developing integrated projects involving infectious diseases, public health, nutrition, exercise, development, chronic diseases, immunology, genomics, and pharmaceutics. Consistent with the DHS strategic plan, faculty across the three colleges in the Division have collaborated to develop a research project, titled "Environmental and Infectious Determinants of Chronic Disease: a 'One Health' Approach."

d. Manner in which the program meets broad statewide needs and enhances the state’s capacity to respond effectively to social, economic, and environmental challenges and opportunities.

With the recent creation of DHS, OSU is positioned to build integrative research and academic programs to investigate the multidimensional causes of chronic diseases and discover new health promotion/disease prevention strategies. For example, many chronic diseases result from complex interactions between infectious agents, people, animals, and the environment. To treat and prevent these chronic diseases, health professionals must match competency in biological sciences in both people and animals with an understanding of behavioral and public health sciences. It is expected that the integrated study of Comparative Health Sciences involving research projects across DHS will facilitate attainment of an even broader perspective as students interact with colleagues who are knowledgeable about the behavioral and policy issues relevant to public health.

3. Accreditation

a. Accrediting body or professional society that has established standards in the area in which the program lies, if applicable.

The program will be subject to the existing standards under which the OSU Graduate School is accredited. Periodic reviews will be conducted consistent with the Guidelines for the Review of Graduate Programs published by the OSU Graduate Council.

b. Ability of the program to meet professional accreditation standards. If the program does not or cannot meet those standards, the proposal should identify
the area(s) in which it is deficient and indicate steps needed to qualify the program for accreditation and date by which it would be expected to be fully accredited.

Not applicable. The program is expected to meet all Northwest Commission on Colleges and Universities (NWCCU) accreditation standards for graduate education.

c. If the proposed program is a graduate program in which the institution offers an undergraduate program, proposal should identify whether or not the undergraduate program is accredited and, if not, what would be required to qualify it for accreditation.

The baccalaureate degree must be from an accredited higher education institution.

d. If accreditation is a goal, the proposal should identify the steps being taken to achieve accreditation. If the program is not seeking accreditation, the proposal should indicate why it is not.

The program will need to satisfy standards applicable to all graduate programs at OSU.

4. Need

a. Evidence of market demand.

Based on data published by the US Bureau of Labor Statistics (Occupational Outlook Handbook, 2010-2011 Edition, http://www.bls.gov/oco/ocos309.htm), the market demand for biomedical scientists is predicted to grow “much faster than average” over the next decade. Employment of graduates trained in comparative health sciences and related areas of biomedical research is expected to increase by 40% by 2018, an expansion of the relevant job market that will add approximately 40,000 jobs. Considering that the median annual wage of these graduates is approximately $73K, the potential economic impact of the graduate program is significant.

The importance of focusing on clinical and translational research was confirmed recently at the national level when the National Institutes of Health created the National Center for Advancing Translational Sciences (NCATS), with a budget of $575M. In light of the urgent need to solve complex scientific problems and translate scientific discoveries into effective treatments and cures, it is clear that universities must educate graduates to think in more innovative and interdisciplinary ways, and to understand the value of using animal models of disease to advance public health. The broad interdisciplinary emphasis of the proposed program will address this need by fostering creation of an intellectual environment in which different perspectives can be integrated into novel strategies for addressing animal and public health concerns.
In addition to the students graduating from undergraduate degree programs in the life sciences, particularly those with primary interests in biology, biomedical sciences and zoology, it is anticipated that a large proportion of students enrolled in pre-health science programs will be interested in the proposed graduate program. Nationally, only about 9% of students who apply for admission to medical schools are admitted, leaving a large number of students who are good candidates for graduate education in the clinical and translational health sciences.

Irrespective of the trends described above, the MS and PhD programs in Comparative Health Sciences will be the only graduate programs at OSU available for veterinarians who are interested in advancing their education in comparative health sciences, particularly at the whole animal level.

Considering the complexity of animal and human health care challenges, it is imperative that research activities adopt a “One Health” approach. This approach is characterized by comparative (cross species) investigation, conducted by a variety of health sciences professionals both locally and globally. The proposed program will educate graduates who are able to address this need.

b. If the program’s location is shared with another similar OUS program, proposal should provide externally validated evidence of need (e.g., surveys, focus groups, documented requests, occupational/employment statistics and forecasts).

The program is unique in terms of its scope and interdisciplinary philosophy. The unique aspects of the program are as follows:

1. Graduate education and associated research projects will focus on the whole animal level of investigation, using an approach that will be complementary to and supportive of existing programs that are focused primarily at the molecular and cellular level, such as the MCB program (see attached letter from Dr. Barbara Taylor, Director of the MCB program). Furthermore, education and research will be limited to animal species, including humans and emphasize translational health sciences. This cross-species, comparative approach is only possible through very close collaboration involving a college of veterinary medicine and human health sciences colleges.

2. The program will have an interdisciplinary and integrative culture that is unique among biomedical sciences programs on campus and in Oregon. This will be achieved by encouraging co-mentorship of students using internal research grants.

c. Manner in which the program would serve the need for improved educational attainment in the region and state.

This program introduces the concept of translational biology/medicine to basic sciences disciplines. It will provide an opportunity for students in the clinical and
basic science branches of medicine to be educated in the philosophies and practices necessary to solve complex healthcare issues.

d. Manner in which the program would address the civic and cultural demands of citizenship.

Delivery of affordable and effective healthcare represents one of the most urgent and socially responsible missions in contemporary society. Graduates from this program will be exceptionally well qualified to address this mission, thereby addressing the civic and cultural demands of citizenship.

5. Outcomes and Quality Assessment

a. Expected learning outcomes of the program. (see Appendix 1 for assessment forms already in use for graduate students in Comparative Health Sciences and monitored annually by the Graduate Committee of the College)

In general, expected learning outcomes of the program will include:

- mastery of the knowledge base underlying an option field, sufficient to support scholarly investigation of a related problem;
- the ability to formulate a research question relevant to a specific option field or one that requires integration of two or more fields to be addressed;
- evidence of ability to perform research either in a single option field or in integrated fields; and
- production of scholarship that advances the option field(s).

It is anticipated that MS students in Comparative Health Sciences will address research questions that are applicable to clinical medicine, with a special emphasis on translational strategies. In most cases, these students will already have the DVM degree and their future research careers will most likely involve collaborations with colleagues in the more basic sciences. Doctoral graduates are expected to attain a higher level of expertise in both the planning and conduct of research as principal investigators, and have the ability to compete for extramural funding.

Consistent with the recently approved Graduate Learning Outcomes for doctoral and master's programs, doctoral students shall: (a) produce and defend an original significant contribution to knowledge; (b) demonstrate mastery of subject material; and (c) be able to conduct scholarly activities in an ethical manner. The latter will be facilitated in part by successfully completing a required course in Biomedical Ethics (see program core curriculum above). Master’s students will be expected to: (a) conduct research or produce some other form of creative work; (b) demonstrate mastery of subject material; and (c) be able to conduct scholarly or professional activities in an ethical manner.
b. **Methods by which the learning outcomes will be assessed and used to improve curriculum and instruction.**

- Graduate Committee annual evaluation of students and quality of the program.
- Filing the program of study with the Graduate School.
- Completion of Preliminary Exam (for PhD students).
- Survey of students, annually and at graduation.
- Survey of employers of graduates.
- Satisfying graduation requirements, including completion of courses and successful completion of scholarly and research requirements.
- Periodic assessment of alumni.

c. **Program performance indicators, including prospects for success of program graduates (employment or graduate school) and consideration of licensure, if appropriate.**

- Graduation rate and time to graduation.
- Student’s refereed publication record.
- Student’s review of the program.
- Evaluation provided by Graduate Steering Committee.
- Post-graduation position and survey information from employers.

d. **Nature and level of research and/or scholarly work expected of program faculty; indicators of success in those areas**

The majority of the faculty to be included in the program have extramurally-funded research and produce high-quality scholarship (see Appendix 2). Number and quality of peer-reviewed scholarship and the availability of research funding will be the primary indicators of success.

6. **Program Integration and Collaboration**

a. **Closely related programs in other OUS universities and Oregon private institutions.**

No program in Oregon overlaps with the proposed program. The interdisciplinary organization extending from animal to human health sciences is unique.

b. **Ways in which the program complements other similar programs in other Oregon institutions and other related programs at this institution. Proposal should identify the potential for collaboration.**

Collaborative opportunities exist with other biology and health sciences programs at the University of Oregon and Oregon Health Sciences University, respectively.
c. *If applicable, proposal should state why this program might not be collaborating with existing similar programs.*

As stated above, the disciplinary scope of the program, ranging from animal to human health sciences, is unique.

d. **Potential impacts on other programs in the areas of budget, enrollment, faculty workload, and facilities use.**

Constituent programs in DHS and other OSU divisions that are expected to participate in the new interdisciplinary program will benefit from the larger critical mass of research. Researchers and students, will engage in more cross-disciplinary projects involving researchers in different departments and colleges, and enhanced competitiveness of extramural research grant applications. Negative impacts on other programs are not expected.

7. **Financial Sustainability** *(attach the completed Budget Outline)*

a. *Business plan for the program that anticipates and provides for its long-term financial viability, addressing anticipated sources of funds, the ability to recruit and retain faculty, and plans for assuring adequate library support over the long term.*

Graduate student/resident salaries ($30,000 per year, plus $5,000 OPE) for MS students will be committed by the College of Veterinary Medicine. The College currently funds 15 post-DVM clinical residency positions, all of which are being transitioned to dual graduate student-clinical residency positions. Generally, clinical residents are appointed for a period of three years, with terms of appointment staggered. Starting with the planned enrollment of 4 new residents in the Fall of 2013, the attached Budget Outline projects additions of 4 students per year until all clinical residents are enrolled in the program. This projection represents a conservative estimate of program growth and does not take into account the probability of residents currently enrolled in the MS in Veterinary Science (which will be terminated) program transferring immediately into the new program as soon as it is approved. Irrespective of the enrollment schedule, the College is committing at least $633,600K in clinical resident positions (salary plus OPE) to the new program. These financial resources will be supplemented with additional funding, derived from the earnings of a $1.2M trust ($60K per year) that has been committed to graduate student scholarships. Approximately $5,000/year will be committed by the CVM for miscellaneous services and supplies.

The disciplinary scope of the program is centered in core areas of health sciences that currently exist in the University. Faculty recruitment, retention and library resources currently are expected to be more than adequate to establish and develop the program. Indeed, faculty positions already selected by DHS for recruitment in the Provost’s Faculty Investment Initiative are exceptionally well suited to participation in the program, thus demonstrating strategic relevance. Taking into account the new positions hired under the Initiative, the CVM has sufficient FTE capacity to meet the workload demands of creating and delivering the program core
and option-specific curricula. Existing instructional assignments to DVM elective courses will be reprioritized to meet graduate program requirements. The Courses and Curriculum Committee of the CVM is already reviewing DVM elective courses in a broader context of possible curricular revision.

As indicated in Section 1, parts j and k above, CVM will commit 0.2 and 0.5 FTEs, respectively, to director and staff support. These commitments will be accomplished through reassignments of existing personnel. The latter has been made possible by redistribution of work assignments from an administrative assistant to a new Safety Officer position funded in the CVM FY12 E&G budget.

b. Plans for development and maintenance of unique resources (buildings, laboratories, technology) necessary to offer a quality program in this field.

At this point, all of the needed resources are in place. As the program evolves, the Graduate Committee and the Director of the Program may identify additional resources that need to be addressed.

c. Targeted student/faculty ratio (student FTE divided by faculty FTE).

The targeted student:adviser ratio is 1.5:1 for both MS and PhD programs.

d. Resources to be devoted to student recruitment.

Recruitment of students will be coordinated through the Graduate School.

8. External Review (if the proposed program is a graduate level program, follow the guidelines provided in External Review of new Graduate Level Academic Programs in addition to completing all of the above information)

The program proposal has been submitted for preliminary external review (see letters from Drs. Van Meter at Colorado State University and Jeffrey Lakritz at The Ohio State University). A more comprehensive external review, coordinated by the Graduate School, will be conducted in the near future.

(Site 5 names outside of Oregon, not associated with OSU)
Ad Hoc review of New Academic Program, conducted by Dr. Jeffry Lakritz, Professor, Department of Veterinary Clinical Sciences, The Ohio State UNiversity

Oregon State University, Interdisciplinary graduate program in Comparative Health Sciences

**Things I like about this proposal-**

Looks at whole animal level; graduate DVM (residents, fellows) likely would fit into this well.

Increases opportunities for working with broader range of expertise throughout campus.

Multi-disciplinary approaches

Laboratory rotations (especially for PhD candidates)

Preparation of clinician scientists and scientists

Theoretically will reduce the effort of clinical faculty and may increase the quality of individual students work (i.e. clinical problem requiring molecular diagnostics/collaboration with others at Health Science center/pharmacy etc.)

**Things that could be problematic**

Required courses. At least in our college, residents taking course across campus leave holes in clinical coverage. Assuming enough faculty FTE to cover clinical requirements?

Number of didactic courses required and relevance to overall training of residents. I am not sure medicine or surgery residents will gain much in terms of board certification if they take basic science classes. Our residents have little time for class work as it is. With emergency duty, coursework is problematic for them.

We are evaluating ways in which to train clinical residents (in 2 or 3 years) with 4th year for science. There are obviously problems with this.

Faculty who maintain publication list through resident research projects

  Taking residents away from faculty for research and developing project outside of their area of expertise.

  Some faculty will attract a greater number of students than others.
Very positively on Oregon State University,
develop a highly relevant program that will have a positive impact on the profession and retain
progresses many new and unique problems currently on. I understand your college's efforts to
focus on research in the students' programs; in my experience, novel graduate studies
meets the needs of both the students and the program director. This may help prevent a potential loss
of academic commitments. Meanwhile, as you have set forth each student in the program, and the minutes from those
in this letter is this: since the program is new, I offer the opinion that a minimum number of
few courses and some on the main the primary point that I feel important enough to emphasize
interdisciplinary graduate studies program. In a separate document, I will provide for you my
opinion with regards to the proposal to be a very well-designed and highly relevant plan for a
your college entitled, "Interdisciplinary Graduate Program in Comparative Health Sciences."
I was pleased to review, upon your request, the draft proposal for a novel graduate program at

15 April 2012

Coralville, 92331
University of Iowa
College of Veterinary Medicine
Head, Department of Clinical Sciences

Christopher Cebra

FAX: (970) 297-1275
(970) 297-1274
For Collins, Colorado 80523-1678
Department of Clinical Sciences
and Biomedical Sciences
College of Veterinary Medicine
Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 prohibits discrimination against individuals with disabilities and mandates the provision of reasonable accommodations to ensure access to programs and services. Oregon State University is committed to providing equal opportunity to higher education for academically qualified students without regard to a disability.

For questions and assistance with addressing access, please contact the Office of Disability and Access Services (737-4098) or the Office of Affirmative Action and Equal Opportunity (737-3556)

Title of Proposal: Interdisciplinary Graduate Program in Comparative Health Sciences

Effective Date: January, 2012

Department/Program: College:

College of Veterinary Medicine/Division of Health Sciences

Faculty Guidelines
(http://ds.oregonstate.edu/facultystaff.aspx?Title=ResponsibilitiesFacultyStaff)

Information Technology Guidelines (http://oregonstate.edu/accessibility/)

By signing this form, we affirm that we have reviewed the listed documents and will apply a good faith effort to ensure accessibility in curricular design, delivery, and supporting information.

Cyril R. Clarke, Dean

Sign (Dept Chair/Head; Director) 4-23-12 Date Print (Department Chair/Head; Director)
Library Evaluation for Category I Proposal

Title of Proposal

Comparative Health Science

Biomedical Sciences

Department

Veterinary Medicine

College

The subject librarian responsible for collection development in the pertinent curricular area has assessed whether the existing library collections and services can support the proposal. Based on this review, the subject librarian concludes that present collections and services are:

[ x ] inadequate to support the proposal (see budget needs below)
[ ] marginally adequate to support the proposal
[ ] adequate to support the proposal

Estimated funding needed to upgrade collections or services to support the proposal (details are attached)

Year 1:
$1500 ebooks in various subjects
$595 Infection Control and Hospital Epidemiology
$2460 maintenance of Veterinary Medicine journal collection

Ongoing (years 2-4):
$1500 ebooks in various subjects
$595 Infection Control and Hospital Epidemiology
$10,000 maintenance of current subscriptions & new ones as needed
$2608, $2753, $2950 maintenance of Veterinary Medicine journal collection

Comments and Recommendations:
If we need to license immediate access to some of the identified journals, this will be a cost that we have not quantified.

Date Received: 4/25/2012

Date Completed: 5/14/2012

___________________________  ___________________________  ___________________________
Janet Webster                         Signature                                Date
Subject Librarian

___________________________  ___________________________
Steven Sowell                           Signature                                Date
Head of Collections & Resource Sharing

___________________________  ___________________________
Faye Chadwell                           Signature                                Date
University Librarian
This Oregon State Libraries' (OSUL) assessment reviews the print monographic, e-book, and electronic serials collections as related to broad science information needed to support the proposed comparative health sciences graduate program. As stated in the Cat 1 proposal, the proposed program “will offer both MS and PhD degrees and focus at the whole animal level, particularly the use of animal models of disease. It will replace a PhD program in Biomedical Sciences (recently terminated) and a MS program in Veterinary Science, and provide an opportunity to achieve critical mass in a disciplinary area identified by the Division of Health Sciences (DHS) for priority development. This program will provide an opportunity for students to be trained in multidisciplinary approaches to address biological and medical problems.” From the OSUL perspective, students and researchers will tap various components of the library collections. This makes it challenging to make recommendations on adequacy and funding needs as the entire science collection must be maintained to provide adequate access to information.

Summary of Recommendations
The monographic collection appears to be adequate as long as it is maintained and access is expanded through e-books. This will require an investment of $1500 annually in addition to the funds the OSU already allocates.

The journal collection is currently adequate with the exception of immunology. We recommend acquiring *Infection Control and Hospital Epidemiology* for $595 annually and allocating $10,000 for years 2-4 to cover inflation of the current core journals and add other journals identified as the program progresses.

The College of Veterinary Medicine will need to adjust its library funding for inflation as well. We anticipate this to be $2500 to $3000 annually over the next four years.

Print Monographs and E-Books

Library evaluations of proposed programs have traditionally included the analysis of OSUL’s print monograph collection. Comparing the monograph collection with other universities’ collections is routine. This analysis includes a comparison of the print monograph collection with a peer institution with a program similar to the one proposed, Colorado State University.

<table>
<thead>
<tr>
<th>Broad Subjects</th>
<th>OSU</th>
<th>CSU</th>
<th>OSU to CSU</th>
<th>OSU ebooks</th>
<th>CSU ebooks</th>
<th>OSU to CSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioinformatics</td>
<td>212</td>
<td>152</td>
<td>140%</td>
<td>123</td>
<td>244</td>
<td>50%</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>1200</td>
<td>1133</td>
<td>106%</td>
<td>57</td>
<td>181</td>
<td>31%</td>
</tr>
<tr>
<td>Ethics (Medical, Bio)</td>
<td>856</td>
<td>856</td>
<td>100%</td>
<td>43</td>
<td>153</td>
<td>28%</td>
</tr>
<tr>
<td>Genomics</td>
<td>237</td>
<td>386</td>
<td>61%</td>
<td>83</td>
<td>186</td>
<td>47%</td>
</tr>
<tr>
<td>Immunology</td>
<td>1239</td>
<td>1220</td>
<td>102%</td>
<td>94</td>
<td>233</td>
<td>40%</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>1325</td>
<td>1362</td>
<td>97%</td>
<td>20</td>
<td>71</td>
<td>28%</td>
</tr>
</tbody>
</table>

The broad subject areas searched reflect the proposed curriculum as well as the core of veterinary medicine. We compare favorably with CSU except for e-books that are discussed
below and genomics. Our current direct allocation for genomics is limited as we order genetics material throughout the life sciences. Even so, more emphasize on this area will be needed as well as sustaining the other areas.

The growing availability of e-books makes it possible to expedite access to more information from various locations. This obviously better serves our distance learners and is a convenience for our on-campus students and faculty. As the proposed program will have students scattered across the Corvallis campus, facilitating access is essential. OSUL are acquiring e-books with more frequency but we lag in comparison to CSU. This discrepancy should lessen in the next four years as we purchase electronic format over print. For example, we recently acquired the 2012 Elsevier Veterinary Medicine e-book package for $1100 for 10 titles in part to compare usage between the print format and electronic. We recommend allocating $1500 annually towards monographic purchases with emphasize on genomics and e-books.

OSU is served well by our investment in the Orbis/Cascades Alliance, whose combined collection is substantial. Students and faculty can order from the collections of all the libraries in the Orbis Cascade Alliance through the Summit catalog. University of Oregon, Portland State University, University of Washington and Washington State University are some of the larger research libraries represented in the Summit catalog. Books requested through Summit are delivered to OSUL within three to five working days.

Serials/Journals
In the sciences, ready access to current information is expected. The OSUL maintain a satisfactory collection of journals appropriate for comparative health sciences including the major titles in bioinformatics, epidemiology, genetics and veterinary medicine. There is concern that with regular price increases to our licenses and a flat budget that access may be eroded over time. The OSUL already have sacrificed timely access to some titles in favor of an embargo period to cut costs. We identified 147 titles indexed in the Web of Science of possible interest to those involved in the proposed program (Table 2). The categories represent the broad scope and consequent importance of collaboration across disciplines. We indicate those titles that we have current access to, those with 6 months to 2 years embargoes and those not owned by the OSUL.

Table 2 – First Quartile Journals from Web of Science

<table>
<thead>
<tr>
<th>Broad Subjects</th>
<th># of titles</th>
<th>current</th>
<th>embargoed</th>
<th>not owned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioinformatics</td>
<td>19</td>
<td>14</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>33</td>
<td>19</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Genomics</td>
<td>30</td>
<td>18</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Immunology</td>
<td>30</td>
<td>14</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Veterinary Medicine</td>
<td>35</td>
<td>27</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>147</strong></td>
<td><strong>94</strong></td>
<td><strong>33</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

Those 20 titles we do not own would cost on average $1000 for an annual license for each title with subscriptions ranging from $340 to over $16,000. This would total $20,000. To get immediate access to those titles currently embargoed is more difficult to figure; using the same average, though, a ballpark figure would be 33 times $1000 or $33,000. This later number would likely be lower given the OSUL ability to negotiate consortial deals. Even so, the investment is large if current access to everything is considered necessary.
We recommend monitoring usage of inter-library loan for current issues of those titles under embargo and see if usage justifies licensing of current content. Given the focus of this program on whole animal and clinical research rather than human health and medical research, currency may not be imperative. At this time, only one title is generating significant borrowing - *Infection Control and Hospital Epidemiology*. We recommend adding this at a cost of $595 annually.

The OSUL journal collection in immunology is the weakest component from this data. Again, we can monitor requests for articles from journals we do not own to make suggestions for further purchases. At this time, it is difficult to assess demand. We recommend $10,000 in the second through fourth years to address emerging gaps in the journal collection.

We also recommend that the College of Veterinary Medicine maintain its current access to the journals it purchases. These are managed by the OSUL, but the funding is through the College. Journal subscriptions in FY12 were $41,000. Annual inflation is estimated at 6% over the next four years. Consequently, the College will need to invest additional funds to maintain its robust journal collection that will be one cornerstone of this new program (FY13 $2460, FY14 $2608, FY15 $2763, FY16 $2950).

**Indexes and Databases**
The core indexes to the relevant information for this program are Medline (1950-present), CAB Abstracts (1973-present) and Web of Science (1970-present). The OSUL maintain access to all as these are core to many of OSU's primary research areas.

**Library staff and expertise:**
Expertise within the OSUL is spread among several librarians with varying responsibilities. These include Laurel Kristick, Janet Webster and Hannah Rempel. In 2011, the librarian who oversaw Veterinary Medicine, Pharmacology and the Medical Science departed, and we have not replaced that expertise. Given staffing shortages in the faculty ranks, this position is currently partially covered by Janet Webster.

Respectfully submitted,

[Signature]

Janet Webster
Head of Branch Libraries
May 14, 2012
<table>
<thead>
<tr>
<th>College of Veterinary Medicine</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency</td>
<td>Title</td>
<td>Grants Funded</td>
</tr>
<tr>
<td>Balzer, Wendy</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Bermudez, Luiz</td>
<td>Penn State</td>
<td>Project 3 (Yr 6) M. Paratuberculosis Interaction with the Intestinal Mucosa</td>
</tr>
<tr>
<td></td>
<td>DHHS</td>
<td>Genes Associated with M. Avium Pathogenesis</td>
</tr>
<tr>
<td></td>
<td>Coord Prgm Dvlp</td>
<td>Effic of Oral Aminoglycoside-Cochleate Formulations</td>
</tr>
<tr>
<td></td>
<td>HP</td>
<td>HP Study of Mycobacterium Chelona</td>
</tr>
<tr>
<td>Bildfell, Rolf</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Cebra, Chris</td>
<td>Morris Animal</td>
<td>Effects of Technique on Survival of Transfused Erythrocytes in Alpacas</td>
</tr>
<tr>
<td></td>
<td>NW Camelid</td>
<td>Glucagon Like Peptide - 1 Dosing in Camels</td>
</tr>
<tr>
<td>Chappell, Pat</td>
<td>MJ Murdoch</td>
<td>Circadian Clock Disruption Effects on GnRH Hormone</td>
</tr>
<tr>
<td></td>
<td>DHHS</td>
<td>Circadian Reg of Gonadotropin-Releasing Hormone</td>
</tr>
<tr>
<td>Craig</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Duesterdieck, Katja</td>
<td>Knapp Friesian</td>
<td>Is Intra-Articularly Administered Tiludronate a Safe Treatment in Horses? - A Short Pilot Study</td>
</tr>
<tr>
<td>Estill, Charles</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Hall, Jean</td>
<td>Ag Res-OSU</td>
<td>Inorganic Selenium in Salt-Mineral Mixes May Be Greatly Degraded by Moisture</td>
</tr>
<tr>
<td>Häse, Claudia</td>
<td>Ag Res-OSU</td>
<td>Detection of Vibrio tubiashii toxin oyster hatcheries</td>
</tr>
<tr>
<td>Helfand, Stuart</td>
<td></td>
<td>Winn Feline</td>
</tr>
<tr>
<td>Heidel, Jerry</td>
<td>USDA</td>
<td>Classical Swine Fever Surveillance</td>
</tr>
<tr>
<td>Jin, Ling</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Kent, Mike</td>
<td>Merial Lmtd</td>
<td>2010 Merial Veterinary Scholars Research Program</td>
</tr>
<tr>
<td>Löhrl, Christianne</td>
<td>Merial Lmtd</td>
<td>Merial Veterinary Scholars Program 2010</td>
</tr>
<tr>
<td>Magnusson, Kathy</td>
<td>Merial Lmtd</td>
<td>An Epidemiologic Study and Genetic Survey of Exertional Rhabdomyolysis in Endurance Race Horses</td>
</tr>
<tr>
<td>McKenzie, Erica</td>
<td>Morris Animal</td>
<td></td>
</tr>
<tr>
<td>Mustacich, Debbie</td>
<td>Ag Res-OSU</td>
<td>Development of an in vitro model to study interactions of organisms in shipping fever</td>
</tr>
<tr>
<td>O'Reilly, Kathy</td>
<td>Ag Res-OSU</td>
<td>Rapid nd Sensitive Method Using Real-Time PCR for Diagnosis of Infections by Bovine Parainfluenza Virus 3 in Clinical Samples</td>
</tr>
<tr>
<td>Pastey, Manoj</td>
<td>SIGA</td>
<td>Therapeutic Countermeasures Against CDC Category A and B Threat Agents</td>
</tr>
<tr>
<td>Rockey, Dan</td>
<td>SIGA</td>
<td>Broad Spectrum Antiviral Testing</td>
</tr>
<tr>
<td>Ruaux, Craig</td>
<td>Morris Animal</td>
<td>Biological Variation in Cardiac Biomarkers in Healthy Dogs and Dogs with Stable Heart Disease</td>
</tr>
<tr>
<td></td>
<td>Morris Animal</td>
<td>Influence of Transfusion Technique on Survival of Autologous Red Blood Cells in Cats</td>
</tr>
</tbody>
</table>
### Appendix 2 - Participating Faculty

<table>
<thead>
<tr>
<th>2010</th>
<th>Pubs</th>
<th>Agency</th>
<th>Title</th>
<th>2011</th>
<th>Pubs</th>
<th>Agency</th>
<th>Title</th>
<th>Continuing funding (awarded pre-2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarker, Mahfuzur</td>
<td>3</td>
<td>Ag Res-OSU</td>
<td>Inhibitory Effects of Nisin Against Clostridium perfringens Growth in Meat Products</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>DOD</td>
</tr>
<tr>
<td>Séquin, Bernard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semevolos, Stacy</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sisson, David</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stenauer, Michelle</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stieger-Vanegas, Susanne</td>
<td></td>
<td>NW Camelid</td>
<td>Develop/Eval of a CT Protocol of the Abdomen to Facilitate the Differentiation Between Phytobezoars</td>
<td></td>
<td></td>
<td>Foundations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomquist, Sue</td>
<td>3</td>
<td>NW Camelid</td>
<td>Retrospective Analysis of Anemia in Camelids</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valentine, Beth</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Morris Foundation</td>
</tr>
<tr>
<td>“</td>
<td></td>
<td>Morris Animal</td>
<td>Morris Animal Foundation Vet Student Scholarship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Villarroel, Aurora</td>
<td></td>
<td>AJCC</td>
<td>Evaluation of Failure of Passive Transfer in Replacement Jersey Calves</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>College of Pharmacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fitz, Theresa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NIH</td>
<td>Cell signalling</td>
<td>NIH</td>
<td></td>
</tr>
<tr>
<td>Indra, Anup</td>
<td>1</td>
<td>NIH</td>
<td>Skin Cancer</td>
<td>2</td>
<td>NIH</td>
<td>Skin Cancer</td>
<td>NIH</td>
<td></td>
</tr>
<tr>
<td>Kioussi, Chriisa</td>
<td>3</td>
<td>NIH</td>
<td>Development</td>
<td></td>
<td>NIH</td>
<td>Development</td>
<td>NIH</td>
<td></td>
</tr>
<tr>
<td>Leid, Mark</td>
<td>3</td>
<td>NIH</td>
<td>Transcription regulator in development</td>
<td>1</td>
<td>NIH</td>
<td>Transcription regulator in development</td>
<td>NIH</td>
<td></td>
</tr>
<tr>
<td>Mongun, Andriy</td>
<td>1</td>
<td>NIH</td>
<td></td>
<td>2</td>
<td>NIH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sikora, Alek</td>
<td></td>
<td>NIH</td>
<td>Novel drug targets in bacteria</td>
<td>1</td>
<td>NIH</td>
<td>Novel drug targets in bacteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>College of Public Health and Human Sciences</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harding, Anna</td>
<td>1</td>
<td>CDC</td>
<td>Environmental health</td>
<td>1</td>
<td>CDC</td>
<td>Environmental Health</td>
<td>CDC</td>
<td></td>
</tr>
<tr>
<td>Kile, Molly</td>
<td>1</td>
<td>NIH</td>
<td>Environmental, maternal, child health</td>
<td>1</td>
<td>NIH</td>
<td>Environmental, maternal child health</td>
<td>NIH</td>
<td></td>
</tr>
</tbody>
</table>