SELF-STUDY REPORT

BIMS GRADUATE PROGRAM

College of Veterinary Medicine & Biomedical Sciences

Texas A&M University

Prepared: February, 2012
Review: March 4-7, 2012
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<th>TITLE</th>
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<tr>
<td>AAALAC</td>
<td>Association for Assessment and Accreditation of Laboratory Animal Care</td>
</tr>
<tr>
<td>AAHA</td>
<td>American Animal Hospital Association</td>
</tr>
<tr>
<td>ADRG</td>
<td>Associate Dean for Research and Graduate Studies</td>
</tr>
<tr>
<td>BIMS</td>
<td>Biomedical Sciences</td>
</tr>
<tr>
<td>BSL2</td>
<td>Biohazard Level 2</td>
</tr>
<tr>
<td>CAB</td>
<td>Commonwealth Agricultural Bureau</td>
</tr>
<tr>
<td>CTE</td>
<td>Center for Teaching Excellence</td>
</tr>
<tr>
<td>CVM</td>
<td>College of Veterinary Medicine &amp; Biomedical Sciences</td>
</tr>
<tr>
<td>CVP</td>
<td>Cardiovascular Pathology</td>
</tr>
<tr>
<td>DVM</td>
<td>Doctor of Veterinary Medicine</td>
</tr>
<tr>
<td>EC</td>
<td>Executive Committee</td>
</tr>
<tr>
<td>EMAP</td>
<td>Environmental Monitoring &amp; Assessment Program</td>
</tr>
<tr>
<td>ETD</td>
<td>Electronic Thesis, Dissertation, or Record of Study</td>
</tr>
<tr>
<td>FAZD</td>
<td>Foreign Animal and Zoonotic Disease Defense</td>
</tr>
<tr>
<td>GC</td>
<td>Graduate Council</td>
</tr>
<tr>
<td>GCP</td>
<td>Good Clinical Practices</td>
</tr>
<tr>
<td>GENE</td>
<td>Genetics</td>
</tr>
<tr>
<td>GIC</td>
<td>Gastrointestinal</td>
</tr>
<tr>
<td>GIC</td>
<td>Graduate Instruction Committee</td>
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<tr>
<td>GLP</td>
<td>Good Laboratory Practices</td>
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<tr>
<td>GOC</td>
<td>Graduate Operating Committee</td>
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<tr>
<td>GPA</td>
<td>Grade Point Average</td>
</tr>
<tr>
<td>GRE</td>
<td>Graduate Record Examination</td>
</tr>
<tr>
<td>GSA</td>
<td>Graduate Student Association</td>
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<tr>
<td>GTA</td>
<td>Graduate Teaching Assistant</td>
</tr>
<tr>
<td>ICSI</td>
<td>Intracytoplasmic Sperm Injection</td>
</tr>
<tr>
<td>IUMRI</td>
<td>Initial University Multidisciplinary Research Initiatives</td>
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<tr>
<td>LARR</td>
<td>Laboratory Animal Resources and Research</td>
</tr>
<tr>
<td>MD</td>
<td>Medical Doctor</td>
</tr>
<tr>
<td>MRI</td>
<td>Magnetic Resonance Imaging</td>
</tr>
<tr>
<td>MS</td>
<td>Master of Science</td>
</tr>
<tr>
<td>MVPH</td>
<td>Master of Science in Veterinary Public Health</td>
</tr>
<tr>
<td>NIH</td>
<td>National Institutes of Health</td>
</tr>
<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
</tr>
<tr>
<td>NSF</td>
<td>National Science Foundation</td>
</tr>
<tr>
<td>NTO</td>
<td>Non-Thesis Option</td>
</tr>
<tr>
<td>OGS</td>
<td>Office of Graduate Studies</td>
</tr>
<tr>
<td>OISP</td>
<td>Office of Institutional Studies and Planning</td>
</tr>
<tr>
<td>PACS</td>
<td>Picture Archiving and Communications System</td>
</tr>
<tr>
<td>ABBREVIATIONS</td>
<td>TITLE</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>PASS</td>
<td>Programs for Academic Success Skills</td>
</tr>
<tr>
<td>PEER</td>
<td>Partnership for Environmental Education and Rural Health</td>
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<tr>
<td>PhD</td>
<td>Doctor of Philosophy</td>
</tr>
<tr>
<td>QA/QC</td>
<td>Quality Assurance/Quality Control</td>
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<tr>
<td>RFP</td>
<td>Request for Proposals</td>
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<tr>
<td>RIS</td>
<td>Radiology Information System</td>
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<td>RVT</td>
<td>Registered Veterinary Technicians</td>
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<td>SCS</td>
<td>Student Counseling Service</td>
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<tr>
<td>SI</td>
<td>Supplemental Instruction</td>
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<tr>
<td>SLC</td>
<td>Student Learning Center</td>
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<tr>
<td>TAMHSC</td>
<td>Texas A&amp;M Health Science Center</td>
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<tr>
<td>TAMIN</td>
<td>Texas A&amp;M Institute for Neuroscience</td>
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<tr>
<td>TAMU</td>
<td>Texas A&amp;M University</td>
</tr>
<tr>
<td>TDCJ</td>
<td>Texas Department of Criminal Justice</td>
</tr>
<tr>
<td>TERL</td>
<td>Trace Element Research Laboratory</td>
</tr>
<tr>
<td>TIPS</td>
<td>Texas Institute of Preclinical Studies</td>
</tr>
<tr>
<td>TO</td>
<td>Thesis Option</td>
</tr>
<tr>
<td>TVMA</td>
<td>Texas Veterinary Medical Association</td>
</tr>
<tr>
<td>USDA-AFRI</td>
<td>United States Department of Agriculture-Agriculture and Food Research Initiative</td>
</tr>
<tr>
<td>USFWS</td>
<td>United States Fish and Wildlife Service</td>
</tr>
<tr>
<td>VET</td>
<td>Veterinary Emergency Team</td>
</tr>
<tr>
<td>VIBS</td>
<td>Veterinary Integrative Biosciences</td>
</tr>
<tr>
<td>VLCS</td>
<td>Large Animal Clinical Sciences</td>
</tr>
<tr>
<td>VMP</td>
<td>Veterinary Medical Park</td>
</tr>
<tr>
<td>VMTH</td>
<td>Veterinary Medical Teaching Hospital</td>
</tr>
<tr>
<td>VPR</td>
<td>Vice President of Research</td>
</tr>
<tr>
<td>VSCS</td>
<td>Small Animal Clinical Sciences</td>
</tr>
<tr>
<td>VTNE</td>
<td>Veterinary Technician National Examination</td>
</tr>
<tr>
<td>VTPB</td>
<td>Veterinary Pathobiology</td>
</tr>
<tr>
<td>VTPP</td>
<td>Veterinary Physiology and Pharmacology</td>
</tr>
<tr>
<td>WSAVA</td>
<td>World Small Animal Veterinary Association</td>
</tr>
</tbody>
</table>
PROLOGUE

A. Welcome from the Associate Dean for Research and Graduate Programs

The faculty, staff, and students of the Biomedical Sciences (BIMS) Graduate degree program in the College of Veterinary Medicine & Biomedical Sciences (CVM) welcome you to Texas A&M University (TAMU). We are grateful to you for agreeing to serve as external reviewers of our academic program. This will be the first review of the BIMS graduate program since its inception in 2006. The BIMS PhD, MS, and non-thesis option MS are offered through all the departments within the CVM: Veterinary Integrative Biosciences (VIBS), Veterinary Pathobiology (VTPB), Veterinary Physiology and Pharmacology (VTPP), Veterinary Small Animal Clinical Sciences (VSCS) and Veterinary Large Animal Clinical Sciences (VLCS). This will also be the first official review of the MS in Epidemiology and the MS in Veterinary Public Health programs, which were established in approximately 1959.

The first review of these graduate programs offers us a valuable opportunity to assess our strengths and opportunities, and receive external critiques that will help us advance our mission to prepare graduate students well for biomedical science careers. It is also our goal through this program to develop responsible leaders in an increasingly global society.

We recognize that this review takes a significant amount of time and effort on your part and sincerely thank you for accepting the university’s invitation to conduct it. Please feel free to contact me if you have any questions or need information that is not contained in this report.

To assist you in evaluating this program and provide an overview of graduate studies at TAMU the following documents will be available on site at the time of review:

Texas A&M University Graduate Catalog

Texas A&M University Graduate Student Handbook

Texas A&M University Graduate Advising Handbook

Vision 2020: Creating a Culture of Excellence

Sincerely,

Dr. Bhanu Chowdhary, BVSc&AH, MVSc, VMD (PhD)
Associate Dean for Research & Graduate Studies
College of Veterinary Medicine and Biomedical Sciences
Texas A&M University
College Station TX 77843-4416
Phone (979) 845-5092
FAX (979) 845-5088
December 13, 2011

Charge to the Peer Review Team
Biomedical Sciences (Graduate) Academic Program Review

This letter provides you with a general background on overall organization of graduate education in the College of Veterinary Medicine & Biomedical Sciences (CVM) at Texas A&M University, and explains the expectations for our upcoming external review. There are 4 graduate degrees offered by the CVM that are being evaluated as part of this Academic Program Review. Each of the degrees was established at different times during past decades: a Biomedical Sciences Doctor of Philosophy (2006), a Biomedical Sciences Master of Science (2006), an Epidemiology Master of Science (1990), and Veterinary Public Health Master of Science (1960). The chart below provides information on the number of degrees the college and each program has awarded over the last five years.

<table>
<thead>
<tr>
<th>Degree Offered</th>
<th>Degrees Awarded Annually</th>
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<tbody>
<tr>
<td></td>
<td>06-07</td>
</tr>
<tr>
<td>Biomedical Sciences PhD</td>
<td>0</td>
</tr>
<tr>
<td>Biomedical Sciences MS</td>
<td>4</td>
</tr>
<tr>
<td>Veterinary Public Health MS</td>
<td>2</td>
</tr>
<tr>
<td>Epidemiology MS</td>
<td>3</td>
</tr>
</tbody>
</table>

This program review activity is part of a periodic review of all Texas A&M University academic programs, and offers us an opportunity to assess the standards of the programs and to learn from review team members' experiences with similar programs.

The review team is requested to examine the graduate program and the teaching and research programs for graduate students in the College of Veterinary Medicine & Biomedical Sciences using (a) the materials that will be provided, (b) information you gain through personal interactions while visiting Texas A&M University CVM, and (c) any additional information that you might request. While evaluating the program, please consider the allocation of resources within the college (both human and fiscal) and the absolute level of support the departments receive from the university. Please comment as appropriate on current and potential leveraging of these resources, as well as the current and potential interaction with other departments and groups, both on campus and off.

Also, please address the issue of learning-based outcomes:

- Does the college have ongoing and integrated planning and evaluation processes that assess its programs and services, that result in continuing improvement, and does it adequately demonstrate that the college is effectively accomplishing its mission?
- Has the college identified expected outcomes for its educational programs?
- Does the college have evidence of improvement based upon analysis of results?

Last, please address the college's contributions to two guiding strategic initiatives developed by Texas A&M University. The first of these is a document developed in 1999, entitled Vision 2020: Creating a Culture of Excellence, and identifies twelve specific areas of focus for Texas A&M's future. The other is the more recent Action 2015, intended to build on our gains made since the inception of Vision 2020. Both documents may be referenced at http://provost.tamu.edu/strategic-planning-2010. Summaries of both documents will be provided upon your arrival at Texas A&M University.

We look forward to meeting with you and the entire committee in March 2012. If you have any questions or require additional information prior to your visit, please contact Dr. Martyn Gunn, Special Advisor to the Provost or Katy Williams, Interim Program Coordinator.
# Veterinary Integrative Biosciences
## Academic Program Review Team
### March 4-7, 2012

<table>
<thead>
<tr>
<th>MEMBER TYPE</th>
<th>LAST NAME</th>
<th>FIRST NAME</th>
<th>MEMBER ADDRESS</th>
<th>EMAIL ADDRESS</th>
<th>TELEPHONE</th>
</tr>
</thead>
</table>
| Chair       | Buckpitt  | Alan       | Department of Molecular Biosciences  
              University of California-Davis  
              220 Everson Hall  
              Davis, CA 95616 | arbuckpitt@ucdavis.edu | 530-752-7674 |
| Member      | Boris-Lawrie | Kathleen   | Department of Veterinary Biosciences  
              Ohio State University  
              450 Veterinary Medical Academic Bldg.  
              1900 Coffey Road  
              Columbus, Ohio 43210 | boris-lawrie.1@osu.edu | 614-292-1392 |
| Member      | Moore     | George     | Department of Comparative Pathobiology  
              Purdue University  
              725 Harrison St.  
              West Lafayette, IN 47907-2027 | gemoore@purdue.edu | 765-496-3393 |
| Member      | Murtaugh  | Michael    | Department of Veterinary and Biomedical Sciences  
              University of Minnesota  
              239B Veterinary Science  
              1971 Commonwealth Avenue  
              St. Paul, MN 55108 | murta001@umn.edu | 612-625-5255 |

Last Updated 12/13/2011
# BIMS Academic Review Itinerary  March 4, 2012 - March 7, 2012

## Sunday (3/4/12)

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30 - 5:00 pm</td>
<td>Review Team arrives in College Station</td>
<td>See Reviewers List Tab</td>
<td></td>
</tr>
<tr>
<td>6:00 - 8:00 pm</td>
<td>Welcome dinner hosted by the Administrative Team. Orientation/Background will be provided at that time.</td>
<td>Café Eccel&lt;br&gt;101 Church Ave.&lt;br&gt;College Station, TX 979-846-7908</td>
<td>Dr. Bhanu Chowdhary&lt;br&gt;Dr. Jane Welsh&lt;br&gt;Dr. Evelyn Castiglioni&lt;br&gt;Dr. Ashley Seabury</td>
</tr>
</tbody>
</table>

## Monday (3/5/12) Day 1

**Breakfast:** Continental breakfast

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 - 8:30 AM</td>
<td>Entry Interview at the hotel</td>
<td>Rudder Jessup B&amp;B 979-693-1749</td>
<td>Provost&lt;br&gt;Vice Provost, etc.</td>
</tr>
<tr>
<td>8:30 - 9:30</td>
<td>Entry Meeting with the BIMS Graduate Program Administrative Team</td>
<td>Dean's Conference Room</td>
<td>Dr. Chowdhary, Dr. Welsh, Dr. Castiglioni, Dr. Seabury</td>
</tr>
<tr>
<td>9:30 - 10:00 AM</td>
<td>Travel from Hotel to CVM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00-10:40 AM</td>
<td>Meet with VTPP Department Head</td>
<td>Dean's Conference Room</td>
<td>Dr. Glen Laine and Dr. Chuck Long</td>
</tr>
<tr>
<td>10:40 - 11:15 AM</td>
<td>Meet with VTPB Department Head</td>
<td>Dean's Conference Room</td>
<td>Dr. Pat Holman</td>
</tr>
<tr>
<td>11:15 - 11:25 AM</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:25 AM -12:00 PM</td>
<td>Meet with VSCS Department Head</td>
<td>Dean's Conference Room</td>
<td>Dr. Sandee Hartsfield</td>
</tr>
<tr>
<td>12:00 - 1:30 PM</td>
<td>Lunch - Faculty</td>
<td>Dean's Conference Room</td>
<td>Faculty who currently have BIMS graduate students</td>
</tr>
<tr>
<td>1:30 - 3:30 PM</td>
<td>Tour departmental facilities</td>
<td></td>
<td>Elizabeth Janecka</td>
</tr>
<tr>
<td>3:30 - 4:05 PM</td>
<td>Meet with VIBS Department Head</td>
<td>Dean's Conference Room</td>
<td>Dr. Castiglioni and Dr. Welsh</td>
</tr>
<tr>
<td>4:05 - 4:25 PM</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4:25-5:00 PM</td>
<td>Meet with VLCS Department Head</td>
<td>Dean's Conference Room</td>
<td>Dr. Allen Roussel and Dr. Noah Cohen</td>
</tr>
<tr>
<td>5:00-5:30PM</td>
<td>Meet with Associate Dean for Research &amp; Graduate Studies</td>
<td>Dean's Conference Room</td>
<td>Dr. Bhanu Chowdhary</td>
</tr>
<tr>
<td>5:30 - 7:00 PM</td>
<td>Faculty Reception and Dinner</td>
<td>Mark Francis Room</td>
<td>BIMS Graduate Faculty Members</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 - 8:30 AM</td>
<td>Reviewers eat breakfast at hotel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30 - 9:00 AM</td>
<td>Travel from Hotel to CVM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:00 - 10:20 AM</td>
<td>Meet with GIC Committee</td>
<td>Mark Francis Room</td>
<td>GIC Members and Dr. Henry Huebner</td>
</tr>
<tr>
<td>10:20 - 10:40 AM</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:40 - 11:30 AM</td>
<td>Meet with Administrative Assistants and Academic Advisors</td>
<td>Mark Francis Room</td>
<td>Dana Parks, Gail Snook, Yvonne Kovar, Stevie Bundy, Cynthia Voelker, Tricia Maginn</td>
</tr>
<tr>
<td>11:30 AM - 1:00 PM</td>
<td>Lunch: Pizza Lunch with Graduate Students</td>
<td>Mark Francis Room</td>
<td>Graduate Students</td>
</tr>
<tr>
<td>1:00 - 2:00 PM</td>
<td>Meet with BIMS Graduate Review Administrative Team</td>
<td>Mark Francis Room</td>
<td>Dr. Chowdhary, Dr. Welsh, Dr. Castiglioni, Dr. Seabury</td>
</tr>
<tr>
<td>2:00 - 2:30 PM</td>
<td>Meet with Dean Eleanor Green</td>
<td>Mark Francis Room</td>
<td>Dean Green</td>
</tr>
<tr>
<td>2:30 - 2:45 PM</td>
<td>Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:45- 3:30 PM</td>
<td>Meet with Fellowship Recipients and Graduate Student Association Officers</td>
<td>Mark Francis Room</td>
<td>Fellowships Recipients: Randi Gold, Dana Pollard, Franklin Lopez, Laura Bryan, Chelsie Burroughs, Jessica Rodriguez, Brittany Jones, Jamie Brannan CVM GSA Officers: James Frank, Colleen Fisher, Sang Shin Park, Bikash Bhattacharai, Vijayalekshmi Vasanthakumari</td>
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<tr>
<td>3:30 - 4:00 PM</td>
<td>Tour of Vet Med Park</td>
<td>Vet Med Park</td>
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<tr>
<td>4:00 - 4:15 PM</td>
<td>Break</td>
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<tr>
<td>4:15 - 5:00 PM</td>
<td>Tour</td>
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<tr>
<td>5:00 - 6:00 PM</td>
<td>Dinner catered to reviewers' hotel workroom</td>
<td>Rudder Jessup B&amp;B</td>
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<tr>
<td>6:00 - 9:00 PM</td>
<td>Reviewers' work session - prep for draft report/faculty debrief</td>
<td>Rudder Jessup B&amp;B</td>
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<tr>
<td>Time</td>
<td>Activity</td>
<td>Location</td>
<td>Meeting Participants</td>
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<tr>
<td>7:30 - 8:30 AM</td>
<td>Exit Interview with Administrative Team at hotel</td>
<td>Rudder Jessup B&amp;B</td>
<td>Provost, Vice-Provost, as well as Dr. Bhanu Chowdhary</td>
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<tr>
<td>8:30 - 9:30 AM</td>
<td>Reviewers debrief the BIMS Graduate Program Administrative Team</td>
<td>Rudder Jessup B&amp;B</td>
<td>Dr. Chowdhary, Dr. Welsh, Dr. Castiglioni, Dr. Seabury</td>
</tr>
<tr>
<td>9:30 - 11:00</td>
<td>Reviewers make final changes to draft report, as necessary</td>
<td>Dean's Conference Room</td>
<td>Visitors are alone</td>
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<tr>
<td>11:00 AM - 12:00 PM</td>
<td>Reviewers brief faculty, staff and students on final report</td>
<td>Mark Francis Room</td>
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<tr>
<td>12:00 - 1:00 PM</td>
<td>Lunch</td>
<td></td>
<td>Vet School Administrative Team Member will take review team to lunch before departure</td>
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<tr>
<td>1:00 - 3:00 PM</td>
<td>Reviewers depart College Station</td>
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1. COLLEGE OF VETERINARY MEDICINE & BIOMEDICAL SCIENCES: IMPACT AND METRICS - AT A GLANCE

Excellence for the College of Veterinary Medicine & Biomedical Sciences (CVM) is defined as having positive impacts on Texas and society through benefitting animal, human, and ecosystem health, economic well-being, and educational advancement. These impacts are achieved through (1) production of graduates who achieve excellence themselves as they contribute to society; (2) creation, translation, and application of new knowledge; and (3) distribution and sharing of knowledge within the scientific community and the public. As the only college of veterinary medicine in the State of Texas, the greatest impact of our educational program is the production of: (1) well-trained, clinically competent, highly competitive veterinarians; (2) biomedical science students well-prepared for professional or graduate education; (3) graduate students and postdoctoral researchers with solid training for academic and research careers and (4) residents seeking board certification as veterinary specialists. For more detailed information about our impacts on teaching, research, service, development, and continuing education, visit http://vetmed.tamu.edu/critical-stats.

Veterinary medicine is critical to the Texas economy. State-of-the-art specialty hospitals provide pets and their owners with superior care. The nation’s largest livestock and equine industries are protected. Texas is served through governmental, academic, industrial, and military roles in private, industrial, and government practice. The economic impact of veterinary medicine in the State of Texas was estimated to be $1.72 billion in 2003 (please see the TVMA/CVM report located at http://vetmed.tamu.edu/common/docs/public/news/EIVMST.pdf). This figure does not take into account the enormous economic impact resulting from healthier animals, people, and the environment.

1.1 Professional Doctor of Veterinary Medicine (DVM) Program

Our DVM program has graduated 7,197 DVMs (approximately 130 veterinarians per year) who provide care to animals belonging to the citizens of the State of Texas and beyond. They help protect both animal and human health. They are the first line of defense in recognizing major disease outbreaks and agents used in biological terrorism or warfare. Veterinarians are small business owners who support the economy of Texas by borrowing, building, and hiring for their private practices both in large metropolitan areas and in small rural communities.

In 2011, our scholarship support for DVM students exceeded $1M, which averaged ~20% of our student tuition costs. There were 146 endowed scholarships from an endowment corpus of $13,440,338. Every eligible DVM student received a scholarship. Our veterinary student graduation rate remains at 98%. These graduates consistently maintain greater than a 95% pass rate for the National Board of Veterinary Medical Examiners, one of the highest in the nation. Their pass rate for State of Texas Boards is consistently greater than a 98%, also one of the highest in the nation.

Historically, the employment percentage of our professional program graduates has been exceptionally high. While our graduates choose from a variety of career paths within the profession, many enter much-needed rural practice and large animal practice positions, as well as large animal internship programs. Our DVM graduates achieve notable success throughout the profession. They are leaders and assume prominent leadership roles, such as deans of colleges of veterinary medicine and presidents of national organizations. Five Aggie graduates are past-presidents of the American Veterinary Medical Association.
1.2 **Graduate Degree Programs and Postgraduate Training**

Our CVM graduate program enables biomedical scientists and veterinarians to gain research experience leading to MS and PhD degrees. Graduates enter careers in academia, the pharmaceutical industry, state and federal research institutions, and private industry.

Our post-graduate training programs include internships and residencies for graduate veterinarians who wish to become veterinary specialists in disciplines like surgery, medicine, reproduction, anesthesiology, cardiology, neurology, ophthalmology, dermatology, oncology, and more. Our residents have a very high rate of success in fulfilling the stringent requirements for specialty board certification; in fact, their pass rate is one of the highest for residents nationally. As a result, specialists trained at TAMU not only become academic clinicians at universities, but also go to communities throughout Texas to provide highly specialized care close to home for animal owners. Additionally, our graduate students and residents are highly sought by the pharmaceutical industry, diagnostic laboratories, and research institutions.

1.3 **Undergraduate Biomedical Sciences (BIMS) Program**

Our undergraduate BIMS degree is a unique educational program for undergraduate students seeking careers in one of the health care professions, including veterinary medicine, human medicine, dentistry, nursing, and pharmacy, or in biomedical research. BIMS students make up a large portion of students admitted to Texas medical, dental, and veterinary schools. In 2009, about 9% of students admitted to Texas medical schools came from BIMS, along with 17% and 31% of those admitted to dental and veterinary schools, respectively. The BIMS program attracts a diverse student body, about 35% of which is non-white (mostly Hispanic) and 30% of which is the first generation in college.

1.4 **CVM Research**

Excellence in research at the CVM is partly evident from the millions of dollars in extramural funding obtained annually from highly competitive funding agencies by faculty members, graduate students, and postdoctoral researchers. For example, our faculty members recently were awarded $14 million from USDA-AFRI; they are lead investigators on the $9.2 million animal health grant and are key participants in the $5 million feed-efficiency grant. Similarly, the CVM investigators have obtained significant NIH, USDA, NSF, and Department of Defense, as well as Texas funding. In the past, CVM researchers in the Center of Rural and Environmental Health attracted the only NIH Center Grant in the history of TAMU. Another important measure of research excellence is reflected in the publication of research in internationally reputed journals in veterinary medicine and biomedical sciences. Some of this work has been featured on the cover of the most highly respected journals, such as *Nature*, *Science*, *Genomics*, and *Genome Research*. At the last International Symposium on Equine Reproduction, 23% of the presentations were from the CVM.

We have defined research signature programs for areas of eminence, such as Biomedical Genomics, Cardiovascular Sciences, Infectious Disease and Biodefense, Neuroscience, Reproductive Biology, Toxicology and Environmental Health and Veterinary Clinical Research. Our research improves disease resistance in animals, increases their productivity, and enhances their reproductive ability. It develops cures for human and animal diseases, including cancer, heart disease, neurological diseases, and reproductive diseases. Recent examples of success include: (1) new strategies for treatment of endometriosis, the most common cause of infertility in women (US Patent Application 20100249125); (2) cloning of 6 animal species (deer, cat, cow, horse, pig, and goat) to aid in conservation of species; (3) deciphering of complete genetic material from three major mammalian groups (horse, bovine, and marsupial) to study important diseases and traits; (4) innovative approaches to reduce global impact of costly human diseases in third world countries; and (5) creation of a food and feed additive to protect humans and animals from deadly toxins produced by molds on grain (US Patents Nos. 5,178,832 and 5,165,946).
Additionally, the CVM is home to a variety of unique research institutes, including the Michael E. DeBakey Institute for Comparative Cardiovascular Science and Biomedical Devices, which is the largest single undergraduate research opportunity on the TAMU campus.

1.5 Veterinary Medical Teaching Hospital
The Veterinary Medical Teaching Hospital (VMTH) at the CVM has a long and distinguished history of serving Texans and their animals. The hospital plays a vital role in the College’s mission to graduate the highest quality, career-ready general practitioners. The VMTH consists of a Large Animal Hospital, a Small Animal Hospital, diagnostic support laboratories, and an Ambulatory Service that provides veterinary services to ranches and other animal facilities across the State.

The DVM Professional Veterinary Students spend their 4th and final year in the VMTH gaining hands-on experience under the direction of clinical faculty. Our students have the privilege of learning from direct contact with internationally renowned faculty.

The VMTH was the first teaching hospital to receive the prestigious American Animal Hospital Association (AAHA) Referral Practice Accreditation. The VMTH belongs to this select group of veterinary practices that are committed to meeting the highest of standards in veterinary medicine. Annually, AAHA accredited hospitals pass stringent evaluation of standards covering patient care, client service, pain management, and medical protocols.

The VMTH has an operating budget of over $14 million. It generates 85% of this budget from client revenue and receives 15% budgetary support from the State. Leveraging this state support, the VMTH has more than doubled its client revenue over the past 10 years. These funds are used to ensure a modern, state-of-the art hospital that is a real-life teaching laboratory for students and at the same time serves Texans and their animals. This critical revenue provides funding for new equipment and facilities; for example, a unique Diagnostic Imaging and Cancer Treatment Center opened in September 2011. The $11 million, 9,000 square foot facility houses MRI, CT, and TomoTherapy equipment which rivals that found in human hospitals.

The VMTH has a unique relationship with the Texas Department of Criminal Justice (TDCJ) by providing veterinary care to its large numbers of horses, cattle, swine, dogs, and poultry. This partnership provides exceptional teaching opportunities in population medicine and herd health management for about 50% of our 4th year DVM students, while saving Texas taxpayer dollars for health care of these animals. The VMTH also collaborates with Blinn College in a two-year Veterinary Technology Program. Second-year students receive much of their clinical education in the VMTH. Students who successfully complete the curriculum will be eligible to sit for the Veterinary Technician National Examination (VTNE) and state (Texas RVT examination) credentialing examinations to become Registered Veterinary Technicians (RVT). This program provides an excellent career path and job opportunities for Texans. Just as nurses and nurse practitioners do for the medical profession, veterinary technicians expand the scope and reach of veterinary care.

1.6 CVM Service
We provide a comprehensive referral facility for the veterinarians and citizens of the State of Texas for management of large animals, small animals, and zoological species with complex medical problems. In recent years, the VMTH has served animals referred from approximately 2,500 veterinarians in 164 Texas counties and from 36 states outside of Texas. Last year, the VMTH received over 20,000 client visits and provided care for over 84,000 animals. We also provide diagnostic testing for patients with gastrointestinal disease through the Gastrointestinal (GI) Lab. Approximately 1200 submissions come through the GI Lab each month from veterinarians throughout Texas, the United States and the world.
Our Texas Veterinary Renal Pathology Service is recognized internationally as the pre-eminent provider of state-of-art pathology for animal patients with kidney disease. It is the lead diagnostic pathology center for the World Small Animal Veterinary Association (WSAVA) Renal Standardization Study, which impacts the diagnosis and treatment of canine glomerular disease world-wide.

Our Veterinary Emergency Team (VET) participates with Texas Task Force 1 and the Texas Animal Health Commission to provide a resource for emergency management in Texas and beyond. The CVM partners with multiple non-profit community animal welfare and sheltering agencies in Texas to provide spay/neuter surgeries and primary care for more than 4000 animals each year. In addition to the medical and surgical animal care experiences, the students gain an appreciation for the role of shelters in communities. They also learn the value of community service.

Our PEER Program (Partnership for Environmental Education and Rural Health) provides state outreach to K-12, with emphasis on rural middle schools, to stimulate interest in science and technology. To date scientists have visited over 35,000 Texas students and 1,750 Texas teachers have incorporated PEER materials into their classrooms. International programs include an active exchange program for students and faculty in a number of countries around the world. "AuthorAID" is an international outreach program which helps researchers in developing countries to write journal articles that could be accepted into major peer-reviewed biomedical journals.
2. GRADUATE PROGRAM OVERVIEW IN THE COLLEGE

2.1 Historical Highlights
Early education in veterinary medicine began in 1878 under the leadership of Dr. Mark Francis, the Texas Agricultural and Mechanical College veterinarian, who taught veterinary medicine and animal science to students interested in the discipline. He also performed ground-breaking research on Texas Cattle Fever, and was the first Dean of the School of Veterinary Medicine which opened in 1916.

Texas A&M University was founded in 1876, followed by establishment of the Department of Veterinary Sciences, Texas Agricultural Experiment Station (now Texas AgriLife Research) in 1888, as a subdivision of the university. The College of Veterinary Medicine originally consisted of the Departments of Veterinary Anatomy, Medicine and Surgery; Veterinary Physiology and Pharmacology (with Toxicology added in 1917); and Veterinary Pathology. TAMU has the only college of veterinary medicine in the State of Texas. Since that time, the College has attained world-class stature for not only educating and training professional DVM students but also graduate and undergraduate students. In order to reflect the College’s additional commitment to educating future biomedical scientists at both the graduate and undergraduate levels, the name of the college was changed from the College of Veterinary Medicine to the College of Veterinary Medicine & Biomedical Sciences in 2004.

In 2006, the Texas Higher Education Coordinating Board approved the creation of PhD and MS degrees in Biomedical Sciences in the CVM, which replaced the MS and PhD degrees in Veterinary Anatomy and Veterinary Physiology and Pharmacology as well as several other MS degrees. Also, at this point the MS and PhD degrees in BIMS became available for use by all five departments. Previously, students in the clinical departments had to pursue their PhD degrees through the basic science departments. The change allowed the students in Veterinary Large Animal Clinical Sciences (VLCS) and Veterinary Small Animal Clinical Sciences (VSCS) departments to pursue their PhD degrees through their home departments. Currently, the CVM offers PhD and MS degrees in Biomedical Sciences, PhD degrees in Veterinary Pathology and Veterinary Microbiology, and terminal MS degrees in Epidemiology, Veterinary Public Health, Laboratory Animal Medicine, and Science and Technology Journalism.

As of 2012, the CVM has approximately 173 faculty members and consists of five academic departments: Veterinary Integrative Biosciences (VIBS), Veterinary Pathobiology (VTPB), Veterinary Physiology and Pharmacology (VTPP), Veterinary Small Animal Clinical Sciences (VSCS) and Veterinary Large Animal Clinical Sciences (VLCS). Each department head reports directly to the Dean of the CVM and is a member of the college’s Executive Committee and the Deans and Department Heads Group, both of which work under the direction of the Dean to provide overall leadership for the CVM. The following paragraphs provide a summary of the composition of each of the departments including an overview of teaching and research carried out by their faculty members. While research is a key component of the departments, teaching responsibilities within the department fall into three general categories: 1) undergraduate instruction leading to the Bachelor of Science degree in Biomedical Science, 2) graduate instruction leading to the Master of Science and Doctor of Philosophy degrees and 3) professional instruction leading to the Doctor of Veterinary Medicine degree.

2.2 Department of Veterinary Integrative Biosciences (VIBS)
Veterinary Integrative Biosciences was originally the Department of Veterinary Anatomy - established in 1916 as one of the four founding departments of the School of Veterinary Medicine. Dr. Evelyn Tiffany-Castiglioni is the current department head; she has been on this position since 1999, after being interim department head for one year. Departmental restructuring in 1990-91 led to the merger of the Departments of Veterinary Public Health (established in 1957) and Veterinary Anatomy. In 2004, the
MS degree in Science and Technology Journalism was moved from the College of Liberal Arts to the CVM, where it is now administered by VIBS; this degree program is not a part of the current academic program review. The department also houses two MS degree programs: one in Veterinary Public Health and the other in Epidemiology, which are within the purview of this review. VIBS consists of 31 full-time faculty (excluding research professor titles), approximately 50 staff, 54 graduate students, and 18 postdoctoral fellows. The main theme of the departmental teaching and research activity is bridging structural and functional relationships of life processes at levels ranging from those of the molecule and cell through to organisms and populations. The department focuses on teaching veterinary professional, graduate and undergraduate students in anatomy, histology, cell biology, toxicology, neuroscience, epidemiology, public health and science and technology journalism. Research in VIBS is carried out in five major focus areas: 1) Environmental Health/Toxicology/Food Safety, 2) Epidemiology, 3) Genomics 4) Neuroscience and 5) Reproductive Biology.

In each of these areas, the expertise of several disciplines is brought to bear on complex problems of societal importance, thus maximizing the potential for interdisciplinary synergy. Many of the faculty members are members of university-wide interdisciplinary programs that mirror the major departmental research foci (Toxicology, Genetics, Neuroscience and Reproductive Biology). In addition, the department now hosts an MS degree program in Science and Technology Journalism, which promotes communication with the public and within the scientific community, which serves the entire college. Additionally, there are several excellent service laboratories within VIBS: Histology, Trace Elements Research Laboratory, Molecular Cytogenetics Laboratory and Animal Genetics Lab. These laboratories provide service nationally and internationally. VIBS faculty members also have the primary responsibility for the college-level Image Analysis Laboratory, which serves the research and clinical communities within and far beyond the university.

2.3 Department of Veterinary Pathobiology (VTPB)
The Department of Veterinary Pathobiology was formed in 1989 by the merger of the Department of Pathology with the Department of Microbiology and Parasitology. Dr. Linda Logan is the current department head, having assumed this role in 2010. Scholarly breadth across members is excellent with areas of emphasis that include anatomic and clinical pathology, genetics/genomics, infectious diseases and host/pathogen interactions, immunology and neurosciences. Additionally, this department is strengthened by its interfaces with several interdisciplinary faculties and centers. These include the interdisciplinarianal faculties of genetics, virology, toxicology, nutrition, neurosciences, the National Center for Foreign Animal and Zoonotic Disease Defense (http://fazd.tamu.edu/) and the Schubot Center for Exotic Bird Health (www.cvm.tamu.edu/schubot/). Extramural affiliations include the Texas Health Science Center (TAMHSC; www.tamhsc.edu/), MD Anderson Cancer Center (www.mdanderson.org/), Texas AgriLife Research (agriliferesearch.tamu.edu/), Texas Veterinary Medical Diagnostic Laboratory (http://tvmdl.tamu.edu/) and USDA, among others. Teaching in VTPB at the professional, graduate and undergraduate levels is focused on microbiology, virology, parasitology and immunology.

The Department consists of 65 faculty members and includes 20 full professors (4 are joint appointees), 10 associate professors (4 are joint appointees), 11 assistant professors (2 are joint appointees), 3 clinical professors, 4 clinical associate professors, 4 clinical assistant professors and 5 at the rank of assistant/associate research professor or lecturer. Thirty faculty members are tenured and another eleven are tenure track. Sixteen faculty members are not on a tenure track.

In addition to MS and PhD degrees in BIMS, VTPB also offers PhD degrees in Veterinary Pathology and in Veterinary Microbiology, as well as an MS degree in Laboratory Animal Medicine. These latter degrees are not subjects of the current review and were reviewed in 2009.
2.4 **Department of Veterinary Physiology and Pharmacology (VTPP)**

The Department of Physiology and Pharmacology is the oldest continuously functioning department in the CVM operating under its original name. The departmental goal is to help train the best possible entry level veterinarians to serve the citizens of Texas. The department’s administrative structure has remained very stable with only four department heads serving during its history. Dr. Glen Laine is currently in the second year of his fifth, four-year term as department head. Graduate programs, including the Doctor of Philosophy in Veterinary Physiology and Pharmacology, were added to the College of Veterinary Medicine in 1967. The department remains an integral part of Texas AgriLife Research and has established a permanent relationship with the Texas Engineering Experiment Station through the Veterinary Medicine In-reach Division of the Engineering Experiment Station. It has also maintained a close relationship with the College of Medicine since its creation in 1976. The Michael E. DeBakey Institute for Comparative Cardiovascular Science and Biomedical Devices was added to the department in 1999. The Department of Veterinary Physiology and Pharmacology has multiple missions in the areas of teaching, research and service with an emphasis on both veterinary and human physiology and pharmacology.

2.5 **Department of Large Animal Clinical Sciences Department (VLCS)**

The Large Animal Clinical Sciences Department has historically focused on provision of clinical education to professional students in the third and fourth years of the veterinary medical curriculum, clinical training of interns and residents and delivery of veterinary medical care for client-owned large animals. A defined program for graduate studies has not been a focus or component of its departmental activities over the preceding decade with activities in graduate education being best defined as individual efforts in conjunction with other departments. The limitations of this approach have been identified during a self-assessment process instituted as a result of changes in departmental administration in 2011. A standing graduate education and research committee was formed and has been active in promoting and coordinating graduate education and research activities within the department over the last nine months.

The organizational structure of the department is defined along clinical service lines. The department is divided into Internal Medicine, Surgery, Theriogenology, Radiology and Food Animal sections. The Department Head, Associate Department Head and section chiefs from each of the respective sections constitute the Departmental Advisory Board. Dr. Allen Roussel is currently the interim department head since Dr. William Moyer stepped down as department head in December 2011. Graduate education and research has not historically been specifically represented at the Departmental Advisory Board or sectional levels. In addition, the vast majority of new faculty hires over the last decade have been focused on delivery of clinical service with little defined expectation for development of research or graduate education activities. The Department of VLCS consists of 32 full-time faculty members, 10 residents, and 3 interns, 10 graduate students, and 10 staff members.

2.6 **Department of Small Animal Clinical Sciences (VSCS)**

The Small Animal Clinical Sciences Department has historically focused on provision of clinical education to professional students in the third and fourth years of the veterinary medical curriculum, clinical training of interns and residents and delivery of veterinary medical care for client-owned small animals. VSCS offered MS degrees in the mid to late 1970’s, and the pursuit of an MS degree was required for most residents in surgery and medicine until the mid to late 1990’s. Currently, VSCS can offer MS and PhD degrees in Biomedical Sciences. The department consists of 43 full-time faculty members, 20 residents, and 8 interns, 10 graduate students, and multiple staff members. The primary endeavors of the department are teaching, basic and applied research, clinical patient care, and academic service. Faculty members in VSCS include board-certified specialists and generalists. Specialty areas in the department and its associated laboratories include the following: Anesthesiology, Behavior, Small Animal Internal Medicine, Cardiology, Primary Care, Critical Care, Emergency
Medicine, Dentistry, Dermatology, Neurology, Neurosurgery, Nutrition, Oncology, Radiation Oncology, General Soft Tissue and Orthopedic Surgery and Zoological Medicine. Dr. Sandee Hartsfield is the current department head.

The MS and PhD programs within VSCS provide training in a specialized medical or surgical discipline encompassing both basic and applied biomedical sciences. Areas of specialization embrace medical and surgical sciences including, but not limited to, cardiovascular studies, endocrinology, gastrointestinal physiology, metabolism/nutrition, nephrology, oncology, and specialty medical and surgical sciences.
3. THE COLLEGE IN RELATION TO TEXAS A&M UNIVERSITY

3.1 Texas A&M University Vision 2020
In 1999, TAMU articulated Vision 2020: Creating a Culture of Excellence. This effort was part of a strategic plan proposed to attain recognition as a consensus leader among peer public institutions by the year 2020. More than 250 stakeholders, including four faculty members of the CVM, worked to identify benchmarks, which if achieved, would enhance the value of TAMU to The TAMU System, the State of Texas and the nation. Vision 2020 identifies twelve specific areas of focus, which are underscored as imperatives that define accepted precepts and goals that the university will target over the course of two decades. Distinctively, enhancing graduate education is a key component of this initiative.

The 12 imperatives are:
1. Elevate our faculty and their teaching, research, and scholarship
2. Strengthen our graduate programs
3. Enhance the undergraduate academic experience
4. Build the letters, arts, and sciences core
5. Build on the tradition of professional education
6. Diversify and globalize the A&M community
7. Increase access to knowledge resources
8. Enrich our campus
9. Build community and metropolitan connections
10. Demand enlightened governance and leadership
11. Attain resource parity with the best public universities
12. Fulfill our commitment to Texas

Vision 2020 has guided TAMU’s progress since its formal adoption by The TAMU Board of Regents in May 1999. Growth in the number and expertise of our acclaimed faculty, increased recognition of the value of the TAMU educational experience, membership in the prestigious American Association of Universities, and other significant achievements in our pursuit of Vision 2020, have placed TAMU in the top echelon of the nation’s colleges and universities.

3.2 Life Sciences at TAMU and in the CVM
Life sciences programs at TAMU have been targeted for rapid expansion and strengthening of selected areas. Efforts to improve life sciences research include a number of building projects which directly support CVM faculty. These new facilities include the Interdisciplinary Life Sciences Building (which will house a highly recruited VIBS professor of neuroscience, Dr. Joe Kornegay in April 2012) and the Texas Institute for Preclinical Studies (directed by a CVM faculty member). A new Veterinary Education Building is currently in the design stage and is expected to be completed in 2016.

The enhancement of life sciences at TAMU is also a focus of strategic planning efforts that have taken place since Vision 2020 was formulated. In the fall of 2008—with an eye toward the approaching halfway point in the timeframe for Vision 2020 and several upcoming reporting initiatives, including the reaffirmation of accreditation by the Southern Association of Colleges and Schools in 2012—TAMU embarked on a new planning effort to achieve distinction in the remaining decade of Vision 2020. This effort, called the Academic Master Plan process, was intended to engage faculty, staff, and students in a dialogue and internal assessment to identify areas of opportunity while realigning the commitment of the academic enterprise with the goals of Vision 2020.
The Academic Master Plan resulted in 111 white papers being submitted in 2009 by faculty groups for consideration for funding. Eight white papers (now termed Initial University Multidisciplinary Research Initiatives; IUMRI) were selected. Three of these are of direct relevance to “Signature programs” in the CVM:

- Center for Phage Technology
- Texas A&M Institute for Neuroscience (TAMIN)
- Whole systems genomics for improved human, animal and environmental well-being

The concept of “Signature Programs” has been the guiding principle for the investment of resources, programmatic development and faculty hiring in the CVM since 1998. These programs were those identified by faculty as the areas in which the TAMU CVM had the greatest potential for preeminence among veterinary colleges. These Signature Programs are reflected in each department’s strategic plans and in the college’s strategic plan, as well as in the three IUMRIs identified for investment by the university. Faculty input was incorporated into both the CVM Signature Programs Initiative and the College’s strategic plan. In the next sections, the three IUMRIs and the CVM Signature Programs are more fully described.

3.2.1 Center for Phage Technology

Bacteriophages, or phages, are viruses that kill bacteria and are the most numerous life forms in the biosphere. Coupled with modern DNA-based biotechnology, phages have enormous potential as “green” anti-bacterial agents. The Center for Phage Technology will position the TAMU System as the world leader in the application of phages to combat bacterial infections in humans, animals and plants, to promote food safety, to protect against potential bacteriological weapons, and to prevent or mitigate the deleterious effects of bacterial contamination, degradation and corrosion in important sectors of the economy, especially in energy generation and delivery. A senior level faculty member affiliated with the center will be hired in the Department of Veterinary Pathobiology (VTPB). The search is currently underway.

3.2.2 Texas A&M Institute for Neuroscience

Neuroscience research at TAMU explores the neural and physiological mechanisms of organism-environment transactions, as well as the causes and treatments of neurological disorders impacting society, including diseases such as Alzheimer’s, multiple sclerosis, sleep disorders, depression, drug addiction, neurodevelopmental and genetic disorders, as well as the neural deficits associated with head/spine injury and aging. The faculty of Neuroscience was established in 1992 and currently includes 79 faculty members, spread across 9 colleges, involved in collaborative research programs that examine neural function at multiple levels, from molecular/cellular aspects to clinical application. The establishment in 2010 of the Texas A&M Institute for Neuroscience fosters the expansion of collaborative research in neuroscience, enhances undergraduate and graduate training in neuroscience and helps enable TAMU to become one of the top public universities in the country. A senior Professor level faculty member – Dr. Joe Kornegay – has been hired as a part of TAMIN recruiting, with Veterinary Integrative Biosciences (VIBS) as his home department.

3.2.3 Whole Systems Genomics for Improved Human, Animal and Environmental Well-Being

The revolution in Genomic Sciences will reshape the world as fundamentally as did the Industrial Revolution – for good and for ill. TAMU is home to some of the world’s best genome science pioneers who have made significant contributions that have advanced fields relevant to agricultural productivity, human and animal health, as well as related areas including economics, public policy, ethics, geography and business. A vibrant and functioning integrated center brings together talented individuals who conduct genomic research in diverse living organisms, facilitates synergistic interaction, maximizes efficient utilization of infrastructure resources, and strengthens international competitiveness. A broad umbrella uniting recognized leading scientists with promising junior faculty
and emerging technologies in genomic research encompassing whole systems will ultimately contribute
to human and animal well-being and improved environmental stewardship. This program will provide a
mid-level faculty member in bioinformatics to the CVM.

3.3 Signature Programs within CVM
The strategic priorities of the College are guided by the Vision 2020 Imperatives bonded with the needs
of Texas, TAMU, the advancement of “One Health – Animal, Human, and Environmental,” integrating
animal industries, the veterinary profession, and other important constituencies. In 2001, the CVM
began organizing its faculty hiring and investment of resources in Signature Programs, recognizing that
we could not be “all things to all people”, but instead would be highly selective in our commitment to
become number one in several key areas. Flexibility was built into this strategy to allow other programs
to emerge or to realign programs depending on opportunities and needs in biomedical sciences.
Signature Programs in the CVM are defined as those that have the potential to advance the CVM to a
position of preeminence among veterinary colleges in North American. Over the past 11 years,
selective investment has considerably strengthened several of these areas. The current Signature
Programs within the CVM are:

- Biomedical Genomics
- Cardiovascular Sciences
- Infectious Diseases and Biodefense
- Neuroscience
- Reproductive Biology
- Toxicology and Environmental Health
- Veterinary Clinical Research

Additional information can be found at http://vetmed.tamu.edu/research/signature-programs.
4. OVERVIEW OF GRADUATE EDUCATION IN THE COLLEGE

4.1 Texas A&M University Graduate Philosophy
Texas A&M University is a public institution dedicated to the development and dissemination of knowledge in many diverse academic and professional fields of study. TAMU is committed to assisting students in their search for knowledge, to help them understand themselves and their cultural and physical environments, and to assist them in developing the wisdom and skills needed to assume responsibility in society. TAMU assumes, as its historic trust, the maintenance and enhancement of the human mind and spirit. This endeavor is paramount in the CVM.

While continuing to fulfill its mission as a Land Grant/Sea Grant/Space Grant institution, the University is evolving and expanding its role to meet the changing needs of state, national and international communities. The University aspires to preeminence in teaching, research and service.

4.2 Mission and Goals of the Biomedical Sciences Graduate Program
The mission of the Biomedical Sciences Graduate Program is to prepare current students for postdoctoral employment in biomedical science-related fields, including positions in academia or industry or professional programs. In keeping with these objectives, CVM strives to:

1. Establish procedures to guarantee that the graduate-level educational experience is of the highest quality.
2. Foster and facilitate interdisciplinary/intercollegiate graduate programs and research activities.
3. Strive to maintain and enhance an environment conducive to creative scholarship and scientific inquiry.

The goals of the BIMS graduate program are captured in our student learning outcomes.

4.3 Student Learning Outcomes for MS Students
The CVM adheres to the TAMU learning objectives for masters students found on the university website: http://catalog.tamu.edu/pdfs/Master'sOutcomes-1pg.pdf. Additional information is located in Appendix 1.

A student who graduates from TAMU with a master's degree will:
- Master degree program requirements, including theories, concepts, principles, and practice, and develop a coherent understanding of the subject matter through synthesis across courses and experiences.
- Apply subject matter knowledge in a range of contexts to solve problems and make decisions.
- Use a variety of sources and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.
- Communicate effectively.
- Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.
- Develop clear research plans and conduct valid (data-supported), theoretically consistent and institutionally appropriate research.
- Choose ethical courses of action in research and practice.
4.4 **Student Learning Outcomes for PhD Students**

The CVM adheres to the TAMU learning objectives for doctoral students found on the university website: [http://catalog.tamu.edu/pdfs/DoctoralOutcomes-1pg.pdf](http://catalog.tamu.edu/pdfs/DoctoralOutcomes-1pg.pdf). Additional information is located in Appendix 1.

A student who graduates from TAMU with a doctoral degree will:

- Master degree program requirements, including theories, concepts, principles, and practice; develop a coherent understanding of the subject matter through synthesis across courses and experiences; and apply subject matter knowledge to solve problems and make decisions.
- Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.
- Communicate effectively.
- Develop clear research plans, conduct valid, data-supported, theoretically consistent and institutionally appropriate research and effectively disseminate the results of the research in appropriate venues to a range of audiences.
- Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.
- Teach and explain the subject matter in their discipline.
- Choose ethical courses of action in research and practice.

The objectives in our Assessment Matrix are aligned with the General Education and Core Curricular goals of TAMU, the TAMU Strategic Plan and TAMU Institutional Priorities. The relevant associations are as follows:

1. Master the depth of knowledge required for a degree
2. Demonstrate critical thinking
3. Strengthen our graduate programs
4. Communicate effectively
5. Enhance the graduate Academic Experience
6. Expand research and inquiry-based learning opportunities
7. Demonstrate social, cultural and global competence
8. Practice personal and social responsibility
9. Prepare to engage in lifelong learning
10. Work collaboratively
11. Diversify and globalize the A&M community
12. Enrich our campus
13. Expand off-campus opportunities, such as internships, study-abroad and service-learning
14. Meet our commitment to Texas

4.5 **Biomedical Sciences Graduate Degrees Offered in the CVM**

The CVM offers both MS and PhD degrees in Biomedical Sciences through the five departments. The MS degree is offered as thesis option (TO) and non-thesis option (NTO). Degrees in Biomedical Science are aimed at educating students to advance biomedical science through original research and to disseminate that knowledge for the protection and promotion of human and animal health.

Students have the opportunity to receive didactic instruction and specialized research training from CVM faculty, several of whom hold University and/or national research awards. The diverse nature of the research endeavors of the CVM faculty allows flexibility for the degree plan of each graduate student. Both CVM and TAMU have state of the art research support laboratories and cores available to graduate students.
4.5.1 Biomedical Sciences Thesis Option (TO) Master of Science and Doctoral Degrees
The BIMS TO-MS and PhD programs are intended for students who are planning a career in research in academic, government or industrial research and development laboratories. Fields of focus include the signature programs (listed below) and other areas of biomedical significance such as, cell and molecular biology, epidemiology, immunology, metabolic diseases, cancer, neurology, pathology and physiology.

- Biomedical Genomics
- Cardiovascular Sciences
- Infectious Diseases and Biodefense
- Neuroscience
- Reproductive Biology
- Toxicology and Environmental Health
- Veterinary Clinical Research

4.5.2 Non-Thesis (NTO) Master of Science Degree in Biomedical Sciences
The non-thesis MS degree in Biomedical Sciences was established in 2005. The degree is designed for pre-professional students wishing to enter professional programs and requiring extra classes, or for students wishing to enhance their learning experience for technical positions or teaching opportunities in community colleges and high schools. The degree is a 36 credit-hour program that usually takes 18 months to complete. Typically, 4 standard courses are taken from the graduate curriculum per semester.

The following courses are recommended for all first semester NTO-MS students:
VIBS 650. Education in a Veterinary Medical and Biomedical Environment. Credit 1.
VTPP 605. Systemic Veterinary Physiology I. Credit 5. (lecture only)
STAT 651. Statistics in Research I. Credit 3. *(optional)*

The VTPP class is taken with DVM students and gives the non-thesis graduate students an opportunity to gain first-hand experience of professional course work. Once the student has found a mentor, then the courses for the remaining semesters are selected in consultation with the mentor and their committee with due consideration of the course requirements of their mentor’s department. In the second semester, the mentor and student typically identify a graduate advisory committee of three faculty members, including the mentor. The typical format for the final exam is for the student to select a topic of interest for a final literature research paper (~20 pages, prepared as a monograph) and then present a power-point presentation on the research topic to the committee.

Since its inception, 77 students have enrolled in the BIMS NTO-MS program. Of these, 33 students have graduated (62%), and 18 of those gained admission to professional programs: 14 DVM, 3 MD, and 1 physician assistant. Twenty-three students began the NTO-MS program in the Fall 2011 semester.

4.6 Graduate Programs in Epidemiology and Veterinary Public Health
Faculty, graduate students and postdoctoral associates in the Epidemiology and Veterinary Public Health Programs are conducting research and receiving training that spans the spectrum of acute and chronic diseases of importance to domestic animals, wild animals, and human populations. Collaborative relationships exist between the Veterinary Epidemiology and Public Health Group in the CVM and the USDA, the DHS National Center for Foreign Animal and Zoonotic Disease Defense, the Texas Animal Health Commission, the USDA Southern Plains Research Facility and multiple departments throughout the TAMU System, including the TAMHSC, School of Rural Public Health.
Graduate Program
The graduate program in Veterinary Epidemiology and Public Health offers an MS in epidemiology (thesis based) degree, a PhD in biomedical sciences (with emphasis in epidemiology) degree, and an MS in Veterinary Public Health (MVPH) (thesis or non-thesis option) degree. The PhD and MS degrees focused on epidemiology prepare students for leadership roles in epidemiological study design, evaluation and professional research, in both animal and human populations. Students obtaining an MVPH degree can choose to select coursework that follows an epidemiology theme, a food safety and security theme or a public health and policy theme. For details regarding the curriculum for these degree programs see Appendix 2.

Enrollment and Opportunities
The program typically has 10-20 graduate students enrolled at any one time. Since 2001, 12 students have graduated with a PhD (epidemiology emphasis) degree, 15 students have graduated with an MS (epidemiology) degree, and 8 students have graduated with an MVPH degree. Admission to the program in Veterinary Epidemiology and Public Health requires approval by the Veterinary Integrative Biosciences Department and the TAMU Office of Graduate Studies.

4.7 Other Graduate Degrees Offered in the CVM
MS Degree Programs
1. Laboratory Animal Medicine (VTPB)
2. Science and Technology in Journalism (VIBS)
3. Veterinary Pathology (VTPB)

PhD Degree Programs
1. Veterinary Pathology (VTPB)
2. Veterinary Microbiology (VTPB)

Degrees offered by Interdisciplinary Degree Programs and Available to CVM Students
1. Genetics – MS, PhD
2. Biotechnology – MBIOT
3. Food Science and Technology –MS, PhD
4. Toxicology –MS, PhD
5. Nutrition - MS
6. Neuroscience – MS, PhD

4.8 Administration of the Biomedical Sciences Graduate Program
4.8.1 Dean and Associate Deans
The administration of the CVM consists of Dr. Eleanor Green (Dean); Dr. Kenita Rogers (Associate Dean for Professional Programs); Dr. Bhanu Chowdhary (Associate Dean for Research & Graduate Studies); Dr. Evelyn Tiffany-Castiglioni (Associate Dean for Undergraduate Education); Dr. Jane Welsh (Assistant Dean for Graduate Studies), and Dr. Skip Landis (Assistant Dean for Undergraduate Studies) and Ms. Belinda Hale (Assistant Dean for Finance).

The Associate Dean for Research and Graduate Studies (ADRG) has academic oversight of the BIMS graduate program, and collaborates with staff, department heads, departmental graduate advisors and faculty in sustaining the program. The program is effectively maintained by individual departments and coordinated by the designated departmental graduate advisor who works as a liaison between the graduate student and major professor on the one side and the ADRG on the other side. The ADRG provides oversight and help for the functioning of the graduate program within each department through direct contact with the:
• department head
• departmental graduate advisor
• administrative staff handling graduate affairs
• graduate students
• major professor of the students along with the committee members

Contact by the ADRG office with the latter two groups is relatively limited and happens mainly when specific situations arise that require guidance or intervention by the ADRG or university administration. The ADRG also serves as the administrative liaison between the above groups (department/college) and the Office of Graduate Studies (OGS) at TAMU.

Dr. Bhanu Chowdhary was appointed as ADRG in September 2009. For the first year and a half an administrative assistant was assigned to the unit. In June 2011, the reorganization of the unit led to the hiring of a Program Coordinator (Dr. Ashley Gustafson Seabury) and later that year a new administrative assistant (Ms. Robin Benbow). In October 2011, budget reallocation funds were provided to the ADRG from the Provost’s office. Consequently, a Senior Graduate Academic Advisor position was announced in November. An applicant for the position was hired and will join the CVM on March 19, 2012. Additionally, a student worker has been associated with the ADRG office since January 2010 to provide day-to-day assistance with research and graduate student activities. Furthermore, Dr. Henry Huebner in the BIMS undergraduate office has been overseeing the MS-NTO graduate program since 2007. The curricula vitae of the administrative staff in the ADRG office are included in Appendix 3.

4.8.2 Graduate Committees at the Department, College and University Levels

Graduate Student Advisory Committee
A graduate advisory committee is formed for each graduate student within two semesters of entering the BIMS (MS and PhD), MVPH, or MS in Epidemiology graduate program. The committee for the MS student consists of three members of the TAMU graduate faculty: the chair who supervises the student’s work and is the major professor (mentor) and two other members of which one should be from a different department than the chair. For the PhD student, the committee consists of at least 4 members: the chair and at least 3 other faculty members, including at least one from a different department than the student’s committee chair.

Departmental Graduate Advisor
Each of the five academic departments in the college has a graduate advisor who coordinates all activities for the graduate students at the departmental level including follow-up of the progress of students after each semester during the first two years and on a yearly basis when course work is completed, follow-up for comprehensive exam, submission of thesis proposal, organization of exam, and other necessary activities for successful progression of the graduate student towards completion of the degree. The graduate advisors are assisted by an administrative assistant in each of the departments. Their names are listed in the table below. Each department also has a graduate advisory committee consisting of graduate faculty who review applications to the department for admission to its graduate programs. This committee is chaired by the departmental graduate advisor.

<table>
<thead>
<tr>
<th>Departmental Administrative Assistants for Graduate Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBS</td>
</tr>
<tr>
<td>VLCS</td>
</tr>
<tr>
<td>VSCS</td>
</tr>
<tr>
<td>VTPB</td>
</tr>
<tr>
<td>VTPP</td>
</tr>
</tbody>
</table>
CVM Graduate Instruction Committee (GIC)
This committee reports directly to the dean and is charged with advisory programmatic oversight of all graduate programs in the CVM. Members are appointed by the Dean in consultation with the CVM Executive Committee. The current committee consists of the graduate advisor of each of the five departments (see table below) and one other faculty member from each department.

<table>
<thead>
<tr>
<th>Department</th>
<th>Name</th>
<th>Rank</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBS</td>
<td>Jane Welsh*</td>
<td>Professor</td>
<td>Chair GIC</td>
</tr>
<tr>
<td>VIBS</td>
<td>Loren Skow</td>
<td>Professor</td>
<td>Member</td>
</tr>
<tr>
<td>VLCS</td>
<td>Noah Cohen*</td>
<td>Professor</td>
<td>Member</td>
</tr>
<tr>
<td>VLCS</td>
<td>Wesley Bissett</td>
<td>Assistant Professor</td>
<td>Member</td>
</tr>
<tr>
<td>VSCS</td>
<td>Jorg Steiner*</td>
<td>Professor</td>
<td>Member</td>
</tr>
<tr>
<td>VSCS</td>
<td>John Bauer</td>
<td>Professor</td>
<td>Member</td>
</tr>
<tr>
<td>VTPB</td>
<td>Pat Holman*</td>
<td>Research Associate Professor</td>
<td>Secretary GIC</td>
</tr>
<tr>
<td>VTPB</td>
<td>Karen Snowden</td>
<td>Associate Professor</td>
<td>Member</td>
</tr>
<tr>
<td>VTPP</td>
<td>Charles Long*</td>
<td>Associate Professor</td>
<td>Member</td>
</tr>
<tr>
<td>VTPP</td>
<td>Christine Heaps</td>
<td>Associate Professor</td>
<td>Member</td>
</tr>
</tbody>
</table>

Ex Officio: Bhanu Chowdhary, Skip Landis, Henry Huebner, James Frank (2011-2012 GSA President), and Weston Porter (Faculty Advisor to the GSA)
* indicates Departmental Graduate Advisor

The CVM Graduate Student Association
Graduate students may choose to be active in the CVM Graduate Student Association (GSA) which provides an avenue for students to participate in some of the decision making processes of the CVM. The organization is for all graduate students who are pursuing degrees in the CVM. The CVM GSA is charged with identifying and representing graduate students interests, promoting graduate student participation in the policy and decision-making processes within the CVM, enhancing the quality and scope of graduate education and offering programs that benefit its membership. The GSA members elect officers from their membership each academic year. The constitution of this organization is found in Appendix 4. The CVM GSA, working in collaboration with the ADRG and departments, provide many opportunities for graduate students such as Travel Awards, Open House, and the annual CVM GSA Spring Research Symposium (http://vetmed.tamu.edu/gsa).

Before the start of the fall semester, the ADRG visits with the newly elected leadership of the CVM GSA to learn about and discuss potential activities for the new academic year (September – August). The CVM officers submit a budget request during the meeting, which is discussed and agreed upon in principle. The total budget provided to the GSA by the ADRG office during the past 3 years is:

- 2000-2010: $25,000
- 2010-2011: $30,000
- 2011-2012: $30,000
The GSA uses this funding for travel awards, the Annual Research Symposium, and monthly GSA meetings.

**Travel Awards**
The GSA provides travel awards of approximately $1,000 per student to attend a scientific meeting/conference. The GSA president sends out a call for requests on a specified format during fall and spring semesters. Under special circumstances (and depending on availability of funds), requests may be accepted at times other than those specified by the GSA leadership. Importantly, this is a *graduate student driven process and the grants are competitive*. Details regarding call for proposals, format of application etc. are provided in Appendix 5. Administering the travel awards allows the students to learn the process, develop leadership and a sense of responsibility.

**Annual Research Symposium** (see below): Speaker’s travel and lodging expenses, symposium booklet printing, and symposium banquet.

NB: The ADRG provides additional funds for awards to winners of platform and poster presentations

**Meetings**
The CVM GSA organizes lunch meetings once a month at noon in the Mark Francis room for one hour. A typical monthly meeting schedule includes:
- Brief research presentation by 1-2 graduate students describing their project
- Discussion of issues related to graduate students
- Presentation by an invited speaker (faculty member or university staff personnel from library, administrative offices or the OGS). Presentations are either informative or primarily focused on approaches to enhance graduate learning experience

**Annual Research Symposium**
Every spring semester, the GSA EC organizes a CVM graduate symposium. They select an internationally recognized researcher as a speaker who gives a lecture that is widely advertised to the whole university. The symposium consists of platform and poster presentations given by graduate students. Students that have received travel awards are required to present at the symposium. A panel of faculty judges representing the CVM departments evaluates the presentations and select award winners (3 platform and 3 poster awards). The awards are presented at the end of the symposium at the banquet which is attended by CVM faculty and graduate students.

**CVM-GSA Officers (2011-2012)**
*President:* James Frank  
*Vice President:* Colleen Fisher  
*Treasurer:* Sang Shin Park  
*Travel Award Secretary:* Bikash Bhattarai  
*General Secretary:* Vijayalekshmi Vasanthakumari

**GSA Faculty Advisor**  
Weston Porter

**Examples of Community Service that the CVM-GSA participated in during 2011**
- February 26 - See Spot Run @ Wolf Pen Creek Park 7:30-9:30am  
  [http://vetmed.tamu.edu/seespotrun](http://vetmed.tamu.edu/seespotrun)  
- March 26 - Big Event: [http://bigevent.tamu.edu/](http://bigevent.tamu.edu/)  
- April 9 - Vet School Open House: [http://vetmed.tamu.edu/openhouse](http://vetmed.tamu.edu/openhouse)
University Graduate Council (GC)
The GC develops and maintains policies and procedures pertaining to graduate programs at the university. Its function includes long-range planning, recommendations concerning new programs and courses, evaluation of existing programs and courses, and facilitation of university accreditation. It reports and provides recommendations to the Faculty Senate and is an advisory group to the Associate Provost for Graduate Studies. The GC website is [http://ogs.tamu.edu/faculty-advisors/graduate-council/](http://ogs.tamu.edu/faculty-advisors/graduate-council/). The chair of the CVM GIC is a member of the Graduate Council.

University Graduate Operating Committee (GOC)
The GOC serves as an advisory body to the Associate Provost for Graduate Studies. It focuses on operations and procedures regarding the administration of graduate education throughout the university. The GOC works closely with the GC, the Academic Operations Committee (a committee of the Faculty Senate) and the Academic Program Council (Provost, Associate Provosts, Speaker of the Faculty Senate, and Deans), to coordinate all curriculum and policy issues. The GOC website is [http://committees.tamu.edu/committee/57/view](http://committees.tamu.edu/committee/57/view). The CVM is represented on the GOC by the Associate Dean for Research and Graduate Studies.

Texas A&M University Office of Graduate Studies (OGS)
The TAMU Office of Graduate Studies' mission is to be “a global leader in graduate education, committed to the pursuit of knowledge and the power of intellect. Through exceptional service and commitment to the highest standards, OGS advocates for graduate education at Texas A&M and throughout the state of Texas. The division is committed to a diverse campus climate, enhancement of the graduate experience, and the development of all students as global citizens.” Most importantly, the OGS acts as an advocate for all graduate students and is responsible for establishing standard policies and procedures that govern all graduate programs, thus ensuring their quality. Additionally the OGS works to maintain and enrich the “graduate environment” such that it stimulates learning, creativity, and research. The OGS has seven functional units that govern different aspects of graduate education.

- Graduate Student Support
  - Provides Ombuds Services for Graduate Studies
- Graduate Records Processing
  - Maintains official University records of graduate students
  - Processes University-required documents such as degree plans, petitions, final exam requests, etc.
  - Clears graduate students for graduation
  - Oversees data related to graduate students/studies
- Recruitment, Retention
  - Recruits high quality, diverse students for graduate studies
  - Provides University-level graduate fellowship funding
- Professional Development/High Impact Experiences
  - Provides and supports professional development and high impact learning opportunities for graduate students
- Thesis Office
  - Reviews all theses and dissertations
- Dual Enrollment Graduate Student Special Support
- Interdisciplinary Program Graduate Student Special Support

Specific information about the OGS rules and regulations for graduate education can be found in Appendix1.
The OGS also provides financial support for graduate education through a variety of different mechanisms. Each year the OGS administers and awards Merit and Diversity fellowships worth $63,112 over 4 years, and $103,707 over 3 years, respectively, to incoming PhD graduate students. Similar shorter-term fellowships are available for incoming MS students. OGS also awards Dissertation Fellowships that provide PhD students with stipends of up to $15,000 over a 9 month period to conduct final analyses of their research topics, write their dissertation and defend it within this period. Additionally, each college receives several different pools of funds for specific purposes (see table below).

<table>
<thead>
<tr>
<th>Fund Name</th>
<th>Purpose</th>
<th>FY12 Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Enhancement</td>
<td>To support graduate students and enhance their graduate education activity. This can be done by providing scholarships and/or fellowships, as well as workshops, seminars, symposiums, etc.</td>
<td>$76,800</td>
</tr>
<tr>
<td>Strategic Support</td>
<td>To support strategic activities that stimulate the graduate program, such as providing incentive awards to outstanding grad students or providing research trainee grants to grad students</td>
<td>$41,720</td>
</tr>
<tr>
<td>Reallocation Funds</td>
<td>To support 4 “CVM Merit Fellowships”</td>
<td>$62,500</td>
</tr>
<tr>
<td>Lechner</td>
<td>To be awarded as scholarships to incoming graduate students</td>
<td>$15,000 (FY13-15: $30,000)</td>
</tr>
<tr>
<td>Graduate Tuition PhD Pool</td>
<td>To help cover tuition for doctoral graduate students who are TAs, are paid on state funds, or are being supported by grants that do not allow tuition support to be included in the budget</td>
<td>$203,669</td>
</tr>
<tr>
<td>Graduate Tuition Masters Pool</td>
<td>To help cover tuition for tuition for masters graduate students who are TAs, are paid on state funds, or are being supported by grants that do not allow tuition support to be included in the budget (This program will be discontinued in Fall 2012)</td>
<td>$26,741</td>
</tr>
</tbody>
</table>

4.9 Budget Information
The Biomedical Sciences graduate program is administered through the Dean’s office of the CVM and also through the departments. The college-level funds that are currently available to the graduate program are listed in the table below. This table also outlines the funding that has been available since 2006.
<table>
<thead>
<tr>
<th>Account Name</th>
<th>Funding Source</th>
<th>Use of Funds</th>
<th>FY12 Allocation</th>
<th>FY11 Funds Received</th>
<th>FY10 Funds Received</th>
<th>FY 09 Funds Received</th>
<th>FY08 Funds Received</th>
<th>FY07 Funds Received</th>
<th>FY06 Funds Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vet Med Graduate Program Enhancement Funds</td>
<td>Office of Graduate Studies</td>
<td>Graduate programs support and enhancement</td>
<td>$76,800</td>
<td>$166,673</td>
<td>$189,031</td>
<td>$205,201</td>
<td>$90,159</td>
<td>$85,282</td>
<td>$88,229</td>
</tr>
<tr>
<td>Graduate Tuition - CLVM</td>
<td>Office of Graduate Studies</td>
<td>Tuition for PhD and Master students</td>
<td>$230,410</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Strategic Support</td>
<td>Office of Graduate Studies</td>
<td>Tuition, assistantships, program support</td>
<td>$41,720</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reallocation Support</td>
<td>Office of Graduate Studies</td>
<td>Fellowships and scholarships</td>
<td>$62,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lechner</td>
<td>Office of Graduate Studies</td>
<td>New graduate student support</td>
<td>$15,000</td>
<td>$15,000</td>
<td>$15,000</td>
<td>$15,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vet Med Regents’ Fellowships</td>
<td>Vice President for Research</td>
<td>Graduate student Fellowships</td>
<td>$0</td>
<td>$27,929</td>
<td>$28,500</td>
<td>$28,500</td>
<td>$30,000</td>
<td>$30,000</td>
<td>$55,419</td>
</tr>
<tr>
<td>GSA and Forum</td>
<td>College of Veterinary Medicine</td>
<td>Graduate programs support and enhancement</td>
<td>$0</td>
<td>$2,319</td>
<td>$10,600</td>
<td>$5,576</td>
<td>$3,978</td>
<td>$21,494</td>
<td>$14,068</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>$426,430</strong></td>
<td><strong>$211,921</strong></td>
<td><strong>$243,131</strong></td>
<td><strong>$254,277</strong></td>
<td><strong>$124,137</strong></td>
<td><strong>$136,776</strong></td>
<td><strong>$157,716</strong></td>
</tr>
</tbody>
</table>
5. GRADUATE PROGRAM OPERATIONS IN THE COLLEGE

5.1 Application Process

A formal application is required from a person seeking admission or readmission to graduate studies. A statewide common ApplyTexas application is used to apply to any public university in the state of Texas and can be accessed at www.applytexas.org. The TAMU Office of Admissions (http://admissions.tamu.edu/) and OGS (http://ogs.tamu.edu/) provide links to the ApplyTexas online application. The CVM graduate student website (http://vetmed.tamu.edu/graduate) provides a link to the ApplyTexas application and provides information on applying to TAMU CVM. Applicants may submit only one degree-seeking application per semester. Application due dates are listed below:

<table>
<thead>
<tr>
<th>Application Due Dates</th>
<th>Outside the U.S.</th>
<th>Within the U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>June 1st</td>
<td>July 1st</td>
</tr>
<tr>
<td>Spring</td>
<td>Oct 1st</td>
<td>Nov 1st</td>
</tr>
<tr>
<td>Summer</td>
<td>March 1st</td>
<td>April 1st</td>
</tr>
</tbody>
</table>

As stated in the Texas A&M University Graduate Catalog, an application fee of $50 for U.S. citizens and permanent residents or $75 for international applications is required to process an application for admission. The application fee is nonrefundable. The $50 fee required for U.S. citizens or permanent residents may be waived, but only in exceptional cases, for low-income applicants. In such cases, an applicant should include with the application for admission a letter from his/her financial aid officer or other knowledgeable officer verifying the need for a waiver. Waivers for the $75 international application fee are not available.

With the approval of the degree granting unit providing admission, admission to graduate studies normally remains valid for one year from the term of acceptance with one application fee. An extension to the one-year time limit may be granted, if requested by the applicant in writing and approved by the degree granting unit.

Admission to graduate programs at TAMU is evaluated by individual degree programs, colleges or departments within colleges. The overall admission criteria for the university are based on the entire record of the applicant and availability of departmental resources. Individual departments within the CVM may have admission requirements in addition to those of the university. In such cases, higher departmental requirement(s) supersede those of the university. The normal requirement for admission to graduate studies is a scholastic record which, over at least the last two years of full-time academic study in a degree program, gives evidence of the applicant’s ability to do successful graduate level work. An applicant whose academic record is not satisfactory, or who is changing fields of study, may be required to take additional work in preparation for graduate study. Such work will normally be arranged in conference with the graduate advisor or the head of the student’s major department. Before accepting a student for graduate study, a department may require that the student pass a comprehensive examination covering the basic undergraduate work in that field.

Admission to graduate studies cannot be completed until all the credentials requested in the application form have been received and evaluated/verified. The items considered include:

- Holding an accredited baccalaureate degree (of at least three years) from a college, institution or university of recognized standing, or its equivalent.
- An official score on a standardized test (GRE score valid for 5 years), which is required unless otherwise specified by the graduate program to which an applicant is applying. A program can request exceptions of the Office of Graduate Studies. The scores can only be evaluated in a manner which complies with Chapter 51, subchapter W of the Texas
Education Code, Admissions and Scholarship policies for Graduate and Professional Programs, House Bill 1641.

- TOEFL scores (if applicable, e.g., for international students); valid for two years
- Transcripts: official transcript (with degree confirmation), GPA in the last 60 hours of coursework
- 3 letters of recommendation
- Professional and/or academic experience
- Promise of ability to pursue advanced study and research satisfactorily, adequate preparation to enter graduate school in the specific discipline or field of study
- Statement of Purpose Essay

When the application is deemed complete by the TAMU Admissions Office, it is electronically forwarded to individual departments for review. The referees send letters of recommendation via an electronic system and they are uploaded into the student’s application package. The application is reviewed by the potential advisor and each department’s graduate advisory committee to determine if the student meets the criteria for acceptance and fits in the program(s) offered by each department. Admissions criteria may vary by department. Preferred minimum qualifications suggested across the CVM are a total GRE test score of at least 1100 and a GPA greater than 3.0/4.0 However, students not meeting certain requirements may be admitted on probationary terms if sponsored by a faculty member and approved by the departmental graduate advisory committee and/or head of the department.

5.2 Funds for Graduate Stipends, Assistantships and Fellowships

Cost of graduate education as estimated from tuition and fees alone varies considerably between in-state and out-of-state students (including international students paying non-resident rates). For students eligible for in-state-tuition, a yearly load of 24 credit hours (full-time student status is 9 credit hours fall and spring semesters and 6 credit hours summer semester) costs ~$8,607 in tuition and fees. There may be additional fees depending on different activities as outlined in Appendix 6. Comparable tuition and fees for non-resident students is ~$16,120 with similar possible additional fees depending on activities such as international travel etc. (Appendix 6). The tuition and fees at TAMU are lower than or comparable to peer public institutions.

PhD and TO-MS students receive a graduate stipend as a salaried TAMU employee though an assistantship, but NTO-MS students are ineligible for these stipends. The total amount of stipend varies across departments and even across investigators within a department. Almost all students pay in-state tuition, as being on an assistantship automatically triggers the student to receive an out-of-state tuition waiver. Tuition for nearly all PhD students is paid either by the major advisor through extramural grants or by the university. Beginning FY13, no tuition funds will be available from the university for MS students, though it is available for current MS students. Informal inquiries regarding stipends can be made by potential students to the departmental advisor or directly with any of the CVM faculty. There are five sources from which graduate students receive stipends:

Advisor’s Extra- and Intra-mural Research Funds

In general, it is the advisor’s responsibility to provide funds for the graduate assistantship stipend as well as the funds for the research expenses involved for graduate students’ projects until the time that the degree is awarded. However, this model may vary across departments as described below.

Departmental Funds

The departments may provide funding support to graduate students during part of their study. For example, in VTPP, students are funded by their mentors for the first 2 years of their PhD programs, with subsequent funding for 2 years provided from departmental resources. VTPP has invested $247,269 in
2006, $345,186 in 2007, $386,705 in 2008, $279,570 in 2009, $235,034 in 2010, and $278,829 in 2011 into graduate stipends. While the model of support may not be identical in other departments, VIBS, VTPB and VLCS provide partial or full support to select number of graduate students for a limited period depending on availability of funds.

**Teaching Assistantships**

VTPB and VIBS offer teaching assistantships to a select number of students. The number and period they are offered depends on the teaching load within the department. A summary of funds invested by individual departments for funding graduate education in this category are summarized in the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of TAs per year (fall, spring, and summer)</th>
<th>Funds invested</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VIBS</td>
<td>VTPB</td>
</tr>
<tr>
<td>2006</td>
<td>32</td>
<td>13</td>
</tr>
<tr>
<td>2007</td>
<td>20</td>
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<td>19</td>
</tr>
<tr>
<td>2010</td>
<td>24</td>
<td>18</td>
</tr>
<tr>
<td>2011</td>
<td>n/a</td>
<td>20</td>
</tr>
</tbody>
</table>

**University Fellowships for Recruitment and Degree Completion**

Each year the OGS provides substantial competitive funding for recruiting graduate students. These fellowships are: Dissertation, Diversity and Merit. The CVM’s submission and success rate of applications to these fellowships is provided table below. Despite availability of this rather generous support for graduate students from the university, CVM faculty members have not been able to capitalize on this resource. There has been a traditional hold back on submission on applications. While some of the concerns of the faculty members are legitimate, the limited enthusiasm for submitting nomination packages for these fellowships needs to be bolstered because other colleges are able to successfully capitalize on this opportunity regularly.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Dissertation ~25 given year FY12</th>
<th>Diversity 70-80 given annually</th>
<th>Merit 25-35 given annually</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Nominated</td>
<td>Awarded</td>
<td>Nominated</td>
</tr>
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<td>2008</td>
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<td>2009</td>
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<tr>
<td>2010</td>
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<tr>
<td>2011</td>
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<td>n/a</td>
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<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2013</td>
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<td>1</td>
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</tr>
<tr>
<td>TOTAL</td>
<td>6</td>
<td>2</td>
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</tr>
</tbody>
</table>
Competitive Extramural Fellowships

The number of fellowships obtained by graduate students as primary applicants from extramural sources has been limited. During the past two years, students have started applying for both internal and external grants that can support their stipend or provide funding for their research projects (see new initiatives for details).

5.3 Degree Requirements

A minimum of 32 semester credit hours of approved courses and research is required for the thesis option MS degree, and a minimum of 36 semester credit hours of approved coursework is required for the non-thesis option. Additional details can be found in Appendix 1.

A minimum of 64 hours is required on the degree plan for PhD students who have completed a master's degree or a DVM or MD at a US institution.

A minimum of 96 hours is required on the degree plan for PhD students who have completed a baccalaureate degree but not a master's degree. We adjust the course requirements for these students on a case-by-case basis, taking into consideration their previous course work.

The PhD degree plan is flexible because it is based on the student's previous training and on the student's interests. In comparison, the MS program is more restrictive because there are, by university regulations, a specified number of hours of required course work. Of the 32 hours required for the thesis option MS degree, not more than 12 total credit hours may be from any combination of the following: 691 Research or 684 Professional Internship courses (maximum 8), 685 Directed Studies (maximum 8), 690 Theory of Research in Discipline (maximum 3), 681 Seminar (maximum 2), or upper level undergraduate courses (maximum 9). The above restrictions also apply to the NTO MS, except that 691 credits cannot be included in the degree plan. Additional details can be found in Appendix 1.

5.4 Course Work

Each graduate student is unique in his or her previous education, current research projects and required course work. Therefore graduate degrees in the CVM are flexible in terms of course requirements. Graduate students within the CVM are offered courses that provide a framework of fact and theory on which they can build a basic mass of knowledge, which with effective use will allow them to launch into fruitful discovery. A listing of the available graduate courses and their descriptions can be found in Appendix 7. The syllabi for select courses are available in Appendix 8. Some departments, as well as the MS in epidemiology and the MVPH degrees, recommend certain core courses on which to build their degree program.

5.5 Approaches to Graduate Education in the CVM

A major objective of graduate education leading to any graduate degree in the CVM is to emphasize critical thinking, creativity, analysis, and good scientific judgment. The CVM faculty addresses this objective by fostering an atmosphere in the classroom and laboratory that is investigatory, challenging, confidence-building, and scholarly. They also help students develop their abilities to understand and critically evaluate the scientific literature in fields both within and outside their own personal research interests through lab meetings, journal clubs, classroom discussions of the primary literature, and individual discussions. CVM graduate faculty members who are currently active in research, are excellent scientists and skillful mentors who try to teach students to deal confidently with open-ended questions, ambiguity, and the changes in interpretation that occur with incremental pieces of information. They teach, by example and practice, the cognitive skills of scientific research, including the design and interpretation of experiments, the integration of information into models, and
Identification of new research problems. Students are actively encouraged to participate in the TAMU student research week symposia, the CVM GSA Research Symposium, and conferences. In these and other ways, CVM graduate faculty members provide excellent mentorship for graduate students developing critical thinking skills and mature scientific judgment.

Graduate education in the CVM enables students to achieve competency in modern laboratory techniques and procedures. Students are provided with access to state-of-the-art research equipment and technology in many areas, particularly imaging, DNA technologies, chemical and biochemical analyses and bioinformatics. They also have access to skilled faculty and staff with a commitment to graduate student training in laboratory techniques. CVM faculty collaborate extensively across campus, thus allowing their graduate students access to state-of-the-art technology available elsewhere on campus.

Skills in oral and written communication are promoted by providing graduate students with opportunities for the presentation of research to peers at many levels from laboratory meetings and classrooms to national and international scientific meetings. Major professors hold the primary responsibility for providing these opportunities. Graduate students participate in the CVM GSA Annual Research Symposium supported by the ADRG office and departmental retreats organized by individual departments. The Toxicology, Genetics and Neuroscience interdisciplinary programs also have annual symposia where graduate student presentations are strongly encouraged. The university sponsors Student Research Week each March, in which students can give either oral presentations or exhibit/present posters. Lab meetings and monthly GSA meetings serve as another platform for graduate students to develop platform presentation skills. Thus, many opportunities exist for students to improve their public speaking skills by presenting their work for peer review and discussion.

Individual professors have the responsibility to teach good scientific writing skills through constructive criticism and correction of classroom assignments, research proposals, theses and dissertations, and peer-reviewed scholarly papers. Our graduate faculty members take this responsibility very seriously and the writing abilities of students significantly improve as they progress towards graduation. Enhancement of writing skills includes the submission of publications in a timely manner, which is enforced by most faculty members by requiring the student to have one or more articles accepted for publication in peer reviewed journals before completion of their PhD. The College is also very fortunate to have Dr. Barbara Gastel who provides writing classes and workshops for students within the CVM. Furthermore, the OGS and the University writing center hold workshops on dissertation/thesis writing (http://writingcenter.tamu.edu/grad-services/).

An important objective of our graduate programs is to assist students in the development of effective teaching skills, particularly if they plan a career in academia. Teaching assistants do so under the expert mentorship of master teachers, most of whom have won awards for teaching. Graduate students are assigned meaningful lecture time in the classroom and receive critiques and assistance from their faculty mentor to develop their teaching skills. They are also encouraged to receive training from the Center for Teaching Excellence (CTE) and become Graduate Teaching Assistant (GTA) fellows. Additionally, the OGS regularly provides workshops of interest to graduate students.

5.6 Relationship with the Undergraduate Biomedical Sciences Program and the Professional Program

The CVM is unique among veterinary colleges in that it administers a large undergraduate program in BIMS. The BIMS program is a bachelor of science degree program in the broad field of applied biology related to health and disease. The primary objective of the BIMS curriculum is to provide a strong four-year college education that prepares students for productive futures in a changing world. The second objective is to assist students, in a structured way, in orienting and training themselves in areas of
selected biomedical vocational interest. The curriculum is designed to provide fundamental knowledge on which to build skills needed for careers in health care professional and biomedical fields. BIMS graduate students interact with the undergraduates in the BIMS program as teaching assistants. In addition, BIMS students often work on research projects in the lab side-by-side with graduate students. This situation provides a unique opportunity for senior graduate students to help train undergraduates in research techniques. About 12% of BIMS undergraduates pursue graduate degrees after graduation and more than 60% pursue professional degrees. A small but significant number of BIMS students enter the NTO-MS degree program, and a few pursue PhD degrees.

Some classes for professional education are available to graduate students which allow them to interact with the DVM students. There are a number of DVMs in the residency programs who are pursuing MS or PhD degrees concurrently with their residency training. In addition, there are graduate students holding a DVM or equivalent degree who are serving as TAs in the professional program. This breadth provides a wide variety of possibilities for the graduate students to interact with counterparts or equivalents in basic, clinical and para-clinical areas. Furthermore, the CVM environment and proximity of the TAMHSC allows even greater possibilities of meaningful interactions particularly when faculty members have joint appointments across colleges including the college of engineering.
6. BIOMEDICAL SCIENCES GRADUATE FACULTY

6.1 Graduate Teaching Faculty

The CVM has approximately 173 faculty members (including adjunct and joint appointments). Their CVs can be found in Appendix 9. The faculty members teach 34 different didactic undergraduate courses under the prefixes of BIMS, GENE (Genetics), VIBS (Veterinary Integrative Biosciences), VTPB (Veterinary Pathobiology), and VTPP (Veterinary Physiology and Pharmacology). In addition, faculty members from all five departments teach undergraduate level 285 and 485 Directed Studies, and 491 Research courses that are primarily research oriented. The CVM Faculty also teaches professional courses and graduate courses. Course numbers of 600 or higher are graduate courses, whereas the professional courses are numbered 900 and above. A listing of the graduate courses and their descriptions are located in Appendix 7. Syllabi for select courses are located in Appendix 8.
<table>
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<tr>
<th>Rank</th>
<th>Department (total)</th>
<th>DVM or VMD</th>
<th>MD</th>
<th>PhD or DVSci</th>
<th>MS, MA, or MPH</th>
<th>Board Certified</th>
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</table>

Retired faculty working as senior professors not included: VIBS (3), 2 DVM/MS/PhD (one board certified), 1 DVM/PhD; VTPP (2), DVM/MS and DVM/MS/PhD; VSCS (1) DVM/PhD and board certified.

Of the 173 total faculty members, about 50% carry out clinical duties and professional teaching, 69 (40%) board certified, 119 (69%) DVM, 101 (58%) PhD.
6.2 Graduate Courses Offered and Course Syllabi

There is tremendous breadth to the graduate courses that are offered in the CVM with topics ranging from Neuroanatomy to Immunogenetics and Comparative Immunology. Appendix 7 contains a listing of all the graduate courses offered in the CVM along with a brief description. In some cases, courses are senior-level undergraduate and entry-level graduate courses are taught as “stacked courses,” meaning they are taught together, but the graduate students are required to complete additional work. A stacked course allows undergraduates to interact with graduate students and often provides an opportunity for graduate students to learn how to present primary literature to an undergraduate audience. Syllabi for most of the graduate courses offered at the CVM are provided in Appendix 8.

6.3 Faculty Incentives

Incentives and rewards for faculty productivity exist in the form of merit-based salary increases and partial returns of salary savings and indirect costs to investigators. Nevertheless, retention of excellent faculty is an issue that will become more serious as the excellence of the faculty increases. Several faculty members have been successfully recruited to highly prestigious endowed chairs and others have been contacted by different institutions, but have thus far chosen to remain in the CVM.

Excellent teaching is supported in the college and university by the availability of funds for teaching endeavors through the Center for Teaching Excellence (CTE). The CTE also provides workshops and individual counseling opportunities for faculty to improve their teaching skills. Many teaching awards, some with significant monetary components, are also available to faculty within the CVM. Furthermore, teaching performance is considered and rewarded in merit-based salary increases, although excellent teaching by itself is not sufficient for tenure or promotion.

All faculty members at the CVM undergo annual review in teaching, research, service, and clinical care (if applicable). Merit salary increases are contingent upon availability of funds and are based on yearly performances against metrics established by each department. All faculty members in the State of Texas must undergo post tenure review to ensure that a high standard of productivity is maintained by all faculty including those who have been tenured in years past. If during post tenure review a faculty member is found to be deficient in any area, opportunities for remediation are negotiated with the department head and the dean.

6.4 Support for New Faculty

The CVM provides support for each new tenure-track or tenured faculty at a level conducive for establishing an extramurally funded research program in an area of focus in the department. This support includes a competitive state-budgeted salary, office space equipped with phone and computer, an adequate laboratory environment, and one-time start-up funds. Start-up funds are obtained from three principal sources, the department, Texas AgriLife Research and the Office of the Vice President for Research. For the past 10 years, these funds have been sufficient to attract outstanding faculty. These funds may be used for equipment, supplies or graduate students/research personnel over a two-three year period. The newly hired faculty member receives mentoring, as appropriate for his or her rank, from senior faculty and annual reviews from the department head and departmental Tenure and Promotion Committee. He or she has access to pools of graduate student applicants in the BIMS and other graduate programs within the CVM and the various interdisciplinary programs, and is excused from classroom teaching for one year. New assistant professors are hired with a seven-year probationary period and must be submitted for promotion and tenure following their fifth year of employment.
6.5 Faculty Reinvestment and the Biomedical Sciences Program

Overall, the CVM gained 37 positions under the faculty reinvestment plan initiated in 2004, and many of those have strengthened the Biomedical Sciences Graduate Program. Faculty reinvestment benefited students in the CVM in many ways, as new faculty were hired in clinical departments as well as basic science departments to advance the missions of TAMU and the CVM in teaching, research, service, and patient care. The faculty members hired have also brought greater diversity to the college faculty. Of 34 hired, 16 are female, 2 are Hispanic, 5 are Asian, 3 are Black, and 13 are international. While faculty turn-around has taken place since then, the investment led to a net gain of 37 positions that brought an additional $3,244,107 in the CVM budget. The budget cuts in 2010 led to a reduction of about 37 faculty positions, although most of these faculty positions were not the same positions that were gained through the 2004 reinvestment program. More importantly, the reinvestment hires brought important extramural funds that strengthened research programs within the CVM and thus increased the support of graduate education in the college.

6.6 Faculty Honors, Awards and Recognitions

Members of the BIMS graduate faculty have been recipients of multiple honors ranging from college and university level teaching awards to national awards. Major awards CVM graduate faculty members have received in the last 10 years are listed in the Appendix 10. Additionally, many of our graduate faculty members serve on journal editorial boards. A listing of the editorial boards is provided in Appendix 11.

Additionally, some faculty members have been honored with endowed chairs or have been designated distinguished professors. Theses faculty members are listed below.

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>HONOR/RECOGNITION</th>
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<tbody>
<tr>
<td>Katrin Hinrichs, DVM, PhD</td>
<td>Professor, VTPP</td>
<td>Endowed Chair - Patsy Link Chair in Mare Reproductive</td>
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<td>Studies</td>
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<tr>
<td>Glen Laine, PhD</td>
<td>Professor, VTPP</td>
<td>Wiseman, Lewie, and Worth Chair in Cardiology</td>
</tr>
<tr>
<td>Timothy Phillips, PhD</td>
<td>Professor, VIBS</td>
<td>Chester Reed Chair in Toxicology (appointment in progress)</td>
</tr>
<tr>
<td>Stephen Safe, PhD</td>
<td>Distinguished</td>
<td>Sid Kyle Chair in Toxicology</td>
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<td>Professor, VTPP</td>
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<tr>
<td>Ian Tizard, DVM, PhD</td>
<td>Professor, VTPB</td>
<td>Richard M. Shubot Professorship in Avian Health</td>
</tr>
<tr>
<td>James Womack, PhD</td>
<td>Distinguished</td>
<td>W.P. and Bulah Luse Endowed Professorship in Veterinary</td>
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<td>Professor, VTPB</td>
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7. RESOURCES AND FACILITIES FOR BIOMEDICAL SCIENCES GRADUATE STUDY

7.1 Classrooms, Laboratories and Office Spaces

Facilities of the college are described in Appendix 12. Additionally, a new education building has recently been approved for the college ($120 million) by the Texas A&M Boards of Regents which will vastly benefit the BIMS graduate program. The building also includes expansion of the small animal clinics that will provide additional/new learning opportunities to graduate students. In 2011, a new addition was added to the existing building which substantially increased the laboratory space, and graduate student, postdoc and faculty offices. A summary of space in the two research buildings and the main college buildings is provided below:

Research Tower (Building 1197):  This building is a four-storied structure built in 1993 that contains:

- 48 laboratories of ~ 600sq. ft. each, with an additional ~250 sq ft working space between labs
- 96 student and postdoc offices (each accommodating 2-3 trainees),
- 24 faculty offices, common spaces on each floor for instrumentation and freezers, and self-sufficient autoclave rooms on two of the floors

Addition to the Research Tower (Building 1811):  This new building was available for occupation in spring of 2011. It has three floors, and contains:

- 26 laboratories of ~ 750sq. ft. each
- 20 student and postdoc offices (each accommodating 2-3 trainees)
- 32 faculty offices
- common spaces on each floor for instrumentation and freezers
- a self-sufficient autoclave room on two floors

The Veterinary Medical Sciences Building:
The building has a total of 64 research labs which range in size from 150 sq. ft to 1052 sq ft.

7.2 Library Facilities and Support Available to Graduate Students

As one of the libraries in the TAMU Libraries umbrella, the Medical Sciences Library has a wealth of information resources to offer to CVM Biomedical Sciences graduate students. The library is one of the largest veterinary medical libraries in North America, both in terms of information resources available and the size of the staff. The resources in the library are greatly enhanced and enriched beyond the typical veterinary library because it also serves the TAMHSC. The following detailed highlights provide a clear representation of the resources available:

Books and electronic database for educational resources:

- Nearly 129,500 print volumes
- Over 43,000 print monograph (book) titles
- Nearly 950,000 full text electronic books, including a recent license for all electronic books with CAB (Commonwealth Agricultural Bureau) imprints
- Over 101,000 full text electronic journal titles
- Over 1,200 electronic databases, including these of special interest to veterinary medicine
  - MEDLINE back to 1950
  - CAB Abstracts—current and archive files back to 1910
  - BIOSIS back to 1926
  - Zoological Record back to 1864
• Agricola back to 1970
• Remote access to growing complement of electronic resources
• Library website which brings library resources and services to the user
• Electronic delivery of articles and interlibrary loan services at no charge
• Information and reference services available in person, by phone, email and over the Internet
• Educational programs and online tutorials in use of information resources
• Specific information management skills in the use of information for clinical support, such as the clinical veterinary librarian program

Physical space, working hours, facilities and infrastructure
• Library facility is open 119 hours each week
• Computer Lab Education Center (accommodates up to 40 students) where information management skills are taught and standard commercial productivity software is provided
• Public Computers (68) for accessing information resources
• Individual study carrels (29)
• Group study rooms (12)
• Presentation Practice Room
• Wireless access throughout
• Laptop computers, Kindles and iPads that can be checked out by users

7.3 University Resources for Graduate Students
Excellent services for student learning and personal development are available at TAMU, including those described below:

7.3.1 Student Learning Center (SLC)
The SLC provides services that promote retention and success, including Supplemental Instruction (SI) and SLC peer tutors. While these services are not directly aimed to cater the needs of the graduate students, the overall philosophy promoted by the center guides the students to adopt a similar structure within their graduate learning environment. The SI program provides regularly scheduled, out-of-class, peer-facilitated group study sessions for traditionally difficult core curriculum courses. SI leaders are students who have a high GPR, good interpersonal communication skills and course competency. SI supervisors train SI leaders, oversee and guide their activities and presentations and cooperate with faculty in selecting candidates for SI leaders. Graduate students can participate in this. SLC tutors are students with high academic qualifications who are trained in learning strategies and study techniques that can help students achieve greater academic success. Students are matched with tutors specializing in their area of study. Tutors can help pinpoint problem areas in difficult courses and/or direct students to other available resources.

7.3.2 Student Counseling Service (SCS)
The SCS provides a full range of professional services, including personal and career counseling, academic skills enhancement, testing, outreach programming, psychiatric services, consultation and crisis intervention. Also provided are specialized services such as biofeedback training, couple and human sexuality counseling, alcohol and substance counseling and services for minority, international and disabled students. Career Counseling & Testing Services promote student development and self-knowledge through education in order to help students make appropriate and satisfying career choices. Services are designed for students in the initial stages of career exploration and choosing a major. A variety of programs are provided to assist in the career choice process, including individual and group counseling; assessment of interests, values, and personality characteristics relevant to career planning; workshops; and an extensive collection of self-help resources. Additionally, Programs for Academic
Success Skills (PASS) provide students with an opportunity to develop knowledge, skills, and attitudes that will enhance study and exam-taking ability, while decreasing anxiety related to academic performance. Services include individual and group counseling, assessment of study behaviors, screening for learning disabilities, an extensive collection of self-help resources, and weekly workshops on a variety of study skills topics. Students in CVM also have access to the college psychologist, Dr. Derek Bergeron.

7.3.3 Career Center
The Career Center offers services that address the particular needs of graduate students. These services include workshops on independent job searches, internships and co-operative education, resume/cover letter writing, and interviewing skills, just to name a few. Personnel from the Career Center are routinely invited to give talks at the CVM GSA on resume development and ‘Do’s and Don’ts when invited for an interview’.

7.3.4 University Writing Center
The Writing Center offers free one-on-one consultations for graduate students to obtain help on written assignments, as well as on-line resources and classroom workshops. Topics taught include Components of the Writing Process, Grammar and Punctuation, Citing and Documenting Sources and Avoiding Plagiarism, just to list a few.

7.3.5 Assistance with Thesis Writing and Submission
Each master’s thesis option and doctoral candidate must prepare an electronic thesis, dissertation or record of study (ETD). As part of the OGS, the Thesis Office is available to help the students through this process. The Thesis Office provides advice and handouts during the writing process, and publishes the Thesis Manual, which includes rules for format. It also holds an extensive pre-submittal review as a student prepares to defend and format the final version of the document. After the thesis manuscript is submitted electronically, the office reviews the document for university formatting standards.

A pre-submittal conference is strongly recommended to the graduate students. The pre-submittal conference is designed to provide guidance on the preparation, submission, and review of the ETD. The conference is offered in an online tutorial format, as well as a group workshop format. Students are highly encouraged to review the online pre-submittal conference before the writing phase of their degree program. Also, students are asked to RSVP for a group pre-submittal conference after the oral defense has been scheduled. This scheduled conference lasts approximately one hour. To get the most from this conference, it is recommended that students bring their manuscript with them in as close to final form as possible (printed out or on the computer), along with a sample article from the journal selected by the student for format style. Thesis Office staff review format guidelines, share sample pages, and answer questions on style and format, as well as address deadlines and requirements for submittal and clearance. Services are also provided for language and grammar.

7.3.6 Graduate Student Development
Graduate students are assisted in career development in several ways. Major professors and committee members help students meet other scientists in the field and become known by others through networking at scientific meetings, social events with invited seminar speakers and similar activities.

Students have access to regular seminars such as those sponsored by the Toxicology, Reproductive Biology, Genetics, and Neuroscience interdisciplinary programs. VTPB has a departmental seminar series that graduate students are expected to attend, and VIBS has an epidemiology seminar series. Other excellent seminar opportunities are available across the TAMU campus.
Students in many labs are also familiarized with grantsmanship so that they can successfully compete for research funds from extramural funding sources. Also, the CVM graduate faculty members help students obtain placement in high-quality programs (e.g., post-doctoral research position, academic position, or position in government or industry). Beginning 2010, the Associate Dean for Research and Graduate Studies also offers competitive research grants ($5,000) for graduate students for developing a research concept and undertaking research to generate preliminary data for submission of proposals to extramural agencies. Additionally, since 2011, the ADRG office is providing additional funding for travel to workshops or laboratories to obtain specific training and learn new techniques. Details on these new initiatives are provided in section 8.

7.4 CVM Research Support Laboratories, Cores and Facilities

7.4.1 Research Laboratories

The College of Veterinary Medicine & Biomedical Sciences has over 170 faculty members researching a diverse array of scientific topics that impact veterinary and human medicine. The research within our college fits broadly into the following research disciplines:

1. Biomedical Genomics, Genetics, and Bioinformatics
2. Physiology, Pharmacology, and Cardiovascular Sciences
3. Infectious Diseases, Biodefense, and Immunology
4. Neuroscience, Anatomy, and Functional Imaging
5. Reproductive Biology, Development, and Epigenetics
6. Toxicology, Environmental Health Science, and Food Safety
7. Oncology, Cell Biology, Stem Cell Research, and Microscopic Imaging
8. Epidemiology and Public Health
9. Science and Technology Journalism
10. Translational and Applied Clinical Research

7.4.2 Centers and Institutes

The Michael E. DeBakey Institute for Comparative Cardiovascular Science and Biomedical Devices:
The institute is named for the world’s most renowned cardiothoracic surgeon and cardiovascular researcher Dr. DeBakey. It includes cardiovascular scientists, engineers, and clinicians from TAMU, Baylor College of Medicine and the UT Medical School in Houston have joined forces to fight cardiovascular disease in both human and veterinary patients. Administratively housed in the TAMU CVM, the Institute has unique access to naturally-occurring cardiovascular diseases in animals. Because novel cardiovascular devices and pharmaceuticals for use in humans are always tested first in animals, the institute plays a pivotal role in improving the quality of life of all species. The DeBakey Institute is located in a 15,000 sq. ft. freestanding facility containing operating rooms for both acute and chronic sterile surgeries, recovery rooms, treatment rooms, as well as animal housing facilities for both acute and chronic studies ranging from small to large species. Our laboratories and teaching hospital maintain state of the art surgical, and intensive care facilities. Instrumentation for data acquisition and analysis along with technical assistance exists throughout the Institute's facilities. Since the Founding of the Institute in 1999, total funds from private, state, federal and foundation/association sources acquired by the Institute and its 19 Founding Fellows have exceeded $39 M.

The Diagnostic Imaging and Cancer Treatment Center
The center located within the CVM is a state-of-the-art facility with diagnostic and treatment capabilities never before possible in one location. The facility is fully equipped with a Tomotherapy Unit, a CT Scanner and a 3 Tesla MRI Unit. Over the last several years, TAMU has built a powerful team of radiologists and clinicians who are nationally recognized leaders in MR technology. The added imaging
research and innovation capabilities acquired by the CVM have vastly enhanced day-to-day image interpretation and recognition of new diseases and has opened doors for state-of-the-art cancer diagnostic and treatment possibilities for animals at TAMU.

Texas Institute of Preclinical Studies
The Texas A&M Institute for Preclinical Studies is establishing itself as a premier institute in Good Laboratory Practices (GLP) testing utilizing large and small animal models. The new 112,000 square-foot TIPS facility includes:

- long-term large animal housing for approximately 240 animals
- state-of-the-art surgical and imaging suites
- clinical diagnostic lab space
- support areas
- conference rooms
- sponsor workrooms
- large auditorium for meetings/training

The Core Imaging Center houses the most advanced imaging research technology available today in partnership with Siemens. When fully equipped, it will include

- 7 tesla MRI
- 3 tesla MRI with XMR (interventional capabilities)
- Siemens mCT
- 64 slice CT
- cyclotron
- hot lab with associated support areas
- fixed cardiac catheterization lab

The facility generates and manages digital images through a sophisticated Radiology Information System (RIS)/Picture Archiving and Communications System (PACS). The imaging center operates as a cooperative venture with entities in The TAMU System. Industry and academic researchers have a single location access to experts in all major fields of medicine, veterinary medicine, bioengineering, statistics, bioinformatics, laboratory animal medicine, business, and regulatory affairs. TIPS maintains a close working relationship with The Texas A&M University System Office of Technology and Commercialization (OTC), which promotes an industry-friendly environment to facilitate industry partnerships and commercialization. In addition, there is strong community support from the Research Valley Partnership economic development group, exemplifying the unlimited economic development opportunities.

The National Center for Foreign Animal and Zoonotic Disease Defense (FAZD)
FAZD performs research and develops products to defend the nation from high-consequence foreign animal and zoonotic diseases. Founded in April 2004 as a Department of Homeland Security Science and Technology Center of Excellence, and housed in the Department of Pathobiology at the CVM, the FAZD Center leverages the resources of multiple major universities and Minority Serving Institutions. It focuses on research, education and outreach to prevent, detect, mitigate and recover from exotic animal, emerging, and/or zoonotic (transmissible between animals and humans) diseases, which may be introduced intentionally or through natural processes.

Schubot Exotic Bird Health Center
The Schubot Exotic Bird Health Center at the CVM was founded by an endowment from Mr. Richard M. Schubot in 1987, with matching funds provided by TAMU. This center supports research on all aspects of health and diseases in wild and captive birds, including infectious and parasitic disease, and on avian nutrition. The center has close ties with the Department of Wildlife and Fisheries Science and the
Department of Poultry Science. The findings from research supported by the center are applied to protecting the health of wild birds and those kept by zoos, aviculturists and individual pet owners.

**Winnie Carter Wildlife Center**
It is a research and teaching facility that offers students a unique opportunity to gain hands-on experience with a variety of non-domestic animal species. The predominant species at the center are hoofstock (deer, etc.) and ostriches. Some of these animals are tame and can be handled by people while others are dangerous and require special handling techniques. During the semester students are exposed to, and participate in, many aspects of exotic animal husbandry, management, and medicine, and care of non-domestic animals by participating in daily activities.

**Veterinary Medical Park**
The CVM also has an excellent large animal research facility called Veterinary Medical Park (VMP; [http://vetmed.tamu.edu/vetmedpark](http://vetmed.tamu.edu/vetmedpark)) that provides facilities, pasture and animal care services to help the college investigators accomplish their research and teaching. VMP primarily houses horses, cattle, swine, sheep and goats. However, limited facilities are also available to house deer, coyotes, and dogs. All animal housing and pen sizes meet federal and university regulations relative to size, design and construction for conventional and Biohazard Level 2 (BSL2) research for most species. The VMP also maintains two large appropriately equipped animal surgical suites with adjoining surgical prep areas and post-operative recovery areas. An autoclave, surgical instruments, laundry and specimen manipulation laboratory are also available for use.

**7.4.3 Service and Core Laboratories**
The CVM has a variety of core and service laboratories that provide unique and quality services to the college and university as well as the local, national and international community ([http://vetmed.tamu.edu/labs/core](http://vetmed.tamu.edu/labs/core); [http://vetmed.tamu.edu/labs/research](http://vetmed.tamu.edu/labs/research); [http://vetmed.tamu.edu/labs/service](http://vetmed.tamu.edu/labs/service)). These services are geared toward the assessment of animal health and diagnosis of animal diseases and provide excellent research opportunities to faculty, graduate students and various trainees, and give them immediate access to equipment and facilities necessary to accomplish their biomedical research endeavors. These service laboratories can be divided into two major categories. The first category includes those labs that primarily serve patients of the Veterinary Medical Teaching Hospital; however, they also provide research support to investigators within the college and university. These labs include the Clinical Pathology Laboratory, Microbiology Laboratory, and VTPB Histopathology/Immunopathology Laboratory. The other category includes laboratories that are primarily known statewide, nationally and internationally for their research and services; however, they can be utilized by clinicians and patients of VMTH. These laboratories include the Gastrointestinal Laboratory, Animal Genetics Laboratory, Trace Element Research Laboratory, Molecular Cytogenetics and Genomics Laboratory, Cardiovascular Pathology Laboratory, Equine Embryo Laboratory, and the Texas Veterinary Renal Pathology Service. Some of the specific services offered by these laboratories include DNA genotyping for determination of specific gene mutations in animals; cytogenetic, molecular, and DNA-based testing; cloning; pathologic assessment of cardiovascular devices; hematologic, cytologic, histologic, biochemical, and microbiological assessment of clinical patients, and high quality/low detection limit trace element data for environmental samples.

**Cardiovascular Pathology Laboratory**
The Cardiovascular Pathology (CVP) Laboratory at the CVM provides pathology laboratory support for TAMU and its affiliates. This lab also provides pathology and histology services on a fee-for-service basis to outside investigators and medical device companies. Because of a commitment to high standards of quality and continual investment in the latest technologies and diagnostic techniques, A&M Cardiovascular Pathology has seen consistent growth since its inception in 2003, expanding from
3 people to currently 24 full and part-time employees. The lab focuses on the development and utilization of integrative pathology techniques for the evaluation of implantable devices in humans and animals. The CVP lab specializes in cardiovascular devices such as circulatory assist devices, implantable leads, and intravascular stents. TAMU CVP also conducts toxicology studies and is compliant with Good Laboratory Practices (GLP) and Good Clinical Practices (GCP) guidelines.

**Molecular Cytogenetics and Genomics Laboratory**
This laboratory serves three primary roles: (1) conducting diverse research initiatives in cytogenetics, genomics and functional genetics focusing on diseases, important phenotypes of domestic animals and conservation genetics of endangered species; (2) educating and train undergraduate and graduate students, visiting scientists and veterinarians; and (3) performing a wide range of cytogenetic, molecular and DNA-based testing for clinical and research facilities, private companies, veterinarians, breeders and animal owners. For chromosome analysis we use both traditional and state-of-the-art techniques, and carry out tests for all domestic animals and a broad range of wild species. Analyses are done either for a fee or on a collaborative basis.

**Equine Embryo Laboratory:**
The Equine Embryo Laboratory performs both research and clinical work in equine assisted reproduction. Currently, the lab is one of less than 10 in the world actively doing research on horse cloning, and is one of two laboratories in the United States performing clinical oocyte recovery and intracytoplasmic sperm injection (ICSI) to produce foals from client mares for which embryo transfer is not an option. In the last 10 years, the laboratory has garnered over 2 million dollars in funding for their research in equine oocyte maturation, fertilization, sperm injection, early embryo development, and cloning, producing the first in vitro-produced horse foal in North America (via ICSI and embryo culture) in 2003, and the first cloned foal in North America in 2005. The laboratory has published more original scientific reports on equine cloning and intracytoplasmic sperm injection that any other laboratory in the world. The results of this research are being applied clinically to produce foals from client animals, with a growing caseload at TAMU both for foal production from problem mares and from stallions with low sperm reserves, and for embryo production post mortem from mares that suffer untimely death. New research from the Equine Embryo Laboratory on embryo biopsy and vitrification may allow genetic diagnosis of embryos before transfer, and their cryopreservation (freezing), even of large embryos, as a clinical program in the near future.

**Gastrointestinal (GI) Laboratory:**
It is a unique service, education and research laboratory at the CVM that provides testing services for practicing veterinarians. Veterinarians examining a dog or cat with a complex gastrointestinal disease can send samples to the GI lab for testing, which in turn provides results that help them make a diagnosis and choose the appropriate therapy. Currently, the laboratory analyzes more than 1000 samples each week. The laboratory is also actively involved in research and discovery. Over the last 10 years the lab has developed several new tests for the diagnosis of gastrointestinal diseases in dogs and cats. Some of these are now considered the gold-standard for diagnosis all over the world. Additionally, the lab is currently involved in approximately 50 different research projects and collaborates globally with many investigators at different universities and clinics.

**Trace Element Research Laboratory (TERL)**
TERL is dedicated to providing students with a high quality education in environmental chemistry and sponsors with high quality trace element data. It offers an uncommon combination of academic research expertise and extensive experience in the environmental monitoring and regulation arenas. TERL has an international reputation, earned through numerous blind intercalibration exercises, for consistently producing high quality, low detection limit trace element data for environmental samples
(including water, wastewater, sediment and biota). All work is conducted under a comprehensive quality assurance/ quality control (QA/QC) program. TERL is experienced in the use of clean (1 part per billion level) and ultra-clean (< 0.1 ppb level) sampling and preconcentration procedures required to make accurate measurements of trace metals at ambient levels in both freshwater and seawater. TERL has participated in most major US environmental monitoring programs over the past decade (e.g. NOAA Mussel Watch, EPA EMAP, USFWS Contaminants Program, etc.) and has an established reputation for accurately measuring trace metal levels in samples from even the most pristine environments.

**Image Analysis Laboratory (IAL)**

The IAL was established in 1987 to serve microscopy and imaging needs of the investigators in the CVM. The laboratory has expanded to serve a broader cross section of the university in addition to researchers from outside of the university. The laboratory is also a microscopy resource for the various interdisciplinary faculties that involve CVM faculty and students.

The laboratory provides state-of-the-art optical microscopy technologies for research and teaching in life sciences. Emphasis is placed on integration of advances in vital analytical cellular imaging and fluorescence probe technologies to provide some of the most sensitive approaches for analysis of the molecular aspects of cellular function, an approach we refer to as "cellulomics." The imaging instruments available in the facility are following:

- Zeiss Digital Imaging Workstation
- Olympus Live Cell Imaging Workstation
- Zeiss 510 Meta NLO Confocal/Multiphoton Microscope
- Bio-Rad Radiance 2000MP Confocal/Multiphoton Microscope
- Stallion Dual Detector Digital Imaging Workstation
- Zeiss Laser TIRF3 Total Internal Reflection Fluorescence Workstation
- FEI Transmission Electron Microscope
- Arcturus Veritas Microdissection System
- BioTek Synergy 4 Microplate Reader

To meet the needs of the College and interdisciplinary faculties associated with the college, the IAL uses a three tiered facilities utilization strategy:

- Independent research to develop and apply leading edge cellular imaging technologies.
- Collaborative research to extend the applications base of faculty, staff, and students.
- Routine fee for basic imaging services and applications training provided to faculty, staff, and students of the CVM and affiliated faculties and programs.

Research in the IAL encompasses the mission of the CVM emphasizing the microscopic structure of animal and human cells and the physiology of normal and diseased cells. Emphasis is placed on exploiting emerging technologies developed for non-invasive cellular imaging in addition to long-standing utilization of electron optical instruments for ultrastructural and cytochemical analyses. Emerging technologies which employ fluorescent biosensors and biomarkers for evaluating the function of living cells and tissues are providing some of the most sensitive approaches for analysis of the molecular mechanisms of cellular function.

**Histopathology/Immunopathology Laboratory**

The VTPB Histopathology/Immunopathology Laboratory provides histopathology and immunopathology diagnostic and research services for the VMTH, CVM, TAMU and other institutions and private industries. These services include preparation of tissues for routine histopathological examination, performing special stains for diagnostic and research samples, and performing immunocytochemistry and immunohistochemistry for diagnostic and research applications.
7.5 Other Facilities

*Laboratory Animal Resources and Research (LARR)*

LARR is a university facility managed by the TAMU comparative medicine program that provides housing and care for the laboratory animals used by the CVM faculty, graduate students and trainees. Excellent surgical facilities are available for small laboratory animals in LARR. The facility is located in the building next to Veterinary Medical Sciences building and includes two AAALAC-accredited surgical suites, and instrument preparatory room, a surgical preparatory room and pre-operative wards. Large animal surgeries for research projects are supported by the Veterinary Medical Park, which is described above in section 7.4.2.
8. BIOMEDICAL SCIENCES GRADUATE PROGRAM NEEDS AND FUTURE DIRECTIONS

The BIMS graduate program is relatively new. While the PhD and MS granting mission per se of the college has been in existence for decades, and these degrees have been granted to hundreds of students by the college under the aegis of either the departments, discipline based programs or interdisciplinary programs (during recent years) within the college, the concept of coalescing most of the above under one umbrella with the brand-name – BIMS – is only 6 years old. Over the years the number of disciplines within veterinary medicine and biomedical sciences has increased because the knowledge base in these areas has grown exponentially, allowing them to be recognized as separate areas of expertise. It was perceived that creating a separate degree program for each of the new/emerging areas would only add complexity to managing a graduate program within the CVM. Hence, the college adopted a futuristic approach of having an umbrella degree that aptly represented the broad areas of clinical, para-clinical and basic sciences with links beyond veterinary medicine, allowing many combinations of course work and research to flourish without being limited by the narrow boundaries of a field. In essence, the rationale behind launching BIMS six years ago by the CVM was a farsighted step that was intended to allow greater flexibility to the graduate program within the college while maintaining a single degree name that captures the broad spectrum of research and education offered by the college and valued by prospective employers of the students. In the following paragraphs we will provide

- our assessment of how the program has progressed during the past six years and how the program is perceived by students and faculty members
- an overview of recent initiatives taken to enhance the program
- an outline of future goals and aspirations and
- a summary statement that best characterizes the present standing of the program.

This synopsis and input from the external review team will form the basis for future activities that will enhance the CVM BIMS graduate program.

8.1 Current Status

8.1.1 Distributed Administrative Model of Graduate Education at the CVM

Currently the college has a decentralized or distributed model for administering and providing graduate education whereby individual departments take care of almost all aspects of graduate education beginning from admissions to dissertation defense and graduation. The ADRG office acts as a hub for all communications with the TAMU OGS after the student is admitted in a department or program for matters like tuition support (started in Fall 2011), change of course work or grade, removal of registration hold, etc. Matters like committee formation, preliminary exams, final dissertation defense and student progress are directly communicated between the CVM departments and the OGS without involvement of the ADRG office. Thus, with BIMS PhD and MS programs as a common link, each department functions as an independent unit in managing graduate education with a level of flexibility permitted within the guidelines provided by TAMU. The sections below will describe recently implemented roles of the ADRG office, steps towards a centralized graduate student recruitment plan for the college and current operating procedures in the departments.

8.1.2 Role of the Associate Dean for Research and Graduate Studies Office

In addition to the role outlined above, the ADRG office provides the following for graduate students, faculty and the OGS:

- Serves as a point of contact for the students for all matters related to their graduate learning experience at the CVM and TAMU. The office has an “open door policy”. It provides private
counsel to the students and is available for joint meetings with mentors or other faculty members.

- Provides information about available scholarships, fellowships, awards, recognitions, etc. to students and strongly encourages them to apply. The office also provides guidance for applications, sends reminders for deadlines and adds a cover letter on behalf of the Dean’s Office to support the applications and nominations of the students. The office also provides guidance regarding how to be prepared for these application opportunities.

- Supports the CVM GSA in all their activities including their annual research symposium, and participates in them regularly. The ADRG gives talks at least at 2-3 GSA meetings per year guiding the graduate students on issues that can enhance their ability to succeed.

- Organizes seminars and workshops on the following topics: biosafety & compliance, identifying funding opportunities, writing grant proposals, preparing and updating CVs and other matters of significance to graduate students.

- Beginning in 2011, handles all tuition related issues including obtaining funds from the OGS and distributing the funds to students; we have successfully pursued obtaining partial tuition support from the OGS for DVM students doing PhDs and obtained this funding for the first time in Fall 2011.

- Is available to the departments for guidance on graduate education related matters.

- Submits applications for select fellowships, such as, Merial, Pfizer, Morris Animal Foundation etc. for graduate education and enhancement.

- Writes proposals to the OGS and the Provost’s office for various funding possibilities every year for graduate students.

- Handles Graduate Enhancement funds and distributes them appropriately ensuring investment of the funds in activities that enhance, support and encourage graduate students.

- Devises strategies to enhance the learning experience of graduate students, allocates funds for these activities, distributes funds in a competitive and appropriate manner, follows the progress of the students once funds are distributed and receives feedback on making improvements. Examples are: writing grant proposals for the CVM Graduate Research Trainee Grant, enhanced educational travel activities, etc.

- Developed awards and an incentive program to recognize graduate students who have accomplished major achievements.

- Represents the students, faculty and the college administration at the monthly Graduate Council Dean’s meetings and the GOC meetings.

- Communicates with prospective graduate students and provide information necessary for submitting applications or contacting prospective mentors.

- Organizes a new student orientation for incoming MS and PhD students.

8.1.3 Recruitment/Admissions – Variations across Departments

Traditionally, once the applications fulfill basic requirements for admission to TAMU, they went directly to individual departments (i.e., they did not come to the ADRG office) where they were processed internally and the prospective students notified directly of the outcome. In conjunction with recent changes made in the CVM website the ADRG office and all the departments now have access to all applications. This step allows for applications to be accessed by all departments and hence be reviewed by a greater pool of potential mentors. Currently, because the recruitment and information website is rather new and not amply advertised, we have not yet organized a common recruiting week for the college. However, with most things in place and backed by a general consensus to have a centralized recruitment, we are confident to approach next year’s recruitment in a planned and organized manner.
8.1.4 **Follow-up of Graduate Students’ Progress Is Primarily a Departmental Activity (Decentralized)**

Once the student is admitted to a program and is housed in a department under the supervision of a mentor, all activities including the student’s academic progress are monitored within the department. While some departments have monitoring of grades, evaluation of progress in research, formal and informal meetings with the graduate students including counseling for the first couple of years both at the administrative and mentor/committee level, other departments consider this the mentor’s responsibility. In general, the follow-up on the academic progress of the student is annual, though in some cases this may be a mentor-driven process rather than one initiated regularly and formally by the department. There are expectations that the students should have their committees in place within one year of their admission, have their course work finished and thesis research proposal submitted during the second year and the preliminary written/oral exams conducted during the third year of their PhD education. While in general these guidelines are largely followed, there is considerable variability in the time-point of the achievement of these milestones, implementation of these expectations at the departmental level and follow-up by the department with the mentor and/or the graduate students to ensure whether or not these deadlines are met.

Essentially, once the student is under the guidance of a mentor, and a graduate advisory committee is formed, a large part of the responsibility of subsequent follow-up is expected to be on the mentor, the student’s committee and the student. The departmental administration (department head and the departmental graduate advisor) is always readily available to guide and provide help as needed. There is formal paperwork to ensure six monthly and/or yearly progress of the graduate students. Some departments adhere to it more strictly than others. If the progress is not satisfactory, there is mechanism in place through the department administration to provide counseling to the student, suggest alternative routes of completion of work or recommend other possibilities. In essence, checks and balances and their implementation vary across department. In some cases this flexibility allows the mentor and the student to adopt best route for a successful graduation.

8.1.5 **Requirements for Graduation – Expectations Vary across Departments for Thesis/Dissertation Format**

The CVM graduate faculty members require that a high level of original research be completed and appropriately presented in MS theses and PhD dissertations. The student’s graduate advisory committee determines the format of the thesis or dissertation, though it must adhere to the university’s guidelines. The quantity and quality of research performed and presented by the student is expected to be high and PhD work is expected to result in published manuscripts in peer-reviewed journals. However, expectations for publications differ among departments and among major professors. In general, some departments expect PhD students to have at least two published articles in peer reviewed national and international journals, while others require one published article and manuscripts. In some cases a monograph that does not have manuscripts, but has chapters fulfilling individual components or objectives of research is also acceptable. For completing an MS degree, some departments may require one published article or a manuscript, while others accept a monograph.

8.1.6 **Funding (Providing Stipends or TAships) – Different Models across Departments**

As indicated in Section 5.2, there are a variety of funding mechanisms in place in different departments to support graduate education. An extramurally funded research program is essential for sustaining quality/competitive research. Hence availability of funds from extramural grants to support graduate students (and their research) is a general expectation from mentors accepting graduate students. In addition to this, the departments invest in different ways to add to the support, even if mechanisms may be different. For example, VIBS and VTPB provide Teaching Assistantships to some of their graduate students. This is a mutually beneficial process whereby the department gets help for supporting the
teaching mission and the graduate students get an opportunity to learn and contribute to teaching while getting support in the form of teaching stipends. Other departments like VTPP provide stipends for graduate students for the last 2 years of their graduate education (i.e., year 3 and 4) and ask the mentors to invest their funds during years 1 and 2. These students contribute to teaching at various levels. The clinical departments may provide funding support through a different mechanism.

8.1.7 Differences between Clinical and Basic Sciences Departments
The number of MS and PhD students varies across departments. Also, there is a clear difference in the number of PhD students between clinical and basic science departments, with a much higher number enrolled in the latter. The lower MS and PhD enrollment in the clinical departments (VSCS and VLCS) is due in part to their current mission and emphasis on teaching and training professional students, interns and residents. It is, however, evident that the trend in the clinical departments is shifting. Lately, graduate education is gaining significance – partly due to hiring of research-oriented faculty and also encouragement from the administration to enhance the graduate education profile. Active discussions have been underway, for example, in the VLCS department during the second half of 2011 to invigorate the graduate program, including (re)instating an MS program for residency as a permanent feature. The variation in the number of students between departments is also related to the number of active extramurally funded research projects in a particular year.

8.1.8 BIMS MS and PhD Enrollment: Optimal Level or Potential to Grow?
The BIMS graduate program currently offers MS (TO and NTO) and PhD to students in all academic departments within the CVM. Currently there are 75-100 students enrolled each year during fall and spring semesters. It must be noted that students enrolled in other degree granting programs within the CVM that are affiliated with, i.e., interdisciplinary programs in Genetics, Neurosciences and Toxicology, and also the degrees in Vet Pathology, Vet Microbiology, Science Technology & Journalism, Epidemiology, Veterinary Public Health and Laboratory Animal Medicine are not included in this number. Effectively, the latter group is also a part of the CVM graduate body because their mentors are full-time CVM faculty members. The table below classifies the CVM graduate students (both Masters & PhD) by those in the BIMS graduate program and other graduate programs, in relation to the total number of graduate students enrolled in the CVM in Fall 2011. Thus the BIMS graduate students comprise around 58% of the total graduate students in the college.

<table>
<thead>
<tr>
<th>Dept</th>
<th>BIMS MS Students</th>
<th>Other CVM Program MS Students</th>
<th>Total CVM MS Students</th>
<th>BIMS PhD Students</th>
<th>Other CVM Program PhD Students</th>
<th>Total CVM PhD Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLVM</td>
<td>27</td>
<td>1</td>
<td>28</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>VIBS</td>
<td>10</td>
<td>14</td>
<td>24</td>
<td>18</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>VLCS</td>
<td>9</td>
<td>0</td>
<td>9</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>VSCS</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>VTPB</td>
<td>7</td>
<td>13</td>
<td>20</td>
<td>0</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>VTPP</td>
<td>7</td>
<td>5</td>
<td>12</td>
<td>9</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>62</strong></td>
<td><strong>33</strong></td>
<td><strong>95</strong></td>
<td><strong>37</strong></td>
<td><strong>38</strong></td>
<td><strong>75</strong></td>
</tr>
</tbody>
</table>

*NTO-MS students are in CLVM for their 1st semester until they find a mentor and transfer into their department.

A breakdown of the enrollment of BIMS graduate students during the fall, spring and summer semesters is provided below. Details for other years and semesters are provided in Appendix 13. The data give the perception that program is constantly growing – which is not totally true. Considering that the BIMS degree title was accepted in 2006 and offered in 2007, spring 2007 was first year when the
students were enrolled in this program (rather than in the other previously offered programs). Hence the growth reflects increased enrollment in the BIMS degree rather than a true growth in the total number of graduate students at the CVM. There is no doubt that the NTO-MS has expanded during the past two years and there is a distinct increase in enrollment in this category (from 3 in 2005 to 23 in 2011). This certainly impacts/increases the total CVM and BIMS graduate program enrollment.

With respect to the prospects of growth in the total number of students enrolled in the CVM BIMS MS and PhD degree programs, we may see a plateau or marginal increase in the MS-NTO students. Whether this increase can be sustained by current faculty members is a question that needs to be addressed in the very near future. Presently it is possible to accommodate these students with current faculty enrollment and their availability/willingness to mentor the students. It is clear that MS-NTO students do not receive tuition or stipend support from the college, department or faculty; however, they do bring revenue to the college that can be invested in the graduate program. In addition, the quality of most MS-NTO students to date has been high, and their presence in graduate classes has contributed positively to CVM graduate education. With regards to other graduate students (MS-TO and PhD), any increase in the number is dependent on two key factors:

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• Extramural funding available to the mentors for research and graduate education
• Investment by the college and the departments to create more openings

It must be noted that the latter is intricately connected to (or dependent on) the first factor. Moreover, the college has to seriously ask itself: would the college benefit from increasing the number or should the focus be on improving the college’s ability to attract the best applicant pool by offering competitive stipends, enhancing their ability to learn, and thus raising the overall quality of graduate education? This is a debate that needs to occur at the college level so that funds available or funds generated through development efforts in the future are put to best use for the growth of the college and the graduate students.

8.1.9 Comparative Status of Graduate Enrollment at the TAMU-CVM in Relation to Leading CVMs in the Nation

A goal of Vision 2020 is to increase graduate enrollment at TAMU to 30% from its current level of 20% (including graduate and professional students). The TAMU Office of Institutional Studies and Planning (OISP) Fall 2011 enrollment data show 39,867 undergraduates, 5,530 masters, 3,943 PhD and 521 professional students. The CVM currently enrolls 1,700 undergraduate, 170 graduate and 521 professional students (Fall 2011 data). Therefore 29% of CVM student enrollment is at the graduate and professional levels. From the perspective of a medical school, this enrollment level supports the TAMU’s Vision 2020 goal. Furthermore, graduate enrollment in the TAMU CVM, either by student number or percentage of the total DVM + graduate students in the college, exceeds that of all but one of the 7 US colleges of veterinary medicine currently ranked above us by US News and World Reports and indeed exceeds all but two of all US veterinary schools. We are therefore attracting competitive numbers of graduate students to our programs compared to other excellent veterinary schools.

<table>
<thead>
<tr>
<th>Institution (as ranked by US News and World Reports)</th>
<th>DVM students</th>
<th>Graduate Students (% of Total Professional + Graduate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cornell University</td>
<td>379</td>
<td>125 (25%)</td>
</tr>
<tr>
<td>2. University of California--Davis</td>
<td>532</td>
<td>143 (21%)</td>
</tr>
<tr>
<td>3. Colorado State University</td>
<td>548</td>
<td>366 (40%)</td>
</tr>
<tr>
<td>3. North Carolina State University</td>
<td>392</td>
<td>80 (17%)</td>
</tr>
<tr>
<td>5. Ohio State University</td>
<td>580</td>
<td>105 (15%)</td>
</tr>
<tr>
<td>5. University of Pennsylvania</td>
<td>482 (includes 9 DVM/PhD students)</td>
<td>11 (2%)</td>
</tr>
<tr>
<td>5. University of Wisconsin--Madison</td>
<td>318</td>
<td>49 (13%)</td>
</tr>
<tr>
<td>8. Texas A&amp;M University*</td>
<td>521</td>
<td>170 (25%)</td>
</tr>
</tbody>
</table>

Sources:
Cornell, DVM: http://dpb.cornell.edu/documents/1000206.pdf#zoom=100
Cornell, graduate: http://dpb.cornell.edu/documents/1000200.pdf#zoom=100
North Carolina State University: http://www2.acs.ncsu.edu/upa/enrollmentdata/f11enrol/index.htm
The Ohio State University, Office of Enrollment Services: http://registrar.osu.edu/serrs/AU11/AU11Report.pdf
The University of Pennsylvania – data not posted online. Peter Javian | Project Administrator
8.1.10 Limitations and Opportunities

There are a number of factors limiting further growth in the graduate program. First, the number of research faculty who can fund a graduate student is limited to about half the total CVM faculty, as many faculty commit their primary effort to DVM education and patient care. Second, many investigators find that the best use of their limited grant funds is for salaries of technicians or postdoctoral scientists, rather than graduate students, who spend their first two years of study taking classes and learning laboratory techniques. Also, funding from federal entities is becoming increasingly competitive. One area of significant growth has been the non-thesis MS program which has grown from 2 students in 2006 to 24 students in Fall 2011.

The CVM has had limited success with the development of program project grants and training grants (e.g., in toxicology in the past and currently an NIH-T32 for PhD training for DVMs). One of our goals, therefore, is to make concerted efforts in developing new interdisciplinary proposals for training grants and program project grants in maturing areas, such as genomics, toxicology, neuroscience and reproductive biology. New faculty recruitments have been made with this goal in mind.

A great motivation for increasing the training of PhD students in biomedical sciences is the belief that CVM must train veterinary faculty for the future. The improvement of quality will require increased stipends and hence the need for greater allocation of departmental resources, increased federal grant funding, the acquisition of training grants, the effective advertisement of BIMS graduate programs, and the recruitment of more competitive students. High caliber students will have opportunities to generate their own grant dollars through pre-doctoral fellowships from NIH and other granting agencies. In the past, the CVM has been successful in obtaining NIH K08 awards for veterinarians in the PhD programs but this is dependent on faculty with NIH funding. The CVM is committed to the improvement of its research programs, and therefore it follows that graduate programs are likely to increase in both numbers and quality of students.

8.1.11 Analysis of Graduate Faculty Survey

The CVM graduate faculty members were sent several emails requesting that they complete the faculty survey and the response rate was 28%. The responses were very diverse and unique and the major themes that emerged are summarized below.

What do you see the strengths of our graduate program?

Common themes in the responses were:
- an excellent faculty and staff committed to graduate student education
- excellent library resources and state of the art facilities
- inter-multidisciplinary nature of research opportunities for graduate students.

What do you see the weaknesses of our graduate program?

- issues with recruiting the best possible students due to lack of funding (7/40 - 17%).
- many faculty mentioned lack of rigor
- different entrance requirements across departments was an issue for some

There is currently no core curriculum or a minimum number of didactic courses in the BIMS program across departments. Courses taken by each student are at the discretion of the student’s committee and are dependent upon the department’s requirements. Do you believe this is a good approach? The majority 22/40 (55%) felt this was a good approach allowing flexibility for the students. Some suggested at least one common course to bring students together as a group. Others thought a couple of course like statistics and ethics should be an integral part of the curriculum for all graduate students.
Do you think there should be a standard set of core courses required for BIMS graduate students, regardless of the department? If yes, please list the suggested core courses.

Of the faculty that replied to this question 17 (42%) felt that core courses should not be required and 15 (37%) felt that core courses should be required. The most common suggestions were ethics, statistics and grant writing. Other suggestions were introduction to Biomedical Sciences, cell biology, creativity and problem solving literature review and journal clubs.

What is a method of assessing the students “knowledge” gained through their degree program?

The majority of the respondents felt that publications, preliminary exams and the final defense were the best methods of assessing students. Another measure of success mentioned was job placements after graduation. There were suggestions for more rigorous exams early in the program to select the best students.

Please list 5 major skills that a graduate student should attain by graduation. (Some examples are ability to conceptualize research ideas, develop appropriate experiments to test a hypothesis, ability to analyze and interpret data, ability to communicate research ideas and/or findings, ability to work with individuals of a diverse background, technical laboratory skills, etc.)

The most commonly noted abilities were:
- publication of research in quality referred journals
- develop & communicate a testable hypothesis
- write competitive proposals
- craft a competitive proposal
- develop an experimental design to test a hypothesis
- technical skills to generate valid data
- analyze the data to accept or refute the hypothesis
- ability to effectively communicate & publish

The next commonly mentioned skills were the ability to work in teams, to function collegially and ethically.

Please select some important attitudes a student should have by graduation. (Some examples scientific ethics, integrity, importance and pertinence of biosafety rules and regulations, value of collaboration, necessity for constant and continuous education, need to stay current with literature and techniques, etc.)

- Scientific ethics, integrity, importance and pertinence of biosafety rules and regulations, the values of staying current with the literature and techniques and being a life-long learner, open-mindedness, ability to collaborate, collegiality, inquisitiveness and skepticism

What is a method of assessing the students “attitudes” gained through their degree program?

The most common response is summarized by the following:
- The committee and chair are probably the best able to assess these attitudes through yearly committee meeting.
- High standards of scientific ethics and integrity can be assessed by reviewing data and questioning students on appropriate means of analysis and presentation.

These survey responses are provided in Appendix 14.

8.1.12 Analysis of Graduate Student Survey

All the CVM graduate students received multiple emails and a reminder at the GSA meeting to respond to the graduate survey. We received a 17% response rate from the graduate students (25/170). The majority of the students felt that the current methods of assessment: dissertation/thesis and defense were the best way to evaluate their training. Sixteen of the 25 (64%) respondents were within their first
two years of study and this may explain the reduced number with publications (40% or 10/25) and experience with grant applications (40% or 10/25). However, it should be noted that of the 8 students who had been in the program for over 2 years 6 (75%) had published in peer reviewed journals. The majority of the students (16/25 - 64%) were satisfied with the courses offered apart from issues with taking classes at the TAMHSC and a lack of courses related to animal economics and some courses not being taught according to the syllabus. Also 20/25 (80%) were satisfied with the professional development available to them. The students believed that they had a good understanding of the five skills they should possess upon graduation i.e. “the ability to conceptualize research ideas, develop appropriate experiments to test a hypothesis, ability to analyze and interpret data, ability to communicate research ideas and/or findings, ability to work with individuals of a diverse background, technical laboratory skills”. These survey responses are provided in Appendix 15.

8.1.13 CVM Faculty Strengths
The qualities and achievements of the BIMS program are founded on the support and contributions of an excellent faculty. Faculty members who teach and serve as mentors in the BIMS program are highly accomplished and have won many prestigious awards in teaching, research, and service, as evidenced in Section 6.6 Faculty Honors and Recognitions. Furthermore, as shown in the attached curricula vitae (Appendix 9), a large number of BIMS faculty members also have clinical training or participate in the professional curriculum, which enhances the clinical relevance they can impart to students in their courses. Another large group of faculty have very successful research laboratories, which, again, enhance the relevance of the concepts imparted in the classroom. Next, the research done within our college has been reported in several prestigious journals including Nature, Science, Cell, and Proceeding of the National Academy of Sciences, Genome Research, Nature Biotechniques, Nature Neuroscience, etc. A list of publications from our graduate faculty members is provided in Appendix 16. Research conducted at the CVM is supported by federal, state and private agencies, such as NIH, USDA, NSF etc., as well as various National Associations & Foundations. The BIMS program also enjoys an exceptionally well-trained, dedicated professional staff in the Deans office and the five departments. Jointly, there is exceptional expertise and required support to conduct the graduate program.

8.1.14 Facilities Strengths
As indicated in section 7.5 and 7.6, the CVM has extraordinary facilities for graduate students to conduct cutting edge research in several areas. Access to similar world-class facilities in 11 other colleges on campus including the TAMHSC provides an outstanding working environment whereby the graduate students can develop connections and collaborate with faculty members in disciplines that add value and strength/diversity to their research. Additionally presence of several core laboratories on campus including those for imaging, genomics & bioinformatics, protein chemistry, proteomics, high throughput genotyping and analysis. Thus, graduate students have an excellent research environment, access to remarkable facilities and a range of possibilities that can make them highly successful. A highly functional teaching hospital with 15,000 - 20,000 cases per year is a unique strength within the CVM that can make research projects of several of the graduate students very meaningful and highly experiential.

8.1.15 University Funding for Recruiting Graduate Students
The office of graduate studies (previously under the VPR, under the Provost since Fall 2011) provides excellent funding opportunities to recruit highly deserving graduate students. Notifications of these opportunities are disseminated to faculty and students in October/November and applications are invited with deadlines in January and February to announce recipients in March. Funds ranging from $70,000 to around $104,000 per student can be available through these fellowships for a 2-3 year period. Faculty members have to identify a prospective student substantially in advance, and nominate him/her for these awards. The ADRG provides a letter of support for all applications. The CVM has
historically not capitalized on this opportunity. Considering the number of fellowships that are available through the university (25-30 Merit and 70-80 Diversity) we rank the lowest in being able to obtain awards because we do not submit enough applications. Moreover, the fellowships are highly competitive; hence the applicants have to be among the strongest and most appealing even to judges outside the biomedical field. Through a concerted and deliberate effort, it was possible to submit a total 4 applications in 2010-2011 that resulted in 75% success rate for applicants beginning in Fall 2011 (see the table in Section 5.2) and a total amount of $265,000 for three students. In the past few years intense efforts have been made to improve awareness of these opportunities– however, new strategies will have to developed to help faculty members identify highly talented potential graduate students by September - October so that strong nominations packages can be prepared for this highly competitive yet high-yield opportunity. Also, a central recruitment system and aggressive advertisement of these opportunities also to prospective students will certainly make a difference for FY13 applicants.

8.1.16 The PhD Program for Veterinarians
There is currently no separate or dedicated program within the college to support graduate education for veterinarians. Some graduate faculty members support higher education for DVMs through extramural grants. Though limited, their efforts are vital. Noteworthy among them is the NIH T-32 grant obtained by Dr. Ann Kier that provides funding to support PhD education for veterinarians. Equally important are departmental efforts and commitments that add to this support. Additionally, the ADRG has been able to obtain funds from the VPR’s office and the OGS for providing PhD stipends and tuition support for the DVMs. Further, Dean Green has successfully created the Patterson Fellowship, which supports veterinarians wanting to undertake higher education (residency or PhD). Next, the ADRG has worked closely with DVMs and their faculty mentors for preparing and submitting proposals to extramural agencies that support PhD education for the DVMs. One noteworthy success has been the Pfizer-MAF grant that was awarded to Dr. Jessica Hokamp, a clinical pathology resident, in support of her undertaking graduate studies. She is mentored by our young faculty member Dr. Mary Nabity. Only four such awards were made nationally by Pfizer-MAF in 2011. Appendix 5 shows one of the efforts made by the ADRG to obtain university funds for PhD positions for DVM (currently one of the 4 Merit Fellowships is reserved for a DVM). While all these efforts contribute to the larger cause of supporting and enhancing higher education among the DVMs specific initiatives have to be launched that can raise sufficient funds for eventually establishing permanent MS and PhD fellowships for DVMs within the college. Moreover, an environment that unambiguously demonstrates institutional emphasis on advanced training and higher education among veterinarians has to be created. This will require a visionary, deliberate and combined effort by all constituents within the college ranging from the clinical departments, para-clinical departments and the administrative leadership.

8.2 Recent Initiatives Launched by the ADRG Office to Enhance Graduate Education

8.2.1 CVM Graduate Research Trainee Grant
An initiative aimed at engaging graduate students in the writing of write grant proposals was started by the ADRG in January 2010. The rationale behind the initiative was as follows: An essential step in career development of graduate students is learning how to obtain funding for research. It is vitally important to develop grant-writing skills at an early stage in the PhD career because irrespective of the career path students enter after completing their PhD, they will almost inevitably encounter the challenge of proposal writing in the future. Moreover a funded grant makes a powerful statement on any student’s CV on the next stage of their career path.

Hence the ADRG office announced 12 CVM graduate trainee research grants in 2010. These research grants provided $5,000 to each graduate trainee through a competitive process (RFP of the proposal and evaluation process provided in Appendix 5). The proposals are scored by an experienced
committee of reviewers who recommend funding of proposals that show potential to compete for funding at state or national level. The proposals must target emerging research areas in clinical and applied/basic sciences, and must align with current research priorities outlined by various funding agencies. The grant serves as seed money to generate preliminary data and is an incentive to aggressively prepare and submit proposals to various extramural federal and state agencies and foundations/associations. The graduate students are encouraged to work very closely with their mentor in preparing proposals for the Graduate Research Trainee Grant RFP. Once successful in obtaining the grant, the students are encouraged to proactively interact with their mentors, faculty advisors of the Graduate Student Association and a couple of highly experienced and successful PIs within the college for the next phase of submissions to extramural agencies.

**History:** Since its inception, 3 rounds of proposal submissions have occurred: in October 2009, November 2010, and November 2011. The table below illustrates the level of student participation and funding rate.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Proposals Submitted</th>
<th>Number of Proposals Funded</th>
<th>Rate of Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>24</td>
<td>12</td>
<td>50%</td>
</tr>
<tr>
<td>2010</td>
<td>19</td>
<td>7</td>
<td>36.8%</td>
</tr>
<tr>
<td>2011</td>
<td>20</td>
<td>15</td>
<td>75%</td>
</tr>
</tbody>
</table>

**Outcome:** This initiative has certainly invigorated the CVM graduate students to conceptualize research projects and write proposals. To this end we have had an increase in the number of students submitting extramural research proposals either as the PI or in conjunction with their mentor. As of June 2011, the 19 students who received the CVM Graduate Student Trainee Grants have submitted 9 manuscripts, published 1 paper, submitted 5 proposals as the PI, and submitted 9 proposals in conjunction with their mentors.

### 8.2.2 Enhancing Recruitment and Revamping the CVM Website for Prospective Students

Following discussions the Deans and Department Heads agreed in principle to establish a single college-wide recruitment program for graduate students. The primary goal of this college-wide program (as opposed to individual or departmental recruitment) was to revamp and strengthen the CVM graduate program and establish a system whereby

- the visibility of the program could be substantially increased (with clear emphasis on various disciplines) and
- the quality and the number of applicants in various disciplines (in which CVM has expertise) could be considerably improved

To initiate this process, the ADRG formed a Graduate Recruiting Committee to provide new ideas and fresh prospective of how the CVM could better recruit graduate students to our program with our website. This committee was comprised of Dr. Ashley Seabury (program coordinator for research and graduate studies), Tim St. Martin (web developer), and 7 faculty members from 4 of the 5 departments (Drs. Golding, Ko, Nabity, Saunders, Suchodolski, Welsh, Zhou). About half of the committee was comprised of “young faculty members”. This was done intentionally as they have relatively recently navigated the process of looking for graduate schools and going through the admission and/or recruiting process. The committee worked diligently, having weekly meetings for 6 weeks to update and improve the content as well as redesign the aesthetics of the websites.

The committee focused on streamlining information and making it easily accessible through direct navigation links off of the main graduate program webpage. A left hand navigation bar was developed with information that the committee felt would be most important to prospective graduate students. Concurrently, the research page was also revamped using the same layout, since the committee felt
prospective students would also be reviewing the CVM research page when looking at prospective
graduate programs. In developing these new navigation categories all contents were also updated.

An advantage and challenge to our Biomedical Sciences graduate program is the diversity of research
disciplines that the CVM faculty members are engaged in. To this end it was decided to combine the
list of disciplines that had expanded to over 30 very specific research topics to 10 broad-reaching
disciplines. The latter were then connected to a page that gave a brief description of each discipline
and a listing of all faculty members engaged in that area of research. As a next step, the TAMU
Admissions Office was contacted to add a required question to the “Apply Texas application” that asks
the student what discipline they are interested in studying and provides them with a drop-down menu of
the 10 disciplines. This greatly facilitates directing their applications to the appropriate faculty
members. Ultimately, the website went “live” on November 15, 2011 after it was unveiled and approved
by the Deans and Department Heads.

8.2.3 Creation of a CVM Merit Fellowship for Graduate Students
Early 2011, the ADRG, Dr. Chowdhary, prepared and submitted a proposal to the OGS in response to
the RFP for University Strategic Reallocation Funds for Graduate Education. One of the objectives of
the proposal was to obtain funding to improve stipend packages for graduate students in order to attract
and recruit highly qualified and motivated students. While the proposal in its entirety is available in
Appendix 5, the essence taken from parts of the proposal is outlined below.

Guiding principle: Strategically increase funding packages for graduate students to encourage
excellence and diversity in the graduate student body

The graduate program at the CVM is unique because in addition to offering MS/PhD programs in
various Biomedical Science disciplines, it offers PhD training to veterinarians in the field of veterinary
medicine. Our primary objective through this request for graduate funding is to ensure that the CVM is
able to recruit and graduate a diverse, exceptionally talented, and highly competitive graduate student
body to

• strengthen the higher education mission of the college,
• significantly improve the quality of our graduate programs and thus create a highly qualified
  work force bearing the CVM/TAMU name,
• purposefully institute diversity in the graduate student body including increased enrollment of
  underrepresented minorities, and
• serve the current critical needs of the veterinary medical profession.

It is evident that the reputation of any graduate program and the pool of applicants it attracts are directly
dependent on the quality and national/international reputation of the research conducted at that
institution. However, we also recognize that the stipend/benefit-package offered to the incoming
students plays a significant role in their decision making particularly when several closely competitive
choices are available. Our request enhances support for the current graduate program at the CVM.
While the program does attract some outstanding students, there is evident variation in the
qualifications and experience of the applicant pool. This directly impacts graduation rate and also
influences the quality of research conducted by the students in the short-term and long-term during
their graduate education. Recruiting the best possible pool of students substantially enhances the
prospect of quality research, thus contributing to the overall excellence of the program. Despite our
nationally recognized research programs, one of the key reasons we are unable to effectively recruit
some of the best students is the low stipends we traditionally offer compared to our peer institutions.
We will take the steps outlined below to attract meritorious students to our graduate program by
providing competitive stipends to a select group of the incoming students who will be designated CVM
Merit Scholars.
**Metrics of success:**

a) CVM Merit Scholars will be the show-case of graduate education at the CVM with guaranteed graduation within 4 – 4 ½ years;

b) A required peer-reviewed international journal publication based dissertation by Merit Scholars, and a public/open defense will raise the bar of PhD education at the CVM

c) 100% placement of the CVM Merit scholars in internationally reputed academic institutions, industry or public/private sector and a 50% increase in better placements for other PhD scholars

d) Submission of at least 3 extramural research proposals by the Merit Scholars and at least 1 proposal submission by the other graduate scholars; the number of proposals submitted by the latter group will increase to at least 2 by year 3.

e) Marked increase in the number of publications by graduate students (prior to defense)

f) Overall decrease in graduation time with 80% students graduating within 5 years.

g) Substantially increased visibility of the graduate program through more awards, greater participation by students in reputed international conferences

**Outcome:**

- Funding received: $336,000 for 4 new fellowships each year for 3 years @ $36,000/year for each Fellow for four years.
- Because the award was made available to CVM towards the end of April 2011, we had limited time to announce and receive applications from national students who were more or less committed to different programs by this time. Nevertheless, after reviewing received applications, following two students were awarded the fellowship:
  - Dr. Randi Gold, DVM
  - Dana Pollard, MS

**8.2.4 Graduate Learning Enhancement Travel Grants**

In fall 2010, a new initiative was launched by the ADRG office to support a substantial part of travel by graduate students (PhD and Masters) within the US and Canada (see Appendix XX for details):

- attending national courses/training that are of the caliber provided by e.g., Cold Spring Harbor Course series,
- attending conferences that are equivalent to e.g., Gordon Conferences (i.e., targeting frontier research and its application in specific areas) to enhance in depth learning in specific areas/topics by interacting with lead international experts in the field
- visiting national laboratories of international eminence that are conducting leading/cutting-edge research (e.g., Lawrence Livermore National Laboratories, NIH Institutes, etc.) and obtain training in specific techniques that can substantially benefit the student and mentor’s laboratory (novel technology/technique transfer)

The initiative supports other similar possibilities but does NOT support travel for "routine" conferences for poster/oral presentations because there are dedicated funds solely for such travels available through Graduate Student Association – GSA and provided by the ADRG office.

The primary GOAL of this funding is to:

- encourage graduate students to attend high-end courses, training and conferences that have the potential to substantially enhance their learning/knowledge,
- gain experience in laboratories outside the mentor’s lab to
  - learn novel techniques that will considerably augment their thesis research
  - add a new dimension to the mentor's laboratory (by bringing in experience in a new technology)
  - gain perspective and learning/research experience in a laboratory outside mentor's lab.
The graduate students are constantly reminded about the availability of these funds through announcements at CVM GSA meetings and through e-mails. The information is also conveyed to the faculty members via e-mails and presentations. To date 3 students have utilized this opportunity.

8.2.5 **CVM Initiatives to Promote Excellence Among All Categories of Graduate Students**

Proposal submitted by ADRG to the OGS in August 2011 as “incentives for excellence” as a reward mechanism to recognize achievements of graduate students (see Appendix 5 to view the proposal):

The initiatives listed below are designed to make obtaining a PhD degree a truly exciting learning experience where

- there are ample opportunities to learn and excel,
- engagement in high-end training, discovery, proposal writing and submission is urged,
- publishing in lead international journals, presenting research at national and international platforms, etc. is strongly encouraged and expected
- excellence demonstrated by students is rewarded and recognized

Our *philosophical bottom-line* is to raise the bar, create opportunities, inculcate excellence and reward/recognize/celebrate success. The CVM therefore proposes the following reward mechanisms:

a) A merit-based $5,000 bonus to incoming PhD students with lab experience, publication(s) in peer reviewed international journals, funded undergraduate research proposal(s), submitted proposal(s) to funding agencies for future research as a potential graduate student (e.g., during their MS tenure)

b) A $1,000 bonus for submitting at least two research proposals to extramural funding agencies, one of which should preferably be to a federal agency (e.g., requesting funding for generating preliminary data or for obtaining doctoral stipend/scholarship)

c) A $5,000 bonus for receiving an extramural doctoral grant; this amount will be given each year to the student for two years or till the students graduates

d) A $2,000 one-time bonus stipend for obtaining a $10,000 -$20,000 extramural grant for a research project (excluding the doctoral grant)

e) A $1,000 one-time bonus stipend for receiving an award (among the top 3 placement positions) for poster/presentation at a recognized national or international conference

f) A $1,000 one-time bonus stipend for being the *lead author* of an article published in an international peer-reviewed journal

*Outcome*: The proposal will be funded for $16,000 during FY12 using strategic support funds.

8.2.6 **International Travel Awards**

In 2011, funding became available from two sources for supporting international travel for graduate students. It has been agreed that these funds will primarily be used for graduate enhancement and improving the learning experience. While it was argued that conferences and workshops could be considered as enhancement/learning activities, the limited funds available at this point will be provided mainly for pursuing research or educational opportunities not available to them in the US.
8.2.7  **Awards Started in 2011-2012 for Graduate Students and Their Mentors**

1. **Outstanding Graduate Student Award**
   - Presented to a graduate student who has excelled in research, academics, and proposal submissions during their graduate studies in the CVM
     - One to a PhD student
     - One to a Masters student
     - One to a Non-Thesis Masters student (new)

2. **Outstanding Graduate Student Mentor (new)**
   - Presented to a faculty mentor who has served as an outstanding mentor to graduate students in the CVM.
   - GIC committee makes a nomination from each department.—Jane Welsh is the GIC chair and is the contact person. – Letter of nomination needed.

8.2.8  **2010-2011 Graduate Student Awards & Grants**

- The AFS 2011 Graduate Merit Fellowship was awarded to Laura Bryan (VTPB).
- The AFS 2011 Graduate Diversity Fellowship was awarded to Jessica Rodriguez (VTPB) and Chelsie Burroughs (VTPP).
- The AFS 2010Distinguished Graduate Student Awards for Excellence in Research were awarded as follows:
  - Doctoral: Pamela Ferro (VTPB) & Panagiotis Xenoulis (VSCS)
- The AFS 2011Distinguished Graduate Student Awards for Excellence in Research were awarded as follows:
  - Masters: Danilo Landrock (VTPB) and Rajeshwari Yog (VIBS)
  - Doctoral: Pamela Ferro (VTPB) and Panagiotis Xenoulis (VSCS)
- Dr. Randi Gold and Dana Pollard are the first recipients of the CVM Merit Scholars Fellowship (2011). This fellowship supports an incoming graduate student pursuing a PhD for 4 years.
- The 2010 Phil Gramm Doctoral Fellowship was awarded to Shannon Wilson.
- The 2011 Phil Gramm Doctoral Fellowship was awarded to Rachel Wright (VTPB).
- The 2010 Bush Foundation Grant was awarded to Angela Bordin (VLCS).
- The 2011 Bush Foundation Grant was awarded to Sara Mashoof (VTPB).
- Victor Mason received the Best Poster Award at the 2011 Biology of Genomes Conference.
- Dr. Franklin Lopez is the first recipient of the Patterson Fellowship, which supports a DVM pursuing a PhD or residency for 3 years (2011). @ $36,000/year
- Dr. Jessica Hokamp received the 2011 Pfizer Animal Health-Morris Animal Foundation Veterinary Fellowship for Advanced Study ($60,000/year for 4 years): $240,000

A total of $288,526 were obtained from University Fellowships during 2011-2012

<table>
<thead>
<tr>
<th>Recipient</th>
<th>Award</th>
<th>Award Amount</th>
<th>Semester Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamie Brannan</td>
<td>TAMU Dissertation Fellowship</td>
<td>$9,000</td>
<td>Fall 2011</td>
</tr>
<tr>
<td>Laura Bryan</td>
<td>TAMU Merit Fellowship</td>
<td>$63,112</td>
<td>Fall 2011</td>
</tr>
<tr>
<td>Chelsie Burroughs</td>
<td>TAMU Diversity Fellowship</td>
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<td>Fall 2011</td>
</tr>
<tr>
<td>Brittany Jones</td>
<td>TAMU Dissertation Fellowship</td>
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<td>Spring 2012</td>
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<tr>
<td>Jessica Rodriguez</td>
<td>TAMU Diversity Fellowship</td>
<td>$103,707</td>
<td>Fall 2011</td>
</tr>
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</table>
A total of $281,000 were obtained extramurally by BIMS graduate students (2011-2012)

<table>
<thead>
<tr>
<th>Name</th>
<th>Dept</th>
<th>Title</th>
<th>Agency</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felipe Avila</td>
<td>VIBS</td>
<td>Candidate Genes for Deafness Associated with depigmentation in Alpacas</td>
<td>Morris Animal Foundation Student Award</td>
<td>$4,000</td>
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<tr>
<td>Brian Davis</td>
<td>VIBS</td>
<td>Genomic of Haldane’s Rule for Hybrid Sterility in Felidae</td>
<td>NIH Contraception &amp; Infertility Loan Repayment Award</td>
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<td>Erika Downey</td>
<td>VIBS</td>
<td>Agricultural Biosecurity Career Development Program Fellowship</td>
<td>FAZD Center Graduate Fellowship (USDA-NIFA)</td>
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<td>Sharmila Ghosh</td>
<td>VIBS</td>
<td>Comparative Analysis of Genomic CNVs Among Horses Susceptible and Resistant to RAO</td>
<td>Morris Animal Foundation Student Award</td>
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<tr>
<td>Tam Nguyen</td>
<td>VTPP</td>
<td>Biomechanical aspects of functional adaptations in lymphatic vessels</td>
<td>American Heart Association</td>
<td>$50,000</td>
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<tr>
<td>Kelly Scribner</td>
<td>VIBS</td>
<td>Regulation of mammary gland and breast tumor differentiation by singleminded-2’s</td>
<td>DOD-BCP</td>
<td>$115,000</td>
</tr>
</tbody>
</table>

8.3 Future Goals/Aspirations and Related Metrics

The goal of the CVM is to have a graduate program that excels in quality and produces students that stand out in their knowledge and expertise, are independent thinkers, have a keen desire to be innovative, collaborative and contributory, and are sought after by the state, national and international community as the next generation educators and leaders. The ideas outlined below are propositions. They need to be carefully considered by the faculty and graduate students, evaluated by the university administration for compliance with the TAMU statutes and guidelines for graduate education, ratified by the Deans & Department Heads and finally approved by the CVM Executive Committee. We are seeking external reviewer’s recommendations on whether or not the proposed activities will help us achieve our goals of becoming a premier graduate program. If yes, we will greatly appreciate guidance from reviewers on which of the proposed activities are worthy of consideration and how best they can be integrated to achieve our goals.

8.3.1 Strategic Growth

The BIMS graduate program at the CVM aspires to grow modestly with increased emphasis on training high quality graduate students and increasing on the numbers of veterinarians seeking graduate degrees. In essence, we strongly believe that growth must be tied to quality and not just to quantity or number. To achieve this goal we have outlined the following targets that are then tied to specific metrics of success:

Measurable Targets:

- Increase PhD enrollment by 15% {step-wise over a 5 year period}
- Increase MS enrollment by 20% {step-wise over a 5 year period}
- Develop a dedicated funding mechanism for a veterinarian PhD program that is integral to higher education at the CVM and could be offered on a regular basis to professional graduates US wide. We envision adding 4 veterinarian doctoral graduate student positions during the next 2 years and would like to have 6-8 positions routinely offered every year by 2015. It is critical for the CVM to be recognized as a professional college dedicated to higher education and training of veterinarians.
Following discussions, and after developing consensus, efforts can be directed towards linking specific residency programs to research-based MS degrees with at least one publication in a peer-reviewed international journal. While we would like to incorporate research as a part of the CVM/TAMU education and training philosophy, as is the case with leading international peer institutions, this decision will be made by individual program administrators.

While growth must broaden the scope of the existing programs of strength within CVM (i.e., the Signature Programs), it must target new/emerging research programs so that expansion represents investment into, and strengthening of, new research areas.

The CVM must adopt a college-based recruitment model as opposed to the current dispersed model, particularly to create an identity that our graduate program is one of the central pillars of our education and training mission.

Metrics of Success:
- CVM/TAMU recognized for higher education and research in biomedical as well as clinical sciences.
- Increased participation of veterinarians in research as evident from participation of veterinarians and veterinary students in research.
- New training/center grants submitted/received as a result of increased enrollment.
- More current and emerging research areas of emphasis will be represented and incorporated in the CVM graduate education and training profile. Consequently, the expertise of the college and the university will be more visible through increased proposal submission, grants and publications.

8.3.2 Attract the Very Best Students
We strongly believe that it is the quality of the program and eminence in research that attracts the best students (even with lower stipends). However, we are also acutely aware that competitive stipends are essential to attract the best students. In order to bridge this situation, we have outlined the following targets that are tied to specific metrics of success:

Measurable Targets:
- GRE score 1200 and above
- Preference given to students with hands-on research experience in labs
- Preference given to students with published research as an undergraduate
- Preference given to students who have presented at meetings and conferences
- Preference given to students who are able to identify an area of research and PI at the time of application with a clear justification of their interest and choice

Metrics of Success:
- Evident improvement in the quality of graduate students
- Improved quality and quantity of productivity (articles, top-notch journals, presentations)
- Placement of such students – credit to CVM
- Improved attitude and approach to research
- Increase in training and center grants

8.3.3 Greater Focus on Underrepresented Populations
TAMU and the CVM are committed to promoting higher education among minorities and underrepresented populations, increasing diversity, and encouraging students who are the first generation in the family to undertake graduate education. These aspects are also integral to Vision 2020 of the university. We will therefore purposefully target Hispanic, African Americans, and other underrepresented groups. Emphasis will also be given to deserving students, first-time graduate education in family and those in financial need provided they have good academic standing.
Strategies:
- Recruit from Texas A&M System Schools (A&M Kingsville, A&M Corpus Christie, etc.)
- Adopting a “Transitional” approach during undergraduate years rather than a “pathway to doctorate” approach at the end of the senior year has the potential to increase the graduate population of underrepresented minorities to 15%
- Recruit from the undergraduate BIMS and Honors programs within TAMU

Metrics of Success:
- Number of students from underrepresented communities be increased to ~15%
- Placement after completion in academia, industry and other places
- Underrepresented students attending conferences, making presentations at meetings and publishing peer-reviewed research articles
- Number graduating compared to number admitted (increase this proportion and maintain it at ~80% and gradually aim for 100%)

8.3.4 Elevate Graduate Program Quality
An institution is recognized by the quality of the graduates it produces. High quality students give a brand-name to an institution and are direct reflection of its research excellence. It takes vision, persistence and selfless dedication on the part of mentors and administrators to create a path that leads to excellence. We will employ these approaches in a deliberate manner by identifying the following targets which will raise the bar of graduate education at the CVM and follow the progress through outlined metrics of success:

Activities:
- Provide the best research environment and highest educational training; expect the students to engage in proposal development and submission to various agencies
- Require presentation by students at national and international conferences during their education
- Expect PhD students to publish extensively – proposed: have at least 2-3 original articles with first authorship in peer reviewed international journals as a requirement to graduate.
- Encourage them to visit and work in labs outside the university to provide them with exposure to different working environments; create funds for such opportunities.
- Possibility of including an external examiner (in addition to the student’s graduate advisory committee), and instituting an open exam format where anyone can sit and watch the exam, witness the decision, and may ask questions, are aspects that need to be discussed first with the faculty members and graduate students and then with the OGS as a potential means to bring transparency in the exam and improve the quality of the dissertation and thus graduate education.

Metrics of Success:
- MS students and PhD students will complete their degree with published data and an excellent CV
- More PhD students will have greater success in getting prestigious postdoc positions; expect a 30-50% increase in their placements
- Increased number of publications in high impact journals (~20% increase)
- Increased visibility of the CVM/TAMU graduate program
- High quality center/training grants submitted by PIs
8.4 Summary Statement

The BIMS graduate program was created over 6 years ago to function as an umbrella degree-granting body for various disciplines within the CVM. While creation of the program led to the merger of graduate degrees offered by different departments and programs into a degree that matched the CVM name, and was inclusive of its growing diversity in expertise, terminal degrees with a unique identity, such as the MVPH, were unchanged. Hence, though the BIMS graduate program grants a substantial portion of MS and PhD degrees to students within the CVM, there are other programs within the CVM that have degree granting authority. As is evident from this summary, the BIMS graduate program continues to practice a decentralized management system that reflects the model that existed when it began in 2006. This organizational approach has indeed allowed individual departments to maintain considerable flexibility in shaping the graduate programs in various research disciplines within their units. Gradually yet consistently, new dimensions have been added to the program and attempts are being made to introduce uniformity while preserving the positive aspects of diversity.

The CVM is extremely fortunate to have excellent, internationally recognized faculty in several research areas including the Signature Programs. Facilities and resources within the college and the university have consistently strengthened during the past 6 years making the CVM an exciting place for graduate students to conduct research, develop skills and establish a strong foundation for a promising career. The graduate students and their mentors have together made noteworthy progress that is evident through awards and achievements at various levels – nationally and internationally. However, no progress is absolute and there is always a possibility to add a new dimension/level to success and achievements.

This self-study document summarizes the functioning of the program, highlights the achievements, and provides insight into the level of progress hitherto made in advancing the program. We have also tried to assess its current strengths and future needs through numerous indicators. We believe this document provides us an opportunity to pause, reflect and evaluate the current standing of the program and formulate the future course it must adopt for gaining and sustaining excellence. We consider review of our graduate program by eminent external reviewers from peer institutions as a unique juncture that will help us steer in the direction we envision. Our goal is to excel. We are a strong proponent of critical assessment, and highly value any constructive criticism and suggestions that will allow us to achieve our goal.
APPENDIX 1

The Office of Graduate Studies
Graduate Program Information
The Degree of Master of Science

The Master of Science (MS) curriculum is designed to develop new understanding through research and creativity. Students have the option to pursue a thesis or non-thesis Master of Science degree.

Residence

In partial fulfillment of the residence requirement for the degree of Master of Science, the student must complete 9 resident credit hours during one regular semester or one 10-week summer semester. Upon recommendation of the student’s advisory committee, department head or Chair of the Interdisciplinary Program, if appropriate, and with approval of the Office of Graduate Studies, a student may be granted exemption from this requirement. Such a petition, however, must be approved prior to the student’s registration for the final 9 credit hours of required coursework.

Students who are employed full-time while completing their degree may fulfill total residence requirements by completion of less-than-full time course loads each semester. In order to be considered for this, the student is required to submit a Petition for Waivers and Exceptions along with verification of his/her employment to the Office of Graduate Studies.

Student’s Advisory Committee

After receiving admission to graduate studies and enrolling for coursework, the student will consult with the head of his or her major or administrative department (or intercollegiate faculty, if applicable) concerning appointment of the chair of his or her advisory committee. With the exception of the Mays Business School non-thesis option and the Master of Science for a student with a major in Educational Human Resource Development, HRD option, the student’s advisory committee for the master’s degree will consist of no fewer than three members of the graduate faculty representative of the student’s fields of study and research. The chair or one of the co-chairs of the advisory committee must be from the student’s major department (or intercollegiate faculty, if applicable), and at least one or more of the members must have an appointment to a department other than the student’s major department. The outside member for students in an intercollegiate program must have an appointment to a department different from the chair of the student’s committee.

The chair, in consultation with the student, will select the remainder of the advisory committee. The student will interview each prospective committee member to determine whether he or she is willing to serve. Only graduate faculty members located on the campuses at College Station, Galveston, Texas A&M University-Temple Campus or Institute of Biosciences and Technology-Houston, may serve as chair of a student’s advisory committee. Other graduate faculty members, including the Texas A&M University System graduate faculty, may serve as co-chair with an individual located at College Station, Houston, Temple or Galveston. The chair of the committee, who usually has immediate supervision of the student’s research and thesis, has the responsibility for calling required meetings of the committee and for calling meetings at any other time considered desirable.

If the chair of a student’s advisory committee voluntarily leaves the University and the student wants the chair to continue to serve as the committee chair, the student is responsible for adding an additional member of the current University Graduate Faculty, from the student’s academic program and located on the College Station campus, to serve as the co-chair of the committee.

If the chair of the student’s advisory committee is unavailable for an extended time in any academic period during which the student is involved in activities relating to an internship, thesis or professional paper, and is registered for 684, 691, 692 or 693 courses, the student
may request, in writing, that the department head appoint an alternate advisory committee chair
during the interim period.

The duties of the committee include responsibility for the proposed degree plan, the
research proposal, the thesis and the final examination. In addition, the committee as a group
and as individual members are responsible for counseling the student on academic matters,
and, in the case of academic deficiency, initiating recommendations to the Office of Graduate
Studies.

The committee members’ approval on the degree plan indicate their willingness to
accept the responsibility for guiding and directing the entire academic program of the student
and for initiating all academic actions concerning the student. Although individual committee
members may be replaced by petition for valid reasons, a committee cannot resign en masse.

Degree Plan

The student’s advisory committee, in consultation with the student, will develop the
proposed degree plan. The degree plan must be completed and filed with the Office of
Graduate Studies prior to the deadline imposed by the student’s college or
interdisciplinary degree program, if applicable, and no later than 90 days prior to the date
of the final oral examination or thesis defense.

A student should submit the degree plan using the online Automated Degree Plan
Submission System located on the website www.ogsdpss.tamu.edu.

A student submitting a proposed degree plan for a Master of Science degree should
designate on the official degree plan form the program option desired by checking “thesis
option” or “non-thesis option.”

Additional coursework may be added to the approved degree plan by petition if it is
deemed necessary by the advisory committee to correct deficiencies in the student’s academic
preparation. No further changes can be made to the degree plan once the student’s Request for
Final Examination or Request for Final Examination Exemption is approved.

Credit Requirement

A minimum of 32 semester credit hours of approved courses and research is required for
the thesis option Master of Science degree with the exception of the Master of Science in
Visualization, which requires 48 hours. A minimum of 36 semester credit hours of approved
coursework is required for the Non-Thesis Option.

Ordinarily the student will devote the major portion of his or her time to work in one or
two closely related fields. Other work will be in supporting fields of interest.

Transfer of Credit

A student who has earned 12 hours of graduate credit in residence at Texas A&M
University may be authorized to transfer courses in excess of the limits prescribed above upon
the advice of the advisory committee and with the approval of the Office of Graduate Studies.
Courses taken in residence at an accredited U.S. institution or approved international institution
with a final grade of B or greater might be considered for transfer credit if, at the time the
courses were completed, the student was in degree-seeking status at Texas A&M University or
at the institution at which the courses were taken, and if the courses would be accepted for
credit toward a similar degree for a student in degree-seeking status at the host institution.
Otherwise, the limitations stated in the preceding section apply. Coursework in which no
formal grades are given or in which grades other than letter grades (A or B) are given (for
example, CR, P, S, U, H, etc.) is not accepted for transfer credit. Courses appearing on the
degree plan with grades of D, F or U may not be absolved by transfer work. Credit for thesis
research or the equivalent is not transferable. Credit for coursework submitted for transfer from
any college or university must be shown in semester credit hours or equated to semester credit
hours. An official transcript from the university at which the transfer coursework was taken must be sent directly to the Office of Admissions and Records.

Grades for courses completed at other institutions are not included in computing the GPR, with the exception of courses taken at the Texas A&M Health Science Center.

Limitations on the Use of Transfer, Extension and Certain Other Courses

Some departments may have more restrictive requirements for transfer work. If otherwise acceptable, certain courses may be used toward meeting credit-hour requirements for the master’s degree under the following limitations.

1. The maximum number of credit hours which may be considered for transfer credit is the greater of 12 hours or one-third (1/3) of the total hours of a degree plan. The following restrictions apply:
   - Graduate and/or upper-level undergraduate courses taken in residence at an accredited U.S. institution, or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University, or the student was in degree-seeking status at the institution at which the courses were taken; and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution.
   - Courses previously used for another degree are not acceptable for degree plan credit.

2. The maximum number of credit hours taken in post-baccalaureate non-degree (G6) classification at Texas A&M University which may be considered for application to the degree plan is 12.

3. Not more than 12 hours may be used in any combination of the following categories:
   - Not more than 8 hours in the combination of 691 (research) or 684 (Professional Internship) may be used.
   - Not more than 8 hours of 685 (Directed Studies) may be used.
   - Not more than 3 hours of 690 (Theory of Research) may be used.
   - Not more than 3 hours of 695 (Frontiers in Research) may be used.

4. A maximum of 2 hours of Seminar (681).

5. A maximum of 9 hours of advanced undergraduate courses (300- or 400-level).

6. No credit may be obtained by correspondence study.

7. For graduate courses of three weeks’ duration or less, taken at other institutions, up to 1 hour of credit may be obtained for each five-day week of coursework. Each week of coursework must include at least 15 contact hours.

8. Continuing education courses may not be used for graduate credit.

9. Extension courses are not acceptable for credit.

Exceptions will be permitted only in unusual cases and when petitioned by the student’s advisory committee and approved by the Office of Graduate Studies.

Continuous Registration

A student in the thesis option of the Master of Science program who has completed all coursework on his/her degree plan other than 691 (Research) is required to be in continuous registration until all requirements for the degree have been completed.

A student in the non-thesis option of the Master of Science program is required to be in continuous registration until all coursework on his/her degree plan is completed, but would not be required to register after that.

Foreign Languages

No specific language requirement exists for the Master of Science degree.
Thesis Proposal
For the thesis option Master of Science degree, the student must prepare a thesis proposal for approval by the advisory committee and the head of the major department or chair of the intercollegiate faculty, if applicable. This proposal must be submitted to the Office of Graduate Studies at least 15 working days prior to the submission of the request for the final examination.

Compliance issues must be addressed if a graduate student is performing research involving human subjects, animals, infectious biohazards and recombinant DNA. A student involved in these types of research must check with the Office of Research Compliance, Office of the Vice President for Research at (979) 845-8585 to ensure that he/she has met all compliance responsibilities. Additional information can also be obtained on the website www.researchcompliance.tamu.edu.

Thesis Defense/Final Examination
The candidate must pass a final examination by dates announced each semester or summer term in the Office of Graduate Studies Calendar. The Office of Graduate Studies must be notified in writing of any cancellation. To be eligible to take the final examination, a student's GPR must be at least 3.000 for courses on the degree plan and for all courses completed at Texas A&M which are eligible to be applied to a graduate degree, and there must be no unabsolved grades of D, F or U for any course listed on the degree plan. To absolve a deficient grade, the student must have repeated the course at Texas A&M University and have achieved a grade of C or better.

All coursework on the degree plan must have been completed with the exception of those hours for which the student is registered. Additionally, all English Language Proficiency requirements must be satisfied prior to scheduling the examination. If applicable, an approved thesis proposal must be on file in the Office of Graduate Studies according to published deadlines.

A request for permission to hold and announce the final examination must be submitted to the Office of Graduate Studies a minimum of 10 working days in advance of the scheduled date for the examination. Examinations which are not completed and reported as satisfactory to the Office of Graduate Studies within 10 working days of the scheduled examination date will be recorded as failures. A student may be given only one opportunity to repeat the final examination for the master's degree and that must be within a time period that does not extend beyond the end of the next regular semester (summer terms are excluded).

For thesis option students, the final examination covers the thesis and all work taken on the degree plan and at the option of the committee may be written or oral or both. The final examination may not be administered before the thesis is available to all members of the student’s advisory committee in substantially final form, and all members have had adequate time to review the document. The examination is conducted by the student’s advisory committee as finally constituted. A thesis option student must be registered in the University in the semester or summer term in which the final examination is taken. Persons other than members of the graduate faculty may, with mutual consent of the candidate and the major professor, attend final examinations for advanced degrees. Upon completion of the questioning of the candidate, all visitors must excuse themselves from the proceedings. A positive vote by all members of the graduate committee with at most one dissension is required to pass a student on his or her exam. A department, or interdisciplinary degree program, may have a stricter requirement provided there is consistency within all degree programs within a department or interdisciplinary program.

A thesis option candidate may petition to be exempt from his/her final examination provided his/her degree plan GPR is 3.500 or greater and he/she has the approval of the advisory committee, the head of the student’s major department, or intercollegiate chair, if
appropriate, and the Office of Graduate Studies. It is required that the petition for exemption be submitted the same semester the student intends to submit the thesis.

For non-thesis option students, a final comprehensive examination is required. The Master of Science in Educational Human Resource Development, HRD option, and the Master of Science Program in the Mays Business School do not have final examination requirements. Otherwise, exemptions from final examinations are not allowed. The final exam cannot be held prior to the mid point of the semester if questions on the exam are based on courses in which the student is currently enrolled. If a student has completed all required degree plan coursework, the student is not required to be registered for classes in the semester the final examination is administered (unless he/she holds an assistantship).

Exam results must be submitted with original signatures of only the committee members approved by the Office of Graduate Studies. If an approved committee member substitution (1 only) has been made, his/her signature must also be submitted to the Office of Graduate Studies.

**Thesis Option**

An acceptable thesis is required for the Master of Science degree for a student who selects the thesis option program. The finished work must reflect a comprehensive understanding of the pertinent literature and express in clear English, the problem(s) for study, the method, significance and results of the student’s original research. Guidelines for the preparation of the thesis are available in the *Thesis Manual*, which is available online at thesis.tamu.edu.

After successful defense (or exemption) and approval by the student’s advisory committee and the head of the student’s major department (or chair of the intercollegiate faculty, if appropriate), the student must submit his/her thesis to the Thesis Office in electronic format as a single PDF file. The PDF file must be uploaded to the Thesis Office website, thesis.tamu.edu. Additionally, a signed approval form must be brought or mailed to the Thesis Office. The PDF file and the signed approval form are required by the deadline.

Deadline dates for submitting are announced each semester or summer term in the “Office of Graduate Studies Calendar” (see Time Limit statement). These dates also can be accessed via the website ogs.tamu.edu/OGS/currentCalendar.htm.

Before a student can be “cleared” by the Thesis Office, a processing fee must be paid at the Fiscal Department. After commencement, theses are digitally stored and made available through the Texas A&M Libraries.

A thesis that is deemed unacceptable by the Thesis Office because of excessive corrections will be returned to the student’s department head (or chair of the intercollegiate faculty, if applicable). The manuscript must be resubmitted as a new document, and the entire review process must begin again. All original submittal deadlines must be met during the resubmittal process to graduate that semester.

**Non-Thesis Option**

For the non-thesis option, a thesis is not required. A final comprehensive examination is required for all non-thesis Master of Science programs except the Master of Science programs offered by the Mays Business School and the Master of Science with a major in Educational Human Resource Development, HRD option. No exemptions are allowed. The requirements as to level of courses and examinations are the same as for the thesis option Master of Science degree. The final examination cannot be held prior to the mid point of the semester if questions on the examination are based on courses in which the student is currently enrolled.

A student pursuing the non-thesis option is not allowed to enroll in 691 (Research) for any reason and 691 may not be used for credit toward a non-thesis option Master of Science degree. A maximum of 4 credit hours of 684 (Professional Internship), 8 credit hours of 685
(Directed Studies), and up to 3 credit hours of 690 (Theory of Research) or 695 (Frontiers in Research) may be used toward the non-thesis option Master of Science degree. In addition, any combination of 684, 685, 690 and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan. All requirements for the non-thesis option Master of Science degree other than those specified above are the same as for the thesis option degree.

**Time Limit**

All degree requirements must be completed within a period of seven consecutive years for the degree to be granted. A course will be considered valid until seven years after the end of the semester in which it is taken. Graduate credit for coursework which is more than seven calendar years old at the time of the final examination (oral or written) may not be used to satisfy degree requirements.

A student who has chosen the thesis option must have the final corrected version of the thesis cleared by the Thesis Office no later than one year after the final examination, or approval of a petition for exemption from the final exam, or within the seven-year time limit, whichever occurs first. Failure to do so will result in the degree not being awarded.

**Application for Degree**

A graduate degree is conferred at the close of each regular semester and 10-week summer semester. A candidate for an advanced degree who expects to complete his/her work at the end of a given semester must apply for graduation by submitting the electronic application for degree to the Office of the Registrar and by paying the required graduation fee at the Fiscal Department no later than the Friday of the second week of the fall or spring semester or the Friday of the first week of the first summer term. A cancellation made after the application deadline will not receive a refund of the diploma fee. Students who have completed all their degree requirements will not be allowed to cancel their graduation. The electronic application can be accessed via the student's Howdy portal. The Registrar attempts each semester to balance the size of each ceremony. A student should check the website of the Office of the Registrar at graduation.tamu.edu/ceremon.html to determine the date and time of his/her graduation ceremony.
## Master’s Degree Requirements
### Steps to Fulfill Master’s Degree Requirements

**Note:** You must be continuously registered until all degree requirements have been met.

<table>
<thead>
<tr>
<th>Step</th>
<th>What to Do</th>
<th>When</th>
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<tbody>
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<td>Meet with departmental graduate advisor to plan course of study for first semester.</td>
<td>Before first semester registration</td>
<td>Graduate advisor</td>
</tr>
<tr>
<td>2</td>
<td>Establish advisory committee; submit your degree plan online.</td>
<td>Following the deadline imposed by the student’s college and approved no later than 90 working days prior to the request of final oral or thesis defense; see OGS calendar.</td>
<td>Advisory committee, department head and OGS</td>
</tr>
<tr>
<td>3</td>
<td>If thesis is required, submit thesis proposal title page.</td>
<td>Must be submitted no later than 15 working days prior to submitting the request and announcement of final examination</td>
<td>Advisory committee department head and OGS</td>
</tr>
<tr>
<td>4</td>
<td>Apply for a degree online at the Howdy portal; pay graduation fee. <a href="https://howdy.tamu.edu/cp/home/displaylogin">https://howdy.tamu.edu/cp/home/displaylogin</a></td>
<td>During the first week of final semester; pay graduation fee after graduate application is submitted; see OGS calendar</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Check to be sure degree program and advisory committee are up to date, and all ELP requirements (if applicable) and course work is complete.</td>
<td>Well before submitting request to schedule final examination</td>
<td>Advisory committee, graduate advisor, and department head</td>
</tr>
<tr>
<td>6</td>
<td>Complete residence requirement. (Check with your department to determine if there is a residency requirement.)</td>
<td>If applicable, before or during final semester</td>
<td>OGS</td>
</tr>
<tr>
<td>Step</td>
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<tr>
<td>7</td>
<td>Submit request for permission to schedule final examination to OGS.</td>
<td>Must be received by OGS at least 10 working days before exam date (See OGS calendar for deadlines.)</td>
<td>Advisory committee, department head and OGS</td>
</tr>
<tr>
<td>8</td>
<td>If required, upload approved PDF file of the completed thesis and submit signed approval page to the Thesis Office.</td>
<td>See OGS calendar for deadlines.</td>
<td>Advisory committee, department head and OGS</td>
</tr>
<tr>
<td>9</td>
<td>Graduation; arrange for cap and gown. More information</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Degree of Doctor of Philosophy

Work leading to the degree of Doctor of Philosophy (PhD) is designed to give the candidate a thorough and comprehensive knowledge of his or her professional field and training in methods of research. The final basis for granting the degree shall be the candidate’s grasp of the subject matter of a broad field of study and a demonstrated ability to do independent research. In addition, the candidate must have acquired the ability to express thoughts clearly and forcefully in both oral and written languages. The degree is not granted solely for the completion of coursework, residence and technical requirements, although these must be met. For a student who has completed a master’s degree, a DVM or MD at a U.S. institution, a minimum of 64 hours is required on the degree plan for the degree of Doctor of Philosophy. For a student who has completed a baccalaureate degree but not a master’s degree or a U.S. DVM or MD, a minimum of 96 hours is required on the degree plan for the degree of Doctor of Philosophy.

A student who is pursuing the Doctor of Philosophy in philosophy, who does not already hold a graduate degree in a field other than philosophy, must pursue concurrently a master’s degree at Texas A&M University in a supporting field. The supporting master’s degree program must be completed in accordance with the requirements stipulated above for that program. This student’s doctoral degree plans will carry a minimum of 64 hours.

Residence

A student who enters the doctoral degree program with a baccalaureate degree must spend one academic year plus one semester in resident study. A student who holds master’s degree when he/she enters doctoral degree program must spend one academic year in resident study. One academic year may include two adjacent regular semesters or one regular semester and one adjacent 10-week summer semester. The third semester is not required to be adjacent to the one year. Enrollment for each semester must be a minimum of 9 credit hours each to satisfy the residence requirement.

To satisfy the residence requirement, the student must complete a minimum of 9 credit hours per semester or 10-week summer semester for the required period. A student who enters a doctoral degree programs with a baccalaureate degrees may fulfill residence requirements in excess of one academic year (18 credit hours) by registration during summer sessions or by completion of a less-than-full course load (in this context a full course load is considered 9 credit hours per semester).

Students who are employed full-time while completing their degree may fulfill total residence requirements by completion of less-than-full time course loads each semester. In order to be considered for this, the student is required to submit a Petition for Waivers and Exceptions along with verification of his/her employment to the Office of Graduate Studies. An employee should submit verification of his/her employment at the time he/she submits the degree plan.

Time Limit

All requirements for doctoral degrees (except for Mays Business School) must be completed within a period of ten consecutive calendar years for the degree to be granted. For Mays Business School time limit, see the following section. A course will be considered valid until 10 years after the end of the semester in which it is taken. Graduate credit for coursework more than ten calendar years old at the time of the final oral examination may not be used to satisfy degree requirements.

After passing the required preliminary oral and written examinations for a doctoral degree, the student must complete the final examination within four calendar years. Otherwise, the student will be required to repeat the preliminary examination.
A final corrected version of the dissertation or record of study in electronic format as a single PDF file must be cleared by the Thesis Office no later than one year after the final examination or within the 10-year time limit, whichever occurs first. Failure to do so will result in the degree not being awarded.

99-Hour Cap on Doctoral Degrees

In Texas, public colleges and universities are funded by the state according to the number of students enrolled. In accordance with legislation passed by the Texas Legislature, the number of hours for which state universities may receive subvention funding at the doctoral rate for any individual is limited. Texas A&M University and other universities will not receive subvention for hours in excess of the limit.

The law affected Texas A&M for the first time in the fall semester of 1994 with a limit of 130 hours. The most recent action by the Legislature in spring of 1997 reduced that limit to 100 hours. This change in state funding became effective in September 1999. When the Legislature passed the “cap,” however, it considered the potential loss of funding and voted to allow institutions of higher education to charge the equivalent of nonresident tuition to a resident doctoral student who has enrolled in 100 or more semester credit hours of doctoral coursework.

A doctoral student at Texas A&M has seven years to complete his/her degree before being charged out-of-state tuition. A doctoral student who, after seven years of study, has accumulated 100 or more doctoral hours will be charged tuition at a rate equivalent to out-of-state tuition. Please note that the tuition increases will apply to Texas residents as well as students from other states and countries who currently are charged tuition at the resident rate. This includes those doctoral students who hold GAT, GANT, and GAR appointments of 20 or more hours and recipients of competitive fellowships who receive more than $1,000 per semester. Doctoral students who, after seven years of study, have not accumulated 100 hours are eligible to pay in-state tuition if otherwise eligible.

For count purposes, a year is counted as three semesters, normally fall, spring and summer. Using this system, a student is allowed 21 semesters as a G8 student to complete the doctoral degree before being penalized with the higher tuition rate. Any semester in which a G8 student is enrolled for a doctoral level course is counted.

Student’s Advisory Committee

After receiving admission to graduate studies and enrolling, the student will consult with the head of his or her major or administrative department (or chair of the intercollegiate faculty) concerning appointment of the chair of the advisory committee. The student’s advisory committee will consist of no fewer than four members of the graduate faculty representative of the student’s several fields of study and research, where the chair or co-chair must be from the student’s department (or intercollegiate faculty, if applicable), and at least one or more of the members must have an appointment to a department other than the student’s major department. The outside member for a student in an interdisciplinary degree program must be from a department different from the chair of the student’s committee.

The chair, in consultation with the student, will select the remainder of the advisory committee. Only graduate faculty members located on the campuses at College Station, Galveston, Texas A&M University–Temple Campus or Institute of Biosciences and Technology–Houston may serve as chair of a student’s advisory committee. Other Texas A&M University graduate faculty members, including the Texas A&M University System graduate faculty, may serve as co-chair with an individual located at College Station, Houston, Temple or Galveston. If the chair of a student’s advisory committee voluntarily leaves the University and the student wants the chair to continue to serve as the committee chair, the student is responsible for adding an additional member of the current University Graduate Faculty, from the student’s
academic program and located on the College Station campus, to serve as the co-chair of the committee.

The committee members’ signatures on the degree plan indicate their willingness to accept the responsibility for guiding and directing the entire academic program of the student and for initiating all academic actions concerning the student. Although individual committee members may be replaced by petition for valid reasons, a committee cannot resign en masse. The chair of the committee, who usually has immediate supervision of the student’s research and dissertation or record of study, has the responsibility for calling all meetings of the committee. The duties of the committee include responsibility for the proposed degree plan, the research proposal, the preliminary examination, the dissertation or record of study and the final examination. In addition, the committee, as a group and as individual members, is responsible for counseling the student on academic matters, and, in the case of academic deficiency, initiating recommendations to the Office of Graduate Studies.

Degree Plan

The student’s advisory committee will evaluate the student’s previous education and degree objectives. The committee, in consultation with the student, will develop a proposed degree plan and outline a research problem which, when completed, as indicated by the dissertation (or its equivalent for the degree of Doctor of Education or the degree of Doctor of Engineering), will constitute the basic requirements for the degree. The degree plan must be filed with the Office of Graduate Studies prior to the deadline imposed by the student’s college and no later than 90 days prior to the preliminary examination.

This proposed degree plan should be submitted through the online Automated Degree Plan System located on the website ogsdpsss.tamu.edu. A minimum of 64 hours is required on the degree plan for the Doctor of Philosophy for a student who has completed a master’s degree. A student who has completed a DVM or a MD at a U.S. institution is also required to complete a minimum of 64 hours. A student who has completed a baccalaureate degree but not a master’s degree will be required to complete a 96-hour degree plan. Completion of DVM or MD degrees at a foreign institution requires completion of a minimum of 96 hours for the Doctor of Philosophy. A field of study may be primarily in one department or in a combination of departments. A degree plan must carry a reasonable amount of 691 (Research). Additional coursework may be added by petition to the approved degree plan by the student’s advisory committee if it is deemed necessary to correct deficiencies in the student’s academic preparation. No further changes can be made to the degree plan once the student’s Request for Final Examination is approved.

Selected courses offered by The Texas A&M University System Health Science Center—College of Medicine may be used for graduate credit. Approval to enroll in any professional course (900-level) should be obtained from the head of the department (or Chair of the intercollegiate faculty, if applicable) in which the course will be offered before including such a course on a degree plan. Coursework completed at the Health Science Center must be transferred to Texas A&M University by submission of an official transcript to the Office of Admissions and Records.

No credit may be obtained by correspondence study, by extension or for any course of fewer than three weeks duration.

Transfer of Credit

Courses for which transfer credits are sought must have been completed with a grade of B or greater and must be approved by the student’s advisory committee and the Office of Graduate Studies. These courses must not have been used previously for another degree. Except for officially approved cooperative doctoral programs, credit for thesis or dissertation research or the equivalent is not transferable. Credit for “internship” coursework in any form is
not transferable. Courses taken in residence at an accredited U.S. institution or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University or at the institution at which the courses were taken, and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution. Credit for coursework taken by extension is not transferable. Coursework in which no formal grades are given or in which grades other than letter grades (A or B) are given (for example, CR, P, S, U, H, etc.) is not accepted for transfer credit. Credit for coursework submitted for transfer from any college or university must be shown in semester credit hours, or equated to semester credit hours. Grades for courses completed at other institutions, except for the Texas A&M University System Health Science Center, are not included in computing the GPR. An official transcript from the university at which transfer courses are taken must be sent directly to the Office of Admissions.

Languages

A student is required to possess a competent command of English. For English language proficiency requirements, see the Admissions section of this catalog. The doctoral (PhD) foreign language requirement at Texas A&M University is a departmental option, to be administered and monitored by the individual departments of academic instruction.

Preliminary Examination

The student's major department (or chair of the intercollegiate faculty, if applicable) and his or her advisory committee may require qualifying, cumulative or other types of examinations at any time deemed desirable. These examinations are entirely at the discretion of the department and the student's advisory committee.

The preliminary examination is required. The preliminary examination for a doctoral student shall be given no earlier than a date at which the student is within 6 credit hours of completion of the formal coursework on the degree plan (i.e., all coursework on the degree plan except 681, 684, 690, 691 and 692 courses). The student is strongly encouraged to complete the Preliminary Examination no later than the end of the semester following the completion of the formal coursework on the degree plan. The Office of Graduate Studies must receive the results of the preliminary examination at least 14 weeks prior to the final examination date. The examination shall be oral and written unless otherwise recommended by the student's advisory committee and approved by the Office of Graduate Studies. The written part of the examination will cover all fields of study included in the student's degree plan. Each member of the advisory committee is responsible for administering a written examination in his or her particular field, unless he or she chooses to waive participation in this part of the examination. Two or more members of the advisory committee may give a joint written examination. One or more members may require a student to take a departmental or intercollegiate faculty examination to supplement or replace a written examination. Each written examination must be completed and reported as satisfactory to the chair of the advisory committee before the oral portion of the examination may be held. In case any written examination is reported unsatisfactory, the entire advisory committee must agree (1) to proceed with the oral portion of the preliminary examination, or (2) to adopt another course of action regarding the unsatisfactory written examination. Either procedure is subject to the approval of the Office of Graduate Studies.

Prior to scheduling the preliminary examination with the other committee members, the committee chair will review with the student eligibility criteria, using the Preliminary Examination Checklist to ensure the student is ready for the examination. The following list of eligibility requirements applies.

• Student is registered at Texas A&M University for the semester or summer term during which any portion of the preliminary examination may fall. If the entire examination falls between
semesters, then the student must be registered for the term immediately preceding the examination.

- An approved degree plan was on file with the Office of Graduate Studies at least 90 days prior to the first written examination.
- Student’s cumulative GPR is at least 3.000.
- Student’s degree plan GPR is at least 3.000.
- All English language proficiency requirements have been satisfied.
- All committee members have scheduled or waived the written portion and agreed to attend the oral portion of the examination or have found a substitute. Only one substitution is allowed and it cannot be for the committee chair.
- At the end of the semester in which the exam is given, there are no more than 6 hours of coursework remaining on the degree plan (except 681, 684, 690, 691 and 692). The head of the student’s department (or Chair of the Intercollegiate Faculty, if applicable) has the authority to approve a waiver of this criterion.
- The time span from the first written examination to the oral is no more than three weeks. (In cases of department-wide written examinations, this criterion is not applicable.) The head of the student’s department (or chair of the intercollegiate faculty, if applicable) has the authority to approve a waiver of this criterion.

Once all requirements are met, departments or interdisciplinary degree programs may announce the schedule of the written and oral parts of the examination.

Credit for the preliminary examination is not transferable. If a departmental or intercollegiate faculty examination is used as part of the written portion of the preliminary examination, it must be the last examination offered prior to the date scheduled for the preliminary examination. In the schedule of the written portion, all members of the student’s advisory committee are to be included.

Through the preliminary examination, the student’s advisory committee should satisfy itself that the student has demonstrated the following qualifications:

a. a mastery of the subject matter of all fields in the program;

b. an adequate knowledge of the literature in these fields and an ability to carry out bibliographical research.

In case a student is required to take, as a part of the written portion of a preliminary examination, an examination administered by a department or intercollegiate faculty, the department or intercollegiate faculty must:

a. offer the examination at least once every six months. The departmental or interdisciplinary degree program examination should be announced at least 30 days prior to the scheduled examination date.

b. assume the responsibility for marking the examination satisfactory or unsatisfactory, or otherwise graded, and in the case of unsatisfactory, stating specifically the reasons for such a mark.

The chair of the student’s advisory committee is responsible for making all written examinations available to the members of the advisory committee at or before the oral portion of the examination. A positive vote by all members of the graduate committee with at most one dissention is required to pass a student on his or her exam. A department or interdisciplinary degree program can have a stricter requirement provided there is consistency within all degree programs within a department or interdisciplinary program.

The chair of the advisory committee will promptly report the results of the Preliminary Examination to the Office of Graduate Studies, using the Report of Doctoral Preliminary Examination form and the Preliminary Examination checklist. Both forms must have the
appropriate signatures. These forms should be submitted to the Office of Graduate Studies within 10 working days of the scheduled examination.

Exam results must be submitted with original signatures of only the committee members approved by the Office of Graduate Studies. If an approved committee member substitution (1 only) has been made, his/her signature must also be submitted to the Office of Graduate Studies. The original signature of the department head is also required for results for the preliminary examination.

After passing the required preliminary oral and written examinations for the doctoral degree, the student must complete the final examination for the degree within four calendar years. Otherwise, the student will be required to repeat the preliminary examination.

Upon approval of the student’s advisory committee, with no more than one member dissenting, and the approval by the Office of Graduate Studies, a student who has failed the preliminary examination may be given one re-examination, when adequate time has been given to permit the student to address the inadequacies emerging from the first examination (normally six months). The student and the advisory committee should jointly negotiate a mutually acceptable date for this purpose.

A student must be registered at Texas A&M University for a minimum of one semester credit hour in the semester or summer term in which they will take any portion of the Preliminary Examination.
# Doctoral Degree Requirements

## Steps to Fulfill Doctoral Degree Requirements

**Note:** You must be continuously registered until all degree requirements have been met.

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<td>Establish advisory committee; submit your degree plan online.</td>
<td>Following the deadline imposed by the student’s college and approved no later than 90 working days prior to the preliminary exam.</td>
<td>Advisory committee, department head and OGS</td>
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<td>3</td>
<td>Complete course work detailed on degree plan and ELP requirements (if applicable).</td>
<td>Before preliminary exam</td>
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<tr>
<td>4</td>
<td>Submit checklist and the report of the Preliminary Exam.</td>
<td>Must be received by OGS 10 working days after exam date and at least 14 weeks prior to the final defense date</td>
<td>Advisory committee, department head and OGS</td>
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<tr>
<td>5</td>
<td>Submit proposal for dissertation or record of study.</td>
<td>No later than 15 working days prior to submission of the Request and Announcement of Final Examination</td>
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<td>6</td>
<td>Complete residence requirement. (Check with your department to determine if there is a residency requirement.)</td>
<td>Before submitting request to schedule final oral examination</td>
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<td>7</td>
<td>Apply for a degree online at the Howdy portal; pay graduation fee.</td>
<td>During the first week of the final semester; pay graduation fee after graduate application is submitted; see OGS calendar for deadlines</td>
<td>OGS</td>
</tr>
<tr>
<td>8</td>
<td>Submit request for permission to hold and announce final oral</td>
<td>Must be received by OGS at least 10 working days before</td>
<td>Advisory committee,</td>
</tr>
<tr>
<td>Step</td>
<td>What to Do</td>
<td>When</td>
<td>Approved by</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>9</td>
<td><strong>Upload</strong> approved PDF file of the completed dissertation or record of study and submit signed approval page to the Thesis Office.</td>
<td>final exam date; see OGS calendar for deadlines.</td>
<td>department head and OGS</td>
</tr>
<tr>
<td>9</td>
<td>Graduation; arrange for cap and gown.</td>
<td>More information</td>
<td>See OGS calendar for deadlines.</td>
</tr>
</tbody>
</table>
A student who graduates from Texas A&M University with a doctoral degree will:

- **Master degree program requirements**, including
  - theories, concepts, principles, and practice;
  - develop a coherent understanding of the subject matter through synthesis across courses and experiences; and
  - apply subject matter knowledge to solve problems and make decisions.

- Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.

- Communicate effectively.

- Develop clear research plans, conduct valid, data-supported, theoretically consistent, and institutionally appropriate research and effectively disseminate the results of the research in appropriate venues to a range of audiences.

- Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.

- Teach and explain the subject matter in their discipline.

- Choose ethical courses of action in research and practice.
Funding

Financing your Graduate Education at Texas A&M

Educational expenses for nine months will vary according to your personal needs and course of study. Scholarships & Financial Aid estimates a basic budget for new graduate students (including tuition and fees, books, supplies, transportation, room and board, incidental and living expenses) at about $20,000. Total expenses for returning students during an academic year should be slightly less than those for new students. The cost for new nonresidential and international students is about $26,000. For the latest and detailed tuition and fee information, please refer to Student Business Services.

Most A&M graduate and professional school students support themselves through one or more of the following financial assistance avenues:

Funding for International Students

- Scholarships & Financial Aid
- Graduate Assistantships
- Fellowships
- Grants
- Award Programs

Individual graduate students often receive financial support from multiple sources. Many different fellowships and grants are available through the college departments and the Office of Graduate Studies. Application for either assistantships or fellowships is made via the academic departments, and any inquiries should be directed toward the department of interest.

Funding for International Students

Initial Expenses

International students should estimate initial expenses at Texas A&M and ensure that they bring enough in travelers checks to cover these expenses.

Visit the International Student Services website for information on financial resources.

Financial Assistance

International students may qualify for financial assistance such as loans, scholarships, and assistantships.

Visit the International Student Services website for information on financial resources.

Sponsors

Some international students have all or part of their educational expenses paid from a source other than personal and/or family funds or from a Texas A&M assistantship. These students may have made agreements with a sponsor regarding their educational objectives that is the result of an agreement between agencies, governments, organizations (both international and domestic) and/or companies (both public and private).

In most cases, these agreements require special coordination and certification by Texas A&M. Students participating in sponsored programs should contact the Sponsored Student Programs office early in the admissions process.
Financial Resources: [http://international.tamu.edu/iss/financial/financial.asp](http://international.tamu.edu/iss/financial/financial.asp)
- Initial Expenses at Texas A&M University
- Loans
- Paying for Tuition and Fees
- Proof of Financial Resources for I-20/DS-2019
  - Estimated Expenses for I-20/DS-2019 Proof of Financial Resources
  - Student Financial Expenses Worksheet
- Scholarships Available for International Students
- Scholarships and Financial Aid at Texas A&M University

Currently Available Scholarships – 2011 [http://international.tamu.edu/iss/financial/available.asp](http://international.tamu.edu/iss/financial/available.asp)

<table>
<thead>
<tr>
<th>Scholarship Name</th>
<th>Application Deadline</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bill and Rita Stout Academic Excellence Award</td>
<td>February 1</td>
<td>One Time Award For Fall</td>
</tr>
<tr>
<td>Epriight Outstanding International Student Award</td>
<td>February 1</td>
<td>One Time Award For Fall</td>
</tr>
<tr>
<td>Florence Terry Griswold Scholarship</td>
<td>January 31</td>
<td>Fall/Spring of next academic year</td>
</tr>
<tr>
<td>Good Neighbor Scholarship</td>
<td>March 2</td>
<td>Fall/Spring/Summer</td>
</tr>
<tr>
<td>International Education Fee Scholarship</td>
<td>October 10</td>
<td>Winter Break or Spring</td>
</tr>
<tr>
<td></td>
<td>February 1</td>
<td>Summer</td>
</tr>
<tr>
<td></td>
<td>April 1</td>
<td>Fall/Spring of next academic year or Fall Only</td>
</tr>
<tr>
<td>International Education Fee Study Grant</td>
<td>October 10</td>
<td>Fall</td>
</tr>
<tr>
<td></td>
<td>February 1</td>
<td>Spring</td>
</tr>
<tr>
<td></td>
<td>June 1</td>
<td>Summer</td>
</tr>
<tr>
<td>Iranian American Women’s Society for Education Scholarship</td>
<td>February 1</td>
<td>Fall/Spring of next academic year</td>
</tr>
<tr>
<td>Shibata International Memorial Scholarship</td>
<td>February 1</td>
<td>Fall/Spring of next academic year</td>
</tr>
<tr>
<td>Texas/Mexico Scholarship</td>
<td>May 1</td>
<td>Fall</td>
</tr>
<tr>
<td></td>
<td>November 1</td>
<td>Spring</td>
</tr>
<tr>
<td></td>
<td>April 1</td>
<td>Summer</td>
</tr>
<tr>
<td>Tina Watkins Scholarship</td>
<td>February 1</td>
<td>Fall/Spring of next academic year</td>
</tr>
</tbody>
</table>

More scholarship opportunities are listed in the guide *Funding for United States Study* by Institute of International Education. The guide is available for check-out at ISS front counter or can be accessed online at [http://www.fundingUSstudy.org/](http://www.fundingUSstudy.org/)
Non-Resident Tuition Waiver Request Form

Graduate Assistant Tuition Waiver Request: This form is for students working in a non-academic department. This form must be received by the Office of Graduate Studies prior to the 12th class day for the Spring/Fall semesters or 4th class day for each summer term. Tuition Waiver must be entered in order for the tuition payment to post. Tuition Waiver will not be entered until the student is registered for a minimum of 9 hours for Spring/Fall semesters or a minimum of 3 hours for each summer term.

Before printing for signatures, please type in Adobe Acrobat, if possible—or print legibly.

A. STUDENT REQUESTING EXEMPTION: * You must be enrolled for a minimum of 9 semester hours during the Fall and Spring semesters and for summer sessions see the PDF chart online (http://ogs.tamu.edu/forms/documents/GA-Tuition-Table-Summer.pdf).

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Middle Initial</th>
<th>UIN</th>
</tr>
</thead>
</table>

Number of hours student currently registered: ________ Request must be submitted each semester.

Request for Semester:
☐ FALL C  ☐ SPRING A  ☐ 1ST SUMMER SEMESTER B  ☐ 2ND SUMMER SEMESTER B  ☐ 10-WEEK B

I certify that I am, and will remain, enrolled for the minimum hours required to be eligible for an assistantship.

Graduate Assistant Signature ___________________________ Date ___________ Telephone # ___________ Email Address ___________________________

B. EMPLOYING DEPARTMENT NAME: ___________________________

GRADUATE ASSISTANT’S JOB TITLE
☐ GANT  ☐ Gat  ☐ GAR (designated/auxiliary funds)  ☐ GAL  ☐ RHA  ☐ GAE

ASSISTANTSHIP HIRE DATE: ___________ FTE: ___________ % Job Title Code ___________

ASSISTANTSHIP TERMINATION DATE: ___________ Supervisor’s Telephone Number: ___________

GRADUATE ASSISTANT’S JOB DUTIES (Summarize or attach duties on Departmental Letterhead. Must submit ONE copy of job duties for Waiver Form and ONE copy for Payment Form. Total of TWO COPIES.)

Describe how the duties described relate to the student’s degree program:

I certify that the above mentioned student is employed in a qualifying position* for the current semester, and is assigned the duties stated in this section.

Print Name of Authorized Signature ___________________________ Signature ___________________________ Date ___________

C. ACADEMIC DEPARTMENT NAME: ___________________________

Four Letter Department Code: ___________________________

I certify that the duties (identified in Section B) support the above named Graduate Assistant’s degree program.

Print Name of Authorized Signature ___________________________ Signature ___________________________ Date ___________

Paper copies of the payroll action document verifying employment in an eligible title code are required to be submitted with BOTH Summer tuition payment and tuition waiver requests effective immediately (6/16/08). If available, copies of the payroll action document can be submitted for Fall and Spring tuition payment AND tuition waiver requests to expedite processing.

Spouse/Dependent Waiver Request

Name: ___________________________

UIN: ___________________________

Academic Department: ___________________________

Signature: ___________________________

Approved by:

Associate Vice President for Graduate Studies ___________________________ Date ___________
ENGLISH LANGUAGE PROFICIENCY REQUIREMENTS

Graduate Student Requirements
All international graduate students whose native language is not English must fulfill an English proficiency requirement, through either English Proficiency Verification or English Proficiency Certification. This proficiency requirement should be met early in a student’s program, and it must be completed before scheduling either the final examination for the master’s degree or the preliminary examination for the doctoral degree.

There are two levels of English Proficiency Status for graduate students: English Proficiency Verified and English Proficiency Certified. English Proficiency Certification is required by the State of Texas before a graduate student is eligible to serve as a graduate teaching assistant, or any other position considered to be a teaching position (e.g., instructor, lecturer, etc.). All other students must be at least English Proficiency Verified.

Graduate students who have completed an equivalent English training program at an institution other than Texas A&M may request English Proficiency Verification or Certification. Verification or certification on this basis is requested through the departmental graduate advisor. The student should provide the advisor with documentation to support verification or certification. If the department concurs with the request, the advisor will submit a letter recommending and requesting verification or certification (with documentation attached) to the Office of Graduate Studies. The Office of Graduate Studies will determine on a case-by-case basis whether verification or certification is granted.

English Proficiency Certification
Complete any of the following items.

- Score at least 80 on four sections (listening, reading, speaking, and writing) of the English Language Proficiency Examination (ELPE).
- Obtain grades of A or B in English Language Institute (ELI) courses at the 300 level or higher.
- Request alternative certification by the Office of Graduate Studies. Students who have received a baccalaureate degree following four years of study at an accredited U.S. institution will qualify automatically for English Proficiency Certification under this alternative.

English Proficiency Verification
English Proficiency Verification can be achieved with test scores to include:

- IELTS Overall score of at least 6.0
- TOEFL score of at least 550 paper-based (213 computer-based, 80 on iBT)
- GRE Verbal score of at least 400
- GMAT Verbal score of at least 22
- Score at least 80 on four sections (listening, reading, speaking, and writing) of the English Language Proficiency Examination (ELPE).
- Obtain grades of A or B in English Language Institute (ELI) courses at the 300 level or higher.

Individual colleges may choose to establish minimum TOEFL standards that exceed the University minimum for English Proficiency Verification. Scores from TOEFL examinations administered more than two years before submission of the application for admission shall not be eligible for English Proficiency Verification.
Each graduate student must submit an official degree plan to the Office of Graduate Studies (OGS) for approval. The degree plan formally declares your degree objective, the membership of your advisory committee, and the specific courses that you will be required to complete as part of your degree program. You will develop your proposed degree plan in consultation with your advisory committee. The degree plan must be approved by your advisory committee members, your department head and, if applicable, your intercollegiate faculty chairperson.

Completed degree plans must be submitted to OGS according to the following regulation with the student meeting whichever of these deadlines falls earliest:

- following the deadline imposed by the student’s college or interdisciplinary degree program.
- no later than 90 days prior to the date of the final oral examination or thesis defense for master’s students or 90 days prior to the date of the preliminary examination for doctoral students
- according to deadlines published in the OGS calendar each semester for graduation that semester.

The calendar may be found at: <http://ogs.tamu.edu/OGS/currentCalendars.htm>.

Specific rules and limitations on course work and committee membership can be found in the Texas A&M University Graduate Catalog. Once a degree plan is approved by OGS, changes in course work or committee membership may be requested by petition to OGS. “Petition Forms” may be downloaded from the OGS homepage. Changes of major, degree or department must be requested by submitting a petition and/or a new degree plan/course work petition.

**Degree Plan Checklist**

Did you remember to:

- Provide your correct Student Identification Number?
- Have all required transcripts sent to the Office of Graduate Admissions?
- Use official course numbers and department abbreviations?
- Confirm eligibility of transfer work?
- Confirm that all committee members are members of the Graduate Faculty?
- Provide correct names and departmental affiliations of committee members?
- Make sure any special appointments have been approved or that the proper paperwork is sent to OGS along with the degree plan?
- Observe all requirements and limitations on use of course work, outlined in the Graduate Catalog?
Q&A

Q: When should I submit my degree plan?
A: Prior to the deadline imposed by the student’s college, or interdisciplinary degree program, if applicable, and no later than 90 days prior to the date of the final exam (Masters), or the preliminary exam (Doctoral), or by the deadline on the OGS calendar.

Q: May I submit my degree plan after the published deadline?
A: Students are advised to meet the deadlines that apply to them. Failure to do so may jeopardize approval for the student to graduate at the end of the desired semester.

Q: How long does it normally take for OGS to process degree plans?
A: The processing time depends on when the degree plan is submitted. If the degree plan is submitted near the published deadline for the semester, processing can take 6 to 8 weeks. Degree plans submitted at other times during the semester can be processed in 2 to 4 weeks.

Q: How many hours are needed on my degree plan?
A: Specific requirements vary by degree. Generally, master’s non-thesis-option students must carry 36 hours and master’s thesis-option students must carry 32 hours for the MS, and 30 hours for the MA, MCS and MEN. Students should check the Graduate Catalog for their specific hour requirements. Doctoral students must carry 96 hours if they do not have a master’s degree, and they must carry 64 hours if they have a master’s degree. See the Graduate Catalog for additional information.

Q: How should I list courses on my degree plan: alphabetically or by course number?
A: As long as your ordering system is uniform, you may use either system.

Q: How many committee members do I need?
A: Advisory committees for master’s degrees must have at least three members, and advisory committees for doctoral degrees must have at least four members. Special appointments to your committee are not included in this count. Your chairperson must be from your department or from your intercollegiate faculty (if applicable), and you must have at least one member from outside of your department.

In some departments the student’s committee will be comprised of the Graduate Program Director. Your department can tell you which type of committee applies to you.

Q: What do I need to do if changes are needed AFTER my degree plan has been approved?
A: Once your degree plan has been approved, any changes must be requested by submitting the appropriate OGS Petition Form. Your signature together with those of your committee, department head and intercollegiate faculty chair (if applicable) are required on the petition.

Q: If one of my committee members is out of town, can someone else sign the degree plan for him or her?
A: Yes, any authorized signer for that member’s department or intercollegiate program may sign.

Q: Where can I go for help in completing my degree plan?
A: Start with your graduate advisor in your department. The Graduate Catalog and a copy of your transcript are also useful. You may access the Graduate Student Handbook on the Internet: [http://ogs.tamu.edu/OGS/currentGraduateHandbook.htm](http://ogs.tamu.edu/OGS/currentGraduateHandbook.htm). If you still have questions, call the OGS staff at (979) 845-3631 or e-mail them at ogs@tamu.edu.

Q: Why is it important to have deadlines for the submission of degree plans?
A: The degree plan is to be a “plan” of courses the student and advisory committee have selected to fulfill the degree requirements. The plan should be formulated early in the student’s graduate career and not serve as a report of courses taken.

If you have additional questions, you may contact the Office of Graduate Studies (OGS) at 979-845-3631, or you may e-mail the staff at ogs@tamu.edu. This supplement should be used only in conjunction with the Graduate Catalog and the Texas A&M University Student Rules.
Automated Degree Plan Submission System

Office of Graduate Studies

http://ogsdpss.tamu.edu
The Automated Degree Plan Submission System

The Automated Degree Plan Submission System is a web based system which allows a graduate student to complete, audit, and submit his or her degree plan on-line. The student’s chair is notified by e-mail that he or she needs to go on-line to review a degree plan. If the chair approves the degree plan, the other committee members are notified by e-mail to review the degree plan. Upon approval of all committee members, the degree plan is ready to be reviewed by a departmental representative, usually by a staff member first and then by either the department head or graduate advisor. Once the department has approved the degree plan, it is ready to be reviewed by the Office of Graduate Studies. Upon OGS approval, the student will receive and e-mail notification of approval or denial. At any step along the way the degree plan may be rejected and sent back to the student for changes. If the degree plan is rejected at any point, the approval process begins anew.

To access the system, go to [http://ogsdpss.tamu.edu](http://ogsdpss.tamu.edu) using Internet Explorer. We have encountered a few problems when using other browsers.

To login to the system, students, faculty, and staff must have a Neo account. Questions regarding the NetID or Neo account, should be directed to the help desk by emailing [help-desk@tamu.edu](mailto:help-desk@tamu.edu) or calling 845-8300. All e-mails generated by the Degree Plan Submission System are sent to the Neo account, so Faculty and Staff must regularly check their Neo account or set the Neo account to forward e-mail to another preferred e-mail account.

If you would like to set your Neo e-mail account to forward mail to another e-mail address, use the following instructions:

1. Go to [http://neo.tamu.edu](http://neo.tamu.edu)
2. Login to your Neo account
3. Select the link for “Directory” (be sure to do this AFTER you login)
4. From your directory page, select “Edit”
5. In the third and fourth options on the edit page, select that your tamu.edu and neo.tamu.edu e-mail be forwarded and enter the forwarding e-mail address.

Visiting professors who are members of the Graduate Faculty may obtain a Neo account by submitting the Approval of Visiting Scholars form (Form 5VS) to CIS Computer Account Services, [http://vpr.tamu.edu/resforms.html](http://vpr.tamu.edu/resforms.html).
Overview of the Automated Degree Plan Submission System Sections

Student Section of DPSS

The student must initiate the process by logging into the system and creating a degree plan. Four basic steps are involved in creating the degree plan: General Information, Courses for Credit, Prerequisites, and Committee. These four sections and instructions on each are discussed in more detail later in this document.

Faculty Section of DPSS

Faculty members login to the system using their Net ID and password (same as logging into their Neo account). They will be able to view the student’s degree plan and approve, disapprove (reject), cancel, and/or comment. Once they have approved the degree plan, it goes on to the next stage. If any committee member disapproves, the degree plan is sent back to the student and the degree plan must be resubmitted after any necessary corrections have been made. To disapprove a degree plan, the faculty member must include comments, and tell the student why he or she is rejecting the degree plan. If the faculty member chooses cancel, they will exit the degree plan without having taken any action and can return later to review the degree plan. Comments made upon either approval or disapproval are seen only by the student, faculty, and department. OGS does not see any comments.

Department Section of DPSS

Department approval happens only after all committee members have approved the degree plan. The process follows pre-defined workflow, and is generally two-fold. The workflow can be customized and is based on degree/major combinations. The workflow can be set up to be either simultaneous or sequential. It is usually set up as sequential. To set up or change a workflow, departmental staff should contact the Office of Graduate Studies. Generally a staff person will review the degree plan to make sure that it follows departmental policy before it goes to the faculty member who has final approval authority. The staff approver and the faculty approver have the same options as the committee members—they may approve, disapprove, cancel and/or comment.

Proxy approval

Faculty who are on file with OGS as being authorized to sign Graduate Studies documents are allowed to be Proxy Approvers. They may log in as a proxy and review degree plans on the behalf of any faculty or staff member in their department.
OGS Section of DPSS

After the degree plan has been submitted by the student, approved by the committee, and has been approved by the department (using the defined workflow), it appears in the OGS “inbox”. OGS staff will log the degree plan in as received on SIMS Screen 010 and will remove any blocks for degree plan when the degree plan is approved. OGS staff will enter the degree plan into SIMS and will process it in the same way we currently process paper copies. Based on the results of this review, OGS staff will either approve or disapprove the degree plan. An e-mail is sent to the student informing them of the result of the OGS review. No hard copies are sent through the mail. Departments can print a final approved copy from the history link. Changes made to the degree plan at a later date by petition will not be reflected in this system. You should use SIMS to view the most up to date degree plan. As of right now, we do not have a plan in place to archive or delete degree plans. Please know, however, that it is a possibility that degree plans will eventually be deleted from this system, so it is imperative that copies are printed or saved to your computer.
OFFICE OF GRADUATE STUDIES
PROPOSAL TITLE PAGE FOR
THESIS, DISSERTATION, OR RECORD OF STUDY

Date: __________________________________________

I submit for approval the following research proposal for my: □ thesis □ dissertation □ record of study

Major: __________________________________________

Tentative Title: __________________________________

________________________________________________

There are compliance issues that must be addressed if graduate students are performing research involving human subjects, animals, infectious biohazards, and recombinant DNA. Students involved in these types of research must check with the Research Compliance Division, Office of the Vice President for Research at 979-845-8585 to ensure that they have met all compliance responsibilities. Additional information can also be obtained at http://researchcompliance.tamu.edu/.

Approval Recommended:

<table>
<thead>
<tr>
<th>* Chair:</th>
<th>Dept.</th>
<th>Student’s I.D. Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-Chair:</td>
<td>Dept.</td>
<td>Student’s Name</td>
</tr>
<tr>
<td>Member:</td>
<td>Dept.</td>
<td>Student’s Signature</td>
</tr>
<tr>
<td>Member:</td>
<td>Dept.</td>
<td>Email</td>
</tr>
<tr>
<td>Member:</td>
<td>Dept.</td>
<td>Mailing Address</td>
</tr>
<tr>
<td>Member:</td>
<td>Dept.</td>
<td>Date of Approval</td>
</tr>
</tbody>
</table>

Name
* (Department Head OR Intercollegiate Faculty Chair)

For the Office of Graduate Studies

* I certify that all research compliance requirements have been addressed prior to submission of this proposal.
PRELIMINARY EXAMINATION CHECKLIST

The student is responsible for completing this checklist before the preliminary exam is scheduled. This checklist must accompany the report of the exam results (using the Office of Graduate Studies (OGS) form, “Report of Preliminary Exam”). The student should initial each appropriate blank indicating that the specified criterion has been satisfied, or where appropriate, been waived. Failure to satisfy the listed criteria will result in the given exam being disallowed in which case it will need to be retaken.

Student’s Signature: __________________________

UIN# __________________________

☐ 1. Registered for semester or 5-week term during which the exam occurs. (If the entire exam is between semesters, then the student must have been registered for the preceding term.)

☐ 2. Student has an approved degree plan, which was filed at least 90 days prior to the first written examination.

☐ 3. GPR over all eligible courses since beginning graduate work at Texas A&M is greater than or equal to 3.00 as indicated in the degree evaluation in Howdy. (Includes 300 and 400 level courses taken while in a graduate program but does not include transfer courses.)

☐ 4. GPR over all courses on the degree plan (excluding transfer courses) is greater than or equal to 3.00 as indicated in the degree evaluation in Howdy.

☐ 5a. US Citizen

☐ 5b. Non-US Citizen who has satisfied at least one of the following: (a) a TOEFL score of at least 550 paper based/213 computer based, (b) a GRE-verbal score of at least 400, (c) a GMAT-verbal score of at least 22, (d) satisfactorily passed or waived all portions of the ELPE, or (e) obtained an OGS Waiver.

☐ 6. All committee members, have scheduled or waived the written portion and agreed to attend the oral portion of the exam or found a substitute. Only one substitute is allowed; there may not be a substitute for the chair.

☐ 7. At the end of the semester in which the exam is given, there are no more than 6 hours of course work remaining on degree plan. (Does not include 691s) If no, waiver approved by Department Head: __________________________

☐ 8. The time span from the first written to the oral is approximately three weeks. In cases of department-wide written examinations, this criterion is ignored.

If no, waiver approved by Department Head: __________________________

Approved: __________________________

Name: __________________________
Advisory Committee Chair

Name: __________________________
Department Head OR
Intercollegiate Faculty Chair

Date __________________________
Office of Graduate Studies
Texas A&M University
Report of the Preliminary Examination

The undersigned duly appointed examining committee has conducted the preliminary examination of __________________________ Enter UIN __________________________. We have examined the candidate for a mastery of all fields in the program and for an adequate knowledge of the literature in these fields.

Record of Vote for Pass or Failure: (Votes are to be tallied, e.g., 3 pass; 1 no pass. A positive vote by all members of the graduate committee with at most one dissention is required to pass.)

____Number of Pass Votes _____Number of No Pass Votes

If the exam was not passed: The committee, with no more than one member dissenting, (does) (does not)* recommend that this student be given one re-examination, when adequate time has been given to permit the student to address the inadequacies emerging from this examination.

*Please strike through the inappropriate words in bold face.

Date

Name: __________________________ Chair or Co-Chair Please strike through the inappropriate words.

Name: __________________________ Co-Chair or Member Please strike through the inappropriate words

Name: __________________________ Member

Name: __________________________ Member

Name: __________________________ Member

Name: __________________________ Member

Please sign AND print your name:

Substitute for __________________________

In compliance with the Texas Open Records Law, the student will be allowed to review this form upon written request.

PLEASE MAKE A COPY FOR YOUR RECORDS AND RETURN ORIGINAL TO THE OFFICE OF GRADUATE STUDIES

FOR OFFICE OF GRADUATE STUDIES USE ONLY

1. Residence requirement complete: Yes _____ No _____
2. Research proposal approved: Yes _____ No _____
3. Formal course work completed: Yes _____ No _____
4. Other course work remaining: __________

May be admitted to candidacy upon completion of item(s):
Request and Announcement of the Final Examination
(submit to the Office of Graduate Studies at least 10 working days prior to exam)

Permission is requested to hold the final examination for ____________________________ for the degree of ____________________________

All committee members have been consulted and have agreed to the following schedule:

Date: ____________________________
Time: ____________________________
Location: ____________________________

The student's academic records have been reviewed, and he/she is qualified to take the final examination.

Approved Chair or Co-Chair ____________________________

Approved Co-Chair ____________________________

Approved Department Head ____________________________

Committee Member ____________________________
Committee Member ____________________________
Committee Member ____________________________
Committee Member ____________________________

(if applicable) ____________________________ will substitute for ____________________________

Office of Graduate Studies Use Only

applied/should apply for graduation ____________________________

________ ELPE Lacks: ____________________________

________ Residency Requirement ____________________________

________ Overall GPR ____________________________

________ Degree Plan GPR ____________________________

________ Admitted to Candidacy ____________________________

________ Proposal ____________________________

________ d/p 90 day rule ____________________________

________ Course work completed ____________________________

________ Registered ____________________________

________ Exam Approved ____________________________

________ Oral Forms Mailed ____________________________

________ Prelims ____________________________

pc: Thesis Office
TEXAS A&M UNIVERSITY
Thesis Office
WRITTEN THESIS (M.S. / M.A.)
APPROVAL FORM

Student's Name:____________________________________________________________________
(Name must match TAMU student records)
Degree (check one): □ M.S. □ M.A.
Date of Defense (mm/dd/yy or Exempt): ____________ Today's Date (mm/dd/yy): ____________
Anticipated Date of Graduation (Month Year): __________________
Major Subject:____________________________________________________________________
Thesis Title:_____________________________________________________________________

We the undersigned duly appointed committee have read and examined this manuscript and certify it is adequate in scope and quality as a thesis for this master's degree. We approve the content of the thesis to be submitted to the Thesis Office for processing and acceptance.

Approved by:

__________________________                ______________________________
Chair:                                                                 Member:

__________________________                ______________________________
Member:                                                                 Member:

__________________________                ______________________________
Member:                                                                 Member:

__________________________                ______________________________
Member:                                                                 Member:

Head of Department:

Student Contact Information:

UIN  (Not Social Security Number)  Student's Email Address

The student must submit this signed approval form and a PDF file of the thesis to the Thesis Office for review. Students must clear the Thesis Office within a year of their final defense. To graduate in a given semester, a student must meet the scheduled deadline for submittal of the signed approval form and the thesis in final form. The Office of Graduate Studies posts a calendar for each semester, and these dates must be observed.

PLEASE TAKE THIS ORIGINAL SIGNED APPROVAL FORM TO THE THESIS OFFICE.
Sterling Evans Library - Room 612
Student's Name: 

(Name must match TAMU student records) 

Degree (check one): [ ] Ph.D. (Dissertation) [ ] Ed.D. (Record of Study) 

Date of Defense (mm/dd/yy or Exempt): _______________ Today's Date (mm/dd/yy): _______________ 

Anticipated Date of Graduation (Month Year): _______________ 

Major Subject: ____________________________________________________________________________ 

Dissertation or Record of Study Title: ____________________________________________________________________________ 

We the undersigned duly appointed committee have read and examined this manuscript and certify it is adequate in scope and quality as a dissertation or record of study for this doctoral degree. We approve the content of the document to be submitted to the Thesis Office for processing and acceptance. 

Approved by: 

Chair: 

Member: 

Member: 

Member: 

Member: 

Head of Department: 

Student Contact Information: 

UIN (Not Social Security Number) 

Student's Email Address 

The student must submit this signed approval form and a PDF file of the dissertation or record of study to the Thesis Office for review. Students must clear the Thesis Office within a year of their final defense. To graduate in a given semester, a student must meet the scheduled deadline for submittal of the signed approval form and the dissertation or record of study in final form. The Office of Graduate Studies posts a calendar for each semester, and these dates must be observed. 

PLEASE TAKE THIS ORIGINAL SIGNED APPROVAL FORM TO THE THESIS OFFICE. 

Sterling Evans Library - Room 612
THESIS MANUAL

INSTRUCTIONS CONCERNING THE PREPARATION OF THESES, DISSERTATIONS AND RECORDS OF STUDY

Office of Graduate Studies
Texas A&M University
July 2011
The Mission of the Thesis Office is to provide effective and efficient guidance and support to students and advisors with the preparation and review of a scholarly manuscript. The office ensures adherence to university guidelines for quality and uniformity of style and format, while facilitating clearance for graduation and timely availability for public access to the manuscript.
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<td>Minimum Page Length</td>
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</tr>
</tbody>
</table>
THESIS OFFICE SERVICES

Sterling C. Evans Library
Room 612
(979) 845-2225
Fax: (979) 862-3124
Email: thesis@tamu.edu

Hours: Monday through Friday
8 AM – 12 Noon
1 – 5 PM

Website: http://thesis.tamu.edu

To assist students the Thesis Office offers the following services:

- Help with specific thesis style and formatting questions. Students may call, email or come by the Thesis Office with questions.

- Microsoft Word and LaTeX templates are available to assist students during the writing and thesis preparation phases of their degree program and can significantly aid in meeting Thesis Office format requirements. These may be accessed and downloaded from our website.

- The pre-submittal conference – The student meets with a thesis reviewer for a format check around the time of the final defense, before the manuscript is submitted. This conference is strongly recommended. An appointment is needed; call the office. If you are not able to attend a scheduled, in-person conference, you may request a video conference or utilize the online pre-submittal conference on our website.

- Upon request, reviewers give talks about style and formatting to graduate classes.

- Periodically, the Thesis Office hosts workshops presenting our services to graduate students.

Required Forms

The following required forms are available on the Thesis Office website (http://thesis.tamu.edu/forms/):

- Approval Form
- TAMU Copyright and Availability Form
- ProQuest Form (for Doctoral Students)
- Survey of Earned Doctorates and AAUDE Survey (for Doctoral Students), combined and administered online
Technical and Thesis Preparation Handouts

These handouts are posted in the Handouts section of the Thesis Office website (http://thesis.tamu.edu/handouts).

- Approval Form Factsheet
- Approval Form Guidelines
- Binding Information
- Changing Document Page Size
- Changing Page Numbers from Roman Numerals to Arabic Numbers
- Checklist for Manuscript Preparation
- Copyright and Your ETD
- Copyright Essentials for Graduate Students
- Creating PDF Files
- Customary Ways to Cite Material in the Text
- Early Considerations for Preparing Your Thesis or Dissertation
- Example of First Text Page
- Example of Second Page of Manuscript
- Journal Article Style Thesis/Dissertation Format
- Landscape Figures/Tables: Positioning Page Numbers in Portrait Position
- List of Editors
- List of Typists
- Manuscripts in Spanish
- Minimum Size Reduction for Tables and Figures
- Notes and Endnotes
- Oversized Illustrative Material and Sample
- Page Numbering in Microsoft Word 2003 and 2007
- Permission to Use Copyrighted Material
- Petroleum Engineering Majors Using SPE Journals
- Reference Preparation and Proofing
- State Abbreviations
- Subheading Tips
- Submittal Requirements Checklist for Master’s and Doctoral Students
- Table of Contents Formatting Tips in MS Word 2003 and 2007
- Vertical Spacing in Word

Contact Us with Questions or Problems

If there is anything that seems out of the ordinary in the thesis, it is important to check with the Thesis Office well in advance of deadlines to work through potential difficulties. The following is a partial list of situations when a student needs to contact the Thesis Office:

- Problems having the Approval Form signed
- Multimedia to be added as separate non-PDF file(s)
- Copyright questions
Graduate Appeals Panel Process

Instructions for Filing of Notice of Intention to Appeal to the Graduate Appeals Panel

To initiate an appeal to the Graduate Appeals Panel, please follow these procedures:

1. Complete the form letter GAP-001 indicating your intention to appeal to the Graduate Appeals Panel. This letter must be completed and returned to the Office of Graduate Studies within 15 working days of receiving notice of final actions leading to this appeal.

2. Meet with the Office of Graduate Studies to discuss the appeal and to return a copy of the Appeal Continuation form (GAP-002). This meeting should take place within 30 days after submission of the letter indicating your intention to appeal.

3. Complete the Appeal Continuation form (GAP-002) and return it to the Office of Graduate Studies. You should also review sections of the Texas A&M University Student Rules which are appropriate for your appeal. Texas A&M University Student Rules Part III, Section 59 describes the Graduate Appeals Panel Process in detail. Please Direct any questions concerning graduate appeals to the Office of Graduate Studies, 302 Jack K. Williams Administration Building (phone: 845-3631).
Instructions

Filing of Notice of Intention to Appeal Graduate Student Examination Results at the Program/Department Level

Prior to initiating an appeal to the Academic Program/Department, please follow these procedures:

Complete the attached form letter indicating your intention to appeal. The intention to appeal must be completed and returned along with the Appeal Summary File to the Office of Graduate Studies after receiving notice of final actions involved with the graduate student examination leading to this appeal.

The Office of Graduate Studies will retain the official copy of the Intention to Appeal Graduate Student Examination Results at the Program/Department level along with the official copy of the Appeal Summary File and forward a copy to the head/chair of the department/program administering the degree.

You should also review sections of the Texas A&M University Student Rules (http://student-rules.tamu.edu/rule53) which are appropriate for your appeal. Texas A&M University Student Rules Part III. Section 53 describes the Graduate Student Examination Evaluation Disputes in detail.

Please direct any questions concerning graduate appeals to the Associate Provost for Graduate Studies, 302 Jack K. Williams Administration Building (phone: 845-3631).
Letter of Intent to Appeal Graduate Student Examination Results at the Program/Department Level

Associate Provost for Graduate Studies  
Office of Graduate Studies  
302 Jack K. Williams Administration Bldg.  
Texas A&M University  
College Station, Texas 77843-1113

I hereby give notice that I intend to appeal actions involving my course of graduate study at Texas A&M University.

I understand that this letter must be completed and returned to the Office of Graduate Studies along with the official summary file and intention to appeal after receiving notice of final actions involved with the graduate student examination leading to this appeal.

Signature: __________________________

Printed Name: __________________________

Student ID Number: __________________________

Department: __________________________

Date: __________________________
I request that the following changes be made in the membership of my advisory committee:

### Members joining the committee:

<table>
<thead>
<tr>
<th>Name</th>
<th>Dept.</th>
<th>Signature</th>
<th>(Chair, Co-Chair, Member)</th>
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### Members leaving the committee:

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<thead>
<tr>
<th>Name</th>
<th>Dept.</th>
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### Reason for the request:

- [ ] Member has retired
- [ ] Change in supporting field
- [ ] Member has left Texas A&M
- [ ] Research topic requires expertise of new member
- [ ] Member not available for defense/ final exam

Type in the reason if none of the above applies:

### Approval Recommended:

<table>
<thead>
<tr>
<th>Chair:</th>
<th>Dept.</th>
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<th>Co-Chair:</th>
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</table>

### Committee Information

- Student’s UIN
- Student’s Name
- Student’s Signature
- E-mail
- Mailing Address

### Student Information

- Date of Approval

For Office of Graduate Studies
TEXAS A&M UNIVERSITY
OFFICE OF GRADUATE STUDIES
PETITION FOR CHANGE OF MAJOR, DEPARTMENT, OR DEGREE PROGRAM
(submit original and three copies)

Date:____

I request that the following change be made to my degree program to be effective: Fall 2011

If you currently hold an F-1 or J-1 visa issued by Texas A&M, in order to maintain your legal status in the US, you have a federal requirement to submit to International Student Services (ISS) additional paperwork to notify the US Government of your degree level change, meet a submission deadline, and/or potentially leave the US (J only). It is your responsibility to read and comply with all “degree level change” requirements and deadlines for your visa type, available on the ISS website (http://international.tamu.edu/iss).

Current program:

Degree program
Major
Department

Approval recommended for the department: ________________________________

Department Head

Requested program:

Degree program
Major
Department

Approval recommended for the department: ________________________________

Department Head

Anticipated Grad. Date mm/yyyy

Reason for the request: Please select a reason

Type in the reason here if none of the above applies:

Approval Recommended: ________________________________

Committee Information

Student Information

Co-Chair: ________________________________ Dept.

Student’s I.D. Number

Co-Chair: ________________________________ Dept.

Student’s Name

Member: ________________________________ Dept.

Student’s Signature

Member: ________________________________ Dept.

Member: ________________________________ Dept.

Member: ________________________________ Dept.

Mailing Address

Member: ________________________________ Dept.

Date of Approval

Member: ________________________________ Dept.

For Office of Graduate Studies

Intercollegiate Faculty Head*: ________________________________ Dept.

*if applicable

Department Head: ________________________________ Dept.
TEXAS A&M UNIVERSITY
OFFICE OF GRADUATE STUDIES

PETITION FOR EXTENSION OF TIME LIMITS
(submit original and three copies)

A. I request an extension of the 10-year time limit

B. Please extend this time limit until

C. Exceptions to published rules that are granted by Texas A&M University are subject to periodic review and audit by the Texas Higher Education Coordinating Board and the Southern Association of Colleges and Schools. For your petition to receive careful consideration, please present justification for your request. Include factors necessitating the request that were beyond your control, ways in which the exception will benefit your study, and/or ways in which you believe you have met the spirit of the requirement.

<table>
<thead>
<tr>
<th>If committee formed in current program:</th>
<th>Approval Recommended:</th>
<th>Committee Information</th>
<th>Student Information</th>
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</thead>
<tbody>
<tr>
<td>Chair:</td>
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<td>Student’s UIN</td>
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<tr>
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<td>Dept.</td>
<td></td>
<td>Student’s Name</td>
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<tr>
<td>Member:</td>
<td>Dept.</td>
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<td>Student’s Signature</td>
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<td>Member:</td>
<td>Dept.</td>
<td></td>
<td>E-mail</td>
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<tr>
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<td>Dept.</td>
<td></td>
<td>Mailing Address</td>
</tr>
<tr>
<td>Member:</td>
<td>Dept.</td>
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</tbody>
</table>

Department Head OR Intercollegiate Faculty Chair:

Office of Graduate Studies
07.01.11
TEXAS A&M UNIVERSITY
OFFICE OF GRADUATE STUDIES
PETITION FOR WAIVERS OR EXCEPTIONS
(submit original and three copies)
(Do not use this form to request time limit extensions.)

A. Describe in this section clearly and concisely the exception or waiver you are requesting:

B. Exceptions to published rules that are granted by Texas A&M University are subject to periodic review and audit by the Texas Higher Education Coordinating Board and the Southern Association of Colleges and Schools. For your petition to receive careful consideration, please present justification for your request. Include factors necessitating the request that were beyond your control, ways in which the exception will benefit your study, and/or ways in which you believe you have met the spirit of the requirement.

(If committee formed in current program):

<table>
<thead>
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<tr>
<td>Member:</td>
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<td>Student’s Signature</td>
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<td>Dept.</td>
<td>E-mail</td>
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<tr>
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<td>Dept.</td>
<td>Mailing Address</td>
</tr>
<tr>
<td>Member:</td>
<td>Dept.</td>
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</table>

Department Head OR
Intercollegiate Faculty Chair:

Date

For Office of Graduate Studies
APPENDIX 2

Veterinary Epidemiology and Public Health Program Curriculum
### Requirements for MS Degree in Veterinary Public Health

**General Core Courses (or equivalent)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Minimum Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBS 608</td>
<td>Epidemiology methods I*</td>
<td>4</td>
</tr>
<tr>
<td>STAT 651</td>
<td>Statistics in research I</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 650</td>
<td>Graduate education</td>
<td>1</td>
</tr>
<tr>
<td>VIBS 681</td>
<td>Seminar (see &quot;Oral Presentation&quot;)</td>
<td>1</td>
</tr>
<tr>
<td>VIBS 694</td>
<td>Internship (non-thesis option only)</td>
<td>Var (8 max)</td>
</tr>
<tr>
<td>VIBS 691</td>
<td>Research (thesis option only)</td>
<td>Var (8 max)</td>
</tr>
</tbody>
</table>

*May be replaced with VIBS 607 Applied Epidemiology with approval of the student’s advisory committee*

Minimum 36 hours are required per university regulations for MS non-thesis degrees

Minimum 32 hours are required per university regulations for MS thesis degrees

Students pursuing the MS in Veterinary Public Health can choose 1 of the 3 available themes

### Veterinary Public Health Themes

1. Epidemiology
2. Food Safety and Security
3. Public Health and Policy

#### 1. Epidemiology Theme

**Theme-Specific Core Required Courses (or equivalent)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Minimum Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBS 610</td>
<td>Epidemiology methods II (Module 1)</td>
<td>3</td>
</tr>
<tr>
<td>STAT 652</td>
<td>Statistics in research II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Theme-Specific Required Courses (2 minimum)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Minimum Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBS 689</td>
<td>Risk analysis, disease detection and surveillance</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 689</td>
<td>Spatial methods in epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 689</td>
<td>Infectious disease epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 615</td>
<td>Food hygiene</td>
<td>4</td>
</tr>
<tr>
<td>VIBS 633</td>
<td>Animal diseases in comparative medicine</td>
<td>3</td>
</tr>
</tbody>
</table>

#### 2. Food Safety and Security Theme

**Theme-Specific Core Required Courses (or equivalent)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Minimum Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 610</td>
<td>Environmental risk assessment</td>
<td>3</td>
</tr>
</tbody>
</table>

**Theme-Specific Required Courses (5 minimum)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Minimum Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBS 615</td>
<td>Food hygiene</td>
<td>4</td>
</tr>
<tr>
<td>VIBS 618</td>
<td>Food toxicology I</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 619</td>
<td>Food toxicology II</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 670</td>
<td>Basic environmental toxicology</td>
<td>3</td>
</tr>
<tr>
<td>FSTC 657</td>
<td>HAACP</td>
<td>3</td>
</tr>
<tr>
<td>FSTC 606</td>
<td>Microbiology of foods</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 689</td>
<td>Biosecurity</td>
<td>3</td>
</tr>
<tr>
<td>VTMI 689</td>
<td>Foreign animal diseases</td>
<td>3</td>
</tr>
<tr>
<td>VTMI 619</td>
<td>Molecular methods in microbiology</td>
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3. Public Health and Policy Theme

<table>
<thead>
<tr>
<th>Theme-Specific Core Required Courses (or equivalent)**</th>
<th>Minimum Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVEN 610 Environmental risk assessment</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Theme-Specific Required Courses (5 minimum)**</th>
<th>Minimum Credit Hrs</th>
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<tbody>
<tr>
<td>VIBS 689 Risk analysis, disease detection and surveillance</td>
<td>3</td>
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<td>3</td>
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<tr>
<td>VTMI 689 Foreign animal diseases</td>
<td>3</td>
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<tr>
<td>VTMI 619 Molecular methods in microbiology</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 651 GIS for resource managers</td>
<td>3</td>
</tr>
<tr>
<td>BUSH 601 Leadership and public administration</td>
<td>3</td>
</tr>
<tr>
<td>BUSH 611 Public policy formation</td>
<td>3</td>
</tr>
</tbody>
</table>

**Or equivalent courses as determined by the student's advisory committee

Selection of elective courses for each theme should be determined by individual advisory committees to obtain the appropriate required hours. Some of the courses listed are not taught every semester and students should consult with their advisory committee to identify appropriate addition/substitution courses as necessary.

Students not possessing an undergraduate or advanced degree in the life sciences, veterinary medicine, or medicine are strongly recommended to take a graduate-level course in physiology, and appropriate to their area of interest, a course in microbiology or pathology.

**Technical Writing**

Depending on the assessment of the student's writing skills by his/her advisory committee, completion of a technical writing course may be required.
Requirements for MS Degree in Epidemiology

Curriculum

The Department is authorized to award MS degrees in epidemiology. **A non-thesis option is not available.** Some of the participating faculty members belong to interdepartmental programs, such as Toxicology, Food Science and Technology, Nutrition, Reproductive Biology, Neuroscience, or Genetics. Graduate students who choose one of the interdepartmental programs will follow the degree requirements of that respective degree except that all VIBS students are expected to present at the VIBS student symposium (see Oral Presentations). All degree requirements are as stated in the Graduate Catalog, except as shown below:

Course Requirements for MS Degree in Epidemiology

**General Core Courses (or equivalent)***  
Minimum Credit Hrs

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIBS 608</td>
<td>Epidemiologic methods I</td>
<td>4</td>
</tr>
<tr>
<td>VIBS 610</td>
<td>Epidemiologic methods II (Module 1)</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 650</td>
<td>Graduate education</td>
<td>1</td>
</tr>
<tr>
<td>VIBS 681</td>
<td>Seminar (see &quot;Oral Presentation&quot;)</td>
<td>1</td>
</tr>
<tr>
<td>STAT 651</td>
<td>Statistics in research I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 652</td>
<td>Statistics in research II</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 691</td>
<td>Research</td>
<td>Var (8 max)</td>
</tr>
</tbody>
</table>

*VIBS 607 Applied epidemiology or equivalent is recommended for students without a prior course in epidemiology

**Additional Required Courses (2 minimum)**  
Minimum Credit Hrs

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>VIBS 610</td>
<td>Epidemiologic methods II (Module II)</td>
<td>1</td>
</tr>
<tr>
<td>STAT 607</td>
<td>Sampling</td>
<td>3</td>
</tr>
<tr>
<td>STAT 653</td>
<td>Statistics in research III</td>
<td>3</td>
</tr>
<tr>
<td>STAT 636</td>
<td>Methods in multivariate analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 659</td>
<td>Applied categorical data analysis</td>
<td>3</td>
</tr>
<tr>
<td>PHEB 609</td>
<td>Categorical data analysis</td>
<td>3</td>
</tr>
<tr>
<td>PHEB 689</td>
<td>Survey sampling</td>
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</tbody>
</table>

**Suggested Elective Courses**  
Minimum Credit Hrs

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>VIBS 689</td>
<td>Risk analysis, disease detection and surveillance</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 689</td>
<td>Spatial epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 689</td>
<td>Infectious disease modeling</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 651</td>
<td>Geographic information systems</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 652</td>
<td>Advanced topics in geographic information systems</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 607</td>
<td>Health research methods</td>
<td>3</td>
</tr>
<tr>
<td>RLEM 653</td>
<td>Landscape analysis and modeling</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 623</td>
<td>Measurement of sociological parameters</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 624</td>
<td>Qualitative methodology</td>
<td>3</td>
</tr>
<tr>
<td>STAT 637</td>
<td>Statistical methods in ecology</td>
<td>3</td>
</tr>
<tr>
<td>WFSC 624</td>
<td>Dynamics of populations</td>
<td>4</td>
</tr>
</tbody>
</table>

**Or equivalent courses as determined by the student's advisory committee
Selection of appropriate courses should be determined by individual advisory committees to obtain the minimum 32 hours required per university regulations for MS thesis degrees. Some of the courses listed are not taught every semester and students should consult with their advisory committee to identify appropriate addition/substitution courses as necessary.

Students not possessing an undergraduate or advanced degree in the life sciences, veterinary medicine, or medicine are strongly recommended to take a graduate-level course in physiology, and appropriate to their area of interest, a course in microbiology or pathology.

Technical Writing
Depending on the assessment of the student's writing skills by his/her advisory committee, completion of a technical writing course may be required.
Requirements for the Epidemiology Track within the PhD Degree in Biomedical Sciences

### General Core Courses (or equivalent)*

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Minimum Credit Hrs</th>
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<tbody>
<tr>
<td>VIBS 608</td>
<td>Epidemiologic methods I</td>
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</tr>
<tr>
<td>VIBS 610</td>
<td>Epidemiologic methods II (Modules 1&amp;2)</td>
<td>4</td>
</tr>
<tr>
<td>VIBS 650</td>
<td>Graduate education</td>
<td>1</td>
</tr>
<tr>
<td>VIBS 681</td>
<td>Seminar (see &quot;Oral Presentation&quot;)</td>
<td>1</td>
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<td>STAT 651</td>
<td>Statistics in research I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 652</td>
<td>Statistics in research II</td>
<td>3</td>
</tr>
</tbody>
</table>

*VIBS 607 Applied epidemiology or equivalent is recommended for students without a prior course in epidemiology

### Additional Required Courses (3 minimum)**

<table>
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<th>Course</th>
<th>Title</th>
<th>Minimum Credit Hrs</th>
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<tr>
<td>STAT 653</td>
<td>Statistics in research III</td>
<td>3</td>
</tr>
<tr>
<td>STAT 606</td>
<td>Design of experiments</td>
<td>3</td>
</tr>
<tr>
<td>STAT 607</td>
<td>Sampling</td>
<td>3</td>
</tr>
<tr>
<td>STAT 659</td>
<td>Applied categorical data analysis</td>
<td>3</td>
</tr>
<tr>
<td>PHEB 609</td>
<td>Categorical data analysis</td>
<td>3</td>
</tr>
<tr>
<td>PHEB 689</td>
<td>Survey sampling</td>
<td>3</td>
</tr>
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</table>

### Suggested Elective Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Minimum Credit Hrs</th>
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<tbody>
<tr>
<td>VIBS 689</td>
<td>Risk analysis, disease detection and surveillance</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 689</td>
<td>Spatial epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>VIBS 689</td>
<td>Infectious disease modeling</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 651</td>
<td>Geographic information systems</td>
<td>3</td>
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<tr>
<td>FRSC 652</td>
<td>Advanced topics in geographic information systems</td>
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<td>Health research methods</td>
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<tr>
<td>RLEM 653</td>
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<td>Measurement of sociological parameters</td>
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<td>SOCI 624</td>
<td>Qualitative methodology</td>
<td>3</td>
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<tr>
<td>STAT 637</td>
<td>Statistical methods in ecology</td>
<td>3</td>
</tr>
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<td>WFSC 624</td>
<td>Dynamics of populations</td>
<td>4</td>
</tr>
<tr>
<td>STAT 636</td>
<td>Methods in multivariate analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**Or equivalent courses as determined by the student’s advisory committee

Selection of appropriate courses should be determined by individual advisory committees to obtain the minimum hours required per university regulations for PhD degrees. Some of the courses listed are not taught every semester and students should consult with their advisory committee to identify appropriate addition/substitution courses as necessary.

Students not possessing an undergraduate or advanced degree in the life sciences, veterinary medicine, or medicine are strongly recommended to take a graduate-level course in physiology, and appropriate to their area of interest, a course in microbiology or pathology.
Technical Writing
Depending on the assessment of the student's writing skills by his/her advisory committee, completion of a technical writing course may be required.

**Students wishing to take MANA courses must receive approval of their committee members and obtain a form in the graduate office of the medical school to be filled out for registration. The process for obtaining credit for these courses is currently in review and students should check with their major professor as to any procedural changes that might arise.

***Students may find other TAMU Health Science Center Courses listed at http://medicine.tamhsc.edu From there, click on the appropriate school from the website menu.

NOTE: The application process for obtaining credit for courses taken in the TAMUS-HSC is being revised.
APPENDIX 3

Associate Dean
for
Research
and
Graduate Studies
Office Structure
# CURRICULUM VITAE

**Name**  
Bhanu P. Chowdhary  
BVSc&AH, MVSc, VMD (PhD)

**Title**  
Associate Dean for Research & Graduate Studies  
Professor & Faculty Fellow; Director, Mol. Cytogenetics Lab.

**Address**  
Office of the Dean  
College of Veterinary Medicine & Biomedical Sciences  
Texas A & M University, College Station TX77843-4461

## A. Education/Training

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Veterinary &amp; Animal Sciences, Bikaner, India</td>
<td>B.V.Sc. &amp; A.H</td>
<td>1978</td>
<td>Veterinary</td>
</tr>
<tr>
<td>College of Veterinary &amp; Animal Sciences, Bikaner, India</td>
<td>M.V.Sc.</td>
<td>1980</td>
<td>Animal Breeding &amp; Genetics</td>
</tr>
<tr>
<td>Swedish University of Agricultural Sciences, Uppsala, Sweden</td>
<td>Ph.D.</td>
<td>1991</td>
<td>Disease Genetics</td>
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</table>

## B. Positions and Employment

1978-1980.............. **Jr. Research Fellow**, Department of Animal Breeding & Genetics, College of Veterinary and Animal Sciences (CVAS), Bikaner, Rajasthan, India.  
1980-1982.............. **Instructor & In-charge Sheep Breeding Farm**, Department of Animal Breeding & Genetics, College of Veterinary and Animal Sciences, Bikaner, Rajasthan, India.  
1982-1986.............. **Assistant Professor**, Department of Animal Breeding & Genetics, College of Veterinary and Animal Sciences, Bikaner, Rajasthan, India.  
1994-1998.............. **Associate Professor**, Department of Animal Breeding and Genetics, Swedish University of Agricultural Sciences, Uppsala, Sweden.  
1998-2000.............. **Associate Professor** (tenured), Division of Animal Genetics, The Royal Veterinary and Agricultural University, Copenhagen, Denmark.  
Sept 2000 -.............. **Associate Professor** (*tenure in 2003*), Veterinary Anatomy and Public Health, College of Veterinary Medicine, Texas A&M University, College Station, Texas.  
Sept. 2004 -.............. **Professor**, Veterinary Integrative Biosciences, College of Veterinary Medicine & Biomedical Sciences, Texas A&M University, College Station, Texas.  
Sept. 2009 -.............. **Associate Dean for Research & Graduate Studies**, College of Veterinary Medicine & Biomedical Sciences, Texas A&M University, College Station, Texas.

## C. Awards and Honors

1978-1980 **Junior Research Fellow**. College of Veterinary and Animal Sciences, Bikaner, Rajasthan India  
1990-1991 **Doctoral Fellow**, Swedish University of Agricultural Sciences, Uppsala, Sweden  
1994 **Winner of the Best Poster Award at the Inter-Nordic Genome Conference: IVth Workshop of the Nordic Genome Initiative "Beyond Mapping single genes", 3rd-5th Sept. 1994, Helsinki, Finland.**

1998 “Specialized Scientist”, Position awarded for a period of 6 years by the Swedish Council for Forestry & Agricultural Research, Sweden (position was declined by me)

2004 Pfizer Award: For Research Excellence at the National level, College of Veterinary Medicine, Texas A&M University, College Station, Texas.

2006 Distinguished Achievement Award (Research), AFS, Texas A&M University

2008 Faculty Fellow, Texas AgriLife Research (TAES), Texas A&M University

2009 President Elect: Texas Genetics Society; 2010 - President

Research articles Awarded Cover-page of prestigious international peer-reviewed journals

<table>
<thead>
<tr>
<th>Year</th>
<th>Journal</th>
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<tbody>
<tr>
<td>2000</td>
<td>Genome Research</td>
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<tr>
<td>2002</td>
<td>Genomics</td>
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<tr>
<td>2003</td>
<td>Genome Research</td>
</tr>
<tr>
<td>2004</td>
<td>Cytogenetics &amp; Genome Research</td>
</tr>
<tr>
<td>2005</td>
<td>Mammalian Genome</td>
</tr>
<tr>
<td>2005</td>
<td>Genomics</td>
</tr>
<tr>
<td>2007</td>
<td>Genomics</td>
</tr>
</tbody>
</table>

D. Professional Experience

PUBLICATIONS & PRESENTATIONS:
1. Articles in peer-reviewed international journals (including below): 179
2. Book chapters: 10
3. Articles awarded cover-page of reputed journals: 7
4. Articles cited >100 times: 10
5. Presented 59 review articles/invited-lectures at various national and international forums
6. Summarized research activities/results at over 80 National & International meetings/conferences

EDITORIAL BOARDS:

Invited Chief Editor:
2. Equine Genomics. (Book with 24 chapters on various aspects of the horse genome; pub: 2012).

GRANT REVIEW COMMITTEES:
2. Wellcome Trust, U.K, Collaborative Research Initiative grant, International Biomedical Program
4. Morris Animal Foundation
5. Canine Health Foundation (AKC)
6. NSF
7. The Home of Rest for Horses
8. French National Research Foundation
9. Swiss Research Foundation
10. Canadian Foundation for Innovation
11. Irish Research Foundation
12. BBSRC, UK

SERVICE ACTIVITIES:
1. Manuscript Review for Journals:
   - Genome Research
   - Trends in Genetics (TIG)
   - Gene
   - Genomics
   - Mammalian Genome
   - Cytogenetics and Cell Genetics
   - Chromosome Research
   - Genetics Selection & Evolution
   - Animal Genetics
   - Journal of Veterinary Medical Association
   - Hereditas
   - Natur Wissenschaften (Springer)
   - Journal of Applied Genetics
   - Genetics, Selection and Evolution
   - Technical Tips Online
   - Theriogenology
   - American Journal of Veterinary Research
   - PloS - Genetics
Research Funding obtained in USA (since 2007):

Obtained major research funding from various FEDERAL, state and private agencies/organizations in USA, Denmark, Sweden and EU. Following is funding since 2007:


MENTORING

Number of graduate students mentored: 30 (chair for 12 students)
Number of post-doctoral researchers mentored: 21
Number of additional graduate & postdoctoral researchers trained: 18
(short research trainees)
Number of graduate students (rotation – in the US only): 12
Number of undergraduate students trained (in the US only): >30
SELECT PUBLICATIONS since 2009


3. Das, P.J., Chowdhary, B.P., Raudsepp, T. 2009. Characterization of the bovine pseudoautosomal region (PAR) and comparison with sheep, goat and other mammalian PARs. Cytogenet. Genome Res., 126, 139-147.


BIOGRAPHICAL SKETCH

NAME
Welsh, C. Jane

POSITION TITLE
Professor and Associate Department Head

eRA COMMONS USER NAME (credential, e.g., agency login)
CJWelsh

EDUCATION/TRAINING  (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE (if applicable)</th>
<th>MM/YY</th>
<th>FIELD OF STUDY</th>
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<tr>
<td>University of London, U.K.</td>
<td>B.Sc.</td>
<td>06/76</td>
<td>Microbiology</td>
</tr>
<tr>
<td>University of London, U.K.</td>
<td>Ph.D.</td>
<td>10/81</td>
<td>Immunology/Biochem.</td>
</tr>
<tr>
<td>King’s College Hospital, U.K.</td>
<td>Postdoc</td>
<td>1979-1981</td>
<td>Autoimmune liver</td>
</tr>
<tr>
<td>Dept. of Pathology, Cambridge, U.K.</td>
<td>Postdoc</td>
<td>1982-1985</td>
<td>Rheumatoid arthritis</td>
</tr>
<tr>
<td>Dept. of Pathology, Cambridge, U.K.</td>
<td>Postdoc</td>
<td>1985-1989</td>
<td>Multiple sclerosis</td>
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A. Personal Statement

The long-term goal of our research group is to determine the pathogenesis of multiple sclerosis. To this end, I have been intensively investigating the Theiler’s virus-induced demyelination (TVID) model of MS since 1985. We have studied the immune response to Theiler’s virus and described autoimmune phenomena that develop during the course of the disease. We have also studied the role of the blood-brain barrier and mechanisms of potential therapeutics in the model. More recently, we have investigated the role of stress in the development of Theiler’s virus-induced demyelination. During the course of this research we have developed a panel of immunoassays to investigate the role of stress on the immune response to Theiler’s virus.

B. Positions and Honors

Positions and Employment
1988-1989  Special Supervisor in Pathology, Newnham College, Cambridge University
1989-present  Visiting Assistant Professor (1989-1991), Assistant Professor (1991-2000); Associate Professor (2000-2006), Professor (2006-present) Dept. of Veterinary Integrative Biosciences and Dept. of Veterinary Pathobiology, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University
1991-present  Member of the Faculty of Neuroscience and Graduate Faculty, Texas A&M University
1998-present  Member of the Genetics Faculty, Biotechnology Faculty and Executive Committee of the Faculty of Virology, Texas A&M University
2002-present  Executive Committee, Recovery of Function Interdisciplinary Group
2006-present  Associate Department Head, Dept. Veterinary Integrative Biosciences
2007-present  Joint appointments in the Dept. Neuroscience and Experimental Therapeutics, College of Medicine, Texas A&M Health Science Center and Dept. Psychology, Texas A&M University

Other Experience and Professional Memberships
External Reviewer
2001  Alzheimer’s Association Grant Reviewer
2003  Biotechnology and Biological Sciences Research Council, UK
      NIH Brain Disorders and Clinical Neuroscience Special Emphasis Panel (ZRG1-NMB)
2004  NSF Fellowship Review Panel, NMSS Pilot Grant Reviewer
2005  2008 2009 NSF Fellowship Review Panel
2006  NIH Brain Disorders and Clinical Neuroscience Special Emphasis Panel
2007  2008 2009 American Heart Association Grant Review Panel
2009  NIH Clinical Neuroimmunology and Brain Tumor Grant Review Panel

Editorial Board: Brain, Behavior and Immunity

Memberships: British Society for Immunology, International Society for Neuroimmunology, International Society for NeuroImmunoModulation (Executive Committee 2006-present)

C. Selected Peer-reviewed Publications

Relevant Publications

Additional recent publications of importance to the field (in chronological order)

D. Research Support

**Ongoing Research Support**

Programmatic Development Award from Dept of Veterinary Integrative Bioscience, 2008-2011
Effect of estrogen on the neuropathogenesis of Theiler’s virus infection
Goals: To develop preliminary data for the NIH proposal.
Role: PI

NIH/NINDS RO1NS060017 Li (PI) 09/30/2007-06/30/2011
Glial Interactions in Premyelinating Oligodendrocyte Destruction
Goals: This grant examines the interactions between astrocytes and microglial cells in oligodendrocyte destruction.
Role: Collaborator

NIH/NINDS RO1 NS060822 Meagher (PI) 12/01/2007-11/30/11
Impact of stress-induced cytokines on an animal model of MS
Goals: This grant examines the role of cytokines in mediating the adverse effects of social stress on Theiler’s virus infection.
Role: Co-PI

**Completed Research Support**

R01NS39569 Welsh (PI) 04/01/02-03/31/07 (includes one year no cost extension)
NIH/NINDS
Stress effects on an animal model of autoimmune disease
Goals: investigation of the effects of restraint stress on the immune response to Theiler’s virus infection during acute and chronic disease
Role: PI
Co-PIs Mary Meagher, Tom Welsh, Julian Leibowitz and Ralph Storts

IIRG program Project Sohrabji (PI) 06/01/02-05/31/05
Alzheimer’s Association
Estrogens regulation of the inflammatory response.
Goals: determine the effect of estrogens on microglial cells and the inflammatory response in the CNS
The major goals of this project were to determine the effect of estrogens on the CNS. Ex vivo cultures of blood and microglia from young adult and reproductive senescent animals used to determine age-related changes in estrogen responsiveness of blood borne and brain resident immune cells.
Role: Collaborator

NIH 2 R01 AI34530-06, Tesh (PI) 09/01/01 - 06/30/05
NIH/NIAID
Pathogenic Mechanisms of Shiga Toxins
The goals of this grant were to examine the apoptotic pathways by which shiga toxins mediate cell death.
Role: Collaborator

NIH 3R01AG019515 Sohrabji (PI) 02/01/2002-01/31/2007
NIA/NIH
Mechanisms and Neural Consequences of estrogen action
Goals: The broad aim of this proposal was to determine the cellular consequences of estrogen-mediated alterations in the ratio of neurotrophin receptors and test the hypothesis that expression/activation of the alpha form of the estrogen receptor (ER-α) is detrimental to cell health.

NIH/NIA 5RO1AG028303 Sohrabji (PI) 08/01/06-07/31/10
Impact of Reproductive Aging on Neural-Immune Responses
Goals: This proposal will examine the hypothesis that the blood brain barrier is altered by reproductive aging, by comparing young, normally cycling female animals with older acyclic females.
Role: Co-Investigator

Role: Collaborator
Ashley Gustafson Seabury  
Texas A&M University  
College of Veterinary Medicine & Biomedical Sciences  
College Station, TX 77843-4458

EDUCATION/TRAINING

<table>
<thead>
<tr>
<th>Institution</th>
<th>Degree</th>
<th>Field</th>
<th>Date</th>
</tr>
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<tr>
<td>West Virginia University</td>
<td>B.S.</td>
<td>Animal and Veterinary</td>
<td>September 1998-May 2001</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>Ph.D.</td>
<td>Genetics</td>
<td>September 2001-May 2005</td>
</tr>
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</table>

PROFESSIONAL EXPERIENCE

- 2000-2001 Undergraduate molecular research assistant at West Virginia University
- 2000-2001 Intern at the USDA National Center for Cool and Cold Water Aquaculture: Dr. Caird Rexroad (supervisor)
- 2001-2002 Teaching assistant- Genetics 301 at Texas A&M University; Fall 2001 & Spring 2002
- 2001-2004 Research assistant at Texas A&M University for Dr. Loren C. Skow
- 2005-2011 Postdoctoral Research Associate and Lab Manager at Texas A&M University for Dr. Bhanu Chowdhary
- 2011-present Program Coordinator for Research and Graduate Studies in the Texas A&M University College of Veterinary Medicine & Biomedical Sciences (Dean’s Office)

HONORS AND AWARDS

- 1998-2001 West Virginia University Presidential Scholarship
- 1999-2001 Gladys Davis Veterinary Medicine Scholarship
- 2000-2001 Gamma Sigma Delta Outstanding Senior in College of Ag., Forestry, and Consumer Sci.
- 2000-2001 American Society of Animal Science Scholarship Award
- 2001-2005 Kidder Scholarship; West Virginia University
- 2003 3rd Prize for Platform Presentation at the TAMU CVM Research Symposium
- 2004 2nd Prize for Platform Presentation at the TAMU CVM Research Symposium
- 2005 1st Prize for Platform Presentation at the TAMU Genetics Graduate Student Oral Research Symposium

POSTER PRESENTATIONS

- Plant and Animal Genome XV Conference, Jan. 13-17, 2007. Fritz, K., Childers, C., **Gustafson-Seabury, A.** and
L.C. Skow. Microsatellite-Derived Haplotypes of BoLA IIb
Gustafson-Seabury, A., et al. An Integrated High-Resolution Whole Genome Radiation (RH) and Comparative Map for the Horse.


PLATFORM PRESENTATIONS
Texas Genetics Society Meeting, March 27-29, 2003, Austin, TX. Gene Content and Homology-Based Assembly of Overlapping BACs for the Equine Major Histocompatibility Complex (ELA).

Texas A&M University, College of Veterinary Medicine Research Symposium, April 8, 2003, College Station, TX. Gene Content and Homology-Based Assembly of Overlapping BACs for the Equine Major Histocompatibility Complex (ELA).


Texas A&M University Genetics Graduate Student Oral Research Symposium, February 18, 2005, College Station, TX, High resolution RH map of horse chromosome 22 reveals a putative ancestral vertebrate chromosome.

Texas Genetics Society Meeting, April 6-8, 2006, Galveston, TX. The Status of the Second Generation Whole Genome Radiation Hybrid (RH) and Comparative Map of the Horse Genome.


MANUSCRIPTS


### In Preparation ManuScripTS

Gustafson-Seabury, A., Seabury, C.M., Adelson, D., MacLeod, J., Antczak, D., Chowdhary, B.P.

Construction of a 7898 element equine cDNA microarray.

### GRANTS

Genes modulating equine neonatal immune system maturation and response to *Rhodococcus equi*. CSREES-NRI Postdoctoral Fellowship, Animal Genome 43.0, Functional Genomics. $125,000

### PROFESSIONAL SOCIETY MEMBERSHIPS

2000-2001  Gamma Sigma Delta
2002-2011  Texas Genetics Society

### MANAGEMENT EXPERIENCE

Since 2004, I have undertaken the role of research manger in a genomics laboratory as well as being a graduate student or postdoctoral research associate. Managing research projects is a natural extension of my research experience, as strong organizational skills are a necessity for research as well as management. While I was a graduate student I managed the laboratory’s grant accounts and ordering of necessary supplies. I was also charged with maintaining our laboratory’s radiation permit and ensuring that we were in compliance with all rules and regulations. This was my first managerial experience and I thoroughly enjoyed it. I also realized that organization, documentation, and communications were all necessary components for successfully managing the laboratory. In 2005, I became a postdoctoral research associate and moved to a new laboratory. In this position I was responsible for 5-10 people at any given time. The people ranged from undergraduate student workers to graduate students to other new postdocs. This was certainly a challenge, but I learned how to interact and communicate with a variety of different people. Learning to be adaptable in my method of communication was key to successfully managing the lab. In this position I was responsible for training and supervising all undergraduate, graduate students, and new postdocs, managing all research grant accounts, ordering all equipment and supplies, ensuring the laboratory was in compliance with all safety rules and regulations, filing and maintaining all necessary permits with the appropriate offices, and securing the necessary approvals for research as needed. I had these responsibilities in addition to maintaining my own research project. Through this experience, I have gained extensive knowledge about various aspects of research management ranging from good mentoring/managing techniques to research safety and compliance rules and regulations. One of the most critical aspects of research management is biosafety. During my time as a research manager at Texas A&M University, I have requested the following permits and/or approvals: an IBC BL-1 permit, an IBC BL-2 permit, a P-32 radiation permit, an Animal Use Protocol (AUP), a CRRC owner’s consent form, and USDA import permits. I believe all these experiences have given me an excellent background in managing both people and projects.
Objective: I am seeking a full time position where my people skills, organizational skills and attention to detail can be utilized.

Experience: **Texas A&M University**, College Station, Texas. **09/11 to date** Administrative Assistant to the Associate Dean for Research & Graduate Studies, College of Veterinary Medicine & Biomedical Science: Serves as office manager; may supervise, train and evaluate the work of other support staff and/or Student Workers; may serve as a personal assistant to an administrator; provides administrative support for specialized activities or projects; plans and provides logistical and administrative support for events, meetings or other special functions, including on-site support; provides agendas and staffing assistance to meetings; applies and interprets and communicates University policies and procedures and serves as a resource for such; maintains keys and placards; assists in resolving complex, highly sensitive and confidential administrative matters; responds to non-routine information requests; reviews and signs forms for supervisor; supervises the creation and maintenance and retention of office files and records; attends meetings or committees on behalf of supervisor; develops, evaluates and ensures adherence to office procedures; monitors office procedures to eliminate duplication of effort and to streamline flow of operations; maintains office supplies and equipment; researches, compiles and applies information, making evaluative judgments on appropriate data to use; analyzes requirements for projects or initiatives; assures the confidentiality of mail, correspondence and reports; gathers information and conducts research in support of departmental administrators; serves as a liaison for departmental equipment and service contracts; creates and maintains administrative databases; prepares presentation and communication materials; performs related duties as required.

**Scott & White Health Plan**, College Station, Texas. **01/05 to 08/11** Department Secretary: Maintain groups in GroupWise; Schedule appointments; Maintain calendars; Issue schedule reminders to staff; Process reports; Act as back-up support for census reporting; Assist with outpatient request processing; Create, modify and maintain divisional letter templates as well as the database; Act as Administrator for our divisional web pages, which includes maintaining the webpage database and creating new web pages as the need arises; Active participant on following committees: Policy & Procedures for the Care Coordination Division, Regulations & Standards Committee, Resource Manual Committee, Orientation/Education Committee, Community Benefit, Chairperson for the Employee Appreciation Committee; Chosen to act as lead support during the NCQA accreditation process; Chosen to participate on the Project Planning Committee for the move to CarePlanner Web as well as the conversion to Alineo; Chosen to participate in the MDecision User Conference in Philadelphia; Recipient of numerous awards for performance as well as ‘team spirit’ awards; Graduate of the Toyota Lean Program through the University of Michigan. **10/00 to 01/05 Senior Secretary:** Maintenance of all inpatient and outpatient documentation; Incoming and outgoing correspondence; Act as customer service liaison between the Health Plan Members and the Continuing Care Coordinators; Maintain supply levels; Maintain proper reporting practices; Train Support Staff; Any miscellaneous projects as needed by the Director and Utilization Managers.

**Associated Marketing/Merchant Services**, College Station, Texas. **11/99 to 10/00** Office Manager: Accounts Payable, Accounts Receivable, Inventory control, Maintain incoming and outgoing correspondence, Create presentations, Coordinate scheduling, Customer Service in all capacities.

**The Robin’s Nest**, College Station, Texas. **6/96 to 3/00.** Owned and operated a licensed, home child care facility while my younger child was preschool age.
West, Webb, Allbritton, & Gentry, Bryan, Texas. 6/94 - 5/96. 01/95 – 05/96: File Clerk: Maintain all central filing, including billing for the law firm as a whole. Assistant to Gaines West: Assist Mr. West in all correspondence pertaining to his Presidency of the Texas Indian Bar Association; Schedule meetings and appointments for Mr. West; Confirm the accuracy of his travel arrangements. 06/94 – 01/95 Receptionist: Answer incoming calls; Maintain “tickler” system.

Dillard Department Stores, College Station, Texas 8/84 - 6/94. Cash Auditor: Audit all register bank and deposit drawers; Audit the store safe; Maintain the proper amount of available cash for store operation PBX Operator: Receive and process all incoming calls. Maintain supply levels for the store. Customer Service Representative: Receive and process customer payments; Maintain cash drawer; Research billing discrepancies, Assist customers with whatever issues may arise. Department Head of Sales: Maintain inventory levels; Supervision of workers, retail sales.

Education: Texas A & M University, 1987
Bryan High School 1985. National Honor Society
CVM
Graduate Student Association
Constitution
Constitution of the Graduate Student Association of the College of Veterinary Medicine, Texas A&M University

Article I: The Graduate Student Association of the College of Veterinary Medicine

Section I: This organization shall be known as the Graduate Student Association of the College of Veterinary Medicine (hereinafter to be referred to as the GSA-CVM).

Section II: The GSA-CVM shall consist of all full-time and part-time graduate students who are registered in the College of Veterinary Medicine of Texas A&M University, and the organization shall exercise its authority through this Constitution.

Section III: The governing structure of the GSA-CVM shall consist of an Executive Committee.
Article II: Purpose and Goals

Section I: The GSA-CVM is established to provide an officially recognized graduate student organization in order to:

(a) Identify and represent graduate student interests;

(b) Promote graduate student participation in the overall policy and decision-making processes of the College of Veterinary Medicine of Texas A&M University;

(c) Enhance the quality and scope of education at Texas A&M University;

(d) Form a communicative coalition with the Graduate Student Council of Texas A&M University;

(e) And promote the general welfare of the student body.

Section II: The GSA-CVM is established to offer the following scope of activities for the graduate students of the college:

(a) Monthly meetings will be held to conduct official business and provide clear communication of events and plans to the members of the organization. Speakers will present a short seminar at each meeting that will add to the member’s knowledge base and educate the members on the opportunities available to them.

(b) The GSA-CVM Research Symposium will be an annual event hosted and organized by the GSA-CVM. It will give graduate students in the college the opportunity to present their research in either a poster or oral format. A closing ceremony to the Symposium will be held in a banquet format.

(c) Travel Awards will be given to individuals who fulfill the requirements outlined in the bylaws. These funds are for GSA-CVM members who present at a domestic conference and are provided to offset the cost of travel and lodging.

(d) Members of the organization will be offered different community service projects and will be encouraged to participate.
Article III: Membership Requirements

Section I: A member of the CVM-GSA shall be required to be:

(a) enrolled for graduate study in the College of Veterinary Medicine of Texas A&M University, or;

(b) an enrolled graduate student whose academic advisor is a member of the faculty of the College of Veterinary Medicine.

Section II: If for any reason a member of the GSA-CVM is to be removed, a written warning must be given and a time appointed for the accused to defend him or herself to the EC and advisor. If the EC decides removal is still necessary, a vote of general membership must be called to ratify the decision at a special or stated meeting. The decision to remove a member of the EC from office can only be carried out if there is a majority vote in favor of the removal. Reasons for removal from membership include:

(a) Any violation of TAMU student rule 24, referring to the students code of conduct;

(b) Disregards the instructions or wishes of either the Faculty Advisor, EC or the general membership;

(c) Misuse of GSA-CVM funds

Article IV: The Executive Committee

Section I: All executive powers shall be vested in the Executive Committee of the GSA-CVM. The Executive Committee (hereinafter referred to as the EC) shall consist of two Representatives elected by the graduate students from each academic department (VTPB, VTPP, VIBS, and BIMS) in the College of Veterinary Medicine of Texas A&M University. Elections will be held annually at a stated meeting during the month of April.

Section II: Officers

(a) Officers of the EC shall be elected by the members of the EC and shall consist of a President, Vice President, Treasurer, General Secretary and a Travel Secretary.
(b) No student may serve as the representative of more than one department.

(c) Officers of the EC shall have been registered as a student in the College of Veterinary Medicine for at least one semester (not including the summer semester) preceding the election to office.

(d) No person may concurrently serve in any two or more of the following positions: President, Vice President, General Secretary, Travel Secretary or Treasurer.

(e) No person may serve no more than two consecutive terms as an officer of the Executive Committee.

(f) If for any reason a member of the EC is to be removed from office, a written warning must be given and a time appointed for the accused to defend themselves to the EC and advisor. If the EC decides removal is still necessary, a vote of general membership must be called to ratify the decision at a special or stated meeting. The decision to remove a member of the EC from office can only be carried out if there is a majority vote in favor of the removal. Reasons for removal from office include:

1. Any violation of TAMU student rule 24, referring to the students code of conduct;

2. Disregards the instructions or wishes of either the Faculty Advisor, EC or the general membership;

3. Misuse of GSA-CVM funds

(g) All Officers of this organization must meet the following requirements:

1. The minimum GPR is a 3.00. In order for this provision to be met, at least four hours must have been taken for the semester under consideration. In one limited circumstance, summer semester hours may be applied to this provision. In order for summer coursework to qualify toward a grade point ratio prior to election/appointment, at least four credit hours must have been taken during the course of either the full or two summer session(s) unless fewer credits are required as they complete the final stages of their degree.

2. All must be in good standing with the university and currently enrolled at least half time (four or more credits), unless fewer credits are required in the final stages of their degree as defined by the Continuous Registration Requirement, during their term of office.

3. If the officer fails to maintain the requirements as prescribed in (1.) and (2.), they are ineligible to hold office.
Section III: The chief executive officer shall be the President.

(a) The President shall have been registered as a graduate student in the College of Veterinary Medicine at Texas A&M University for at least one (1) semester (not including the summer semester) preceding the election to office and he or she shall have been elected as a representative of his or her academic department.

(b) The President shall preside over all GSA-CVM meetings in accordance with Robert’s Rules of Order Revised and the GSA-CVM By-laws.

(c) The President is responsible for the creation and appointment of all needed executive officers and committees, not already provided for, with the approval of a majority of the active members present and voting at a stated or special meeting. The execution of all decisions made by the EC is also the responsibility of the President.

(d) The President has the power to perform the following actions at his or her discretion:

1. Call special meetings of the EC
2. Remove any of his or her appointees to the EC.
3. Address the GSA-CVM and the EC for the purposes of answering questions and clarifying information.
4. Act as ceremonial representative of the GSA-CVM.

Section IV: The Vice President shall act as a liaison between the GSA-CVM and the Associate Dean for Research of the College of Veterinary Medicine. The Vice President will assist the President wherever needed and assume the duties of the President in the event of absence or incapacitation.

Section V: The Treasurer shall:

(a) Maintain accurate and up-to-date financial records for the GSA-CVM;

(b) Develop an annual budget to be approved by the EC and the Faculty Advisor;

(c) Work with the Associate Dean for Research and Graduate Programs on financial matters such as approval of receipts and making reimbursements and disbursements;

(d) And present an end-of-year report to the EC and GSA-CVM.
Section VI: The duties of the General Secretary shall include:

(a) Recording the Minutes of both general and EC Meetings and the typing and distribution of the Minutes;

(b) Typing and distribution of the Agenda; (The Agenda is to be submitted to the General Secretary by the Executive Committee.)

(c) Creation and posting of flyers for general meetings and special events;

(d) Correspondence, including, but not limited to “Thank you” letters and email reminders to the members.

Section VII: The duties of the Travel Secretary shall include:

(a) Establishing and educating the members of GSA-CVM as to the rules and requirements of applying and receiving a Travel Award;

(b) Deciding who among the applicants will receive a Travel Award using the guidelines provided in the By-laws.

Section VIII: Vacancies on the Executive Committee

(a) In case of a vacancy in the Executive Committee, the graduate students shall elect by a simple majority vote of the students present at a special or stated meeting a member to fill the position within sixty (60) days of the vacancy.

(b) In case of a vacancy of an officer in the Executive Committee, the members of the EC shall elect, by a simple majority vote of the members present and voting at a stated or special meeting, a member of the EC to fill the position within sixty (60) days of the vacancy.

(c) In the event of the inability of the President to fulfill the duties of his office, or upon removal or resignation from office, the Vice President shall assume the office of the President subject to a vote of a simple majority of the active members present and voting at a stated or special meeting. If a simple majority is not achieved, a replacement for the President will be chosen via an announced election at the next stated meeting.
Section IX: Business shall be conducted as follows:

(a) Ten percent of the active membership constitutes a quorum at stated and special meetings.

(b) Special meetings of the GSA-CVM, shall be called by the President within not more than one week upon presentation of a petition to the General Secretary, signed by at least thirty (30) of the active members of the GSA-CVM.

(c) The EC shall assign all pending business to the appropriate standing or ad hoc committee. All new business must be presented to the EC at or before the time the agenda is set. The EC shall decide whether to include the item on the Agenda. An item must be included on the Agenda if at least twenty (20) members petition to include it at the time the Agenda is set. Urgent new business, which has not been presented to the EC for inclusion on the Agenda, must be brought to the attention of the presiding officer prior to the beginning of the meeting at which the item is to be discussed. A two-thirds (2/3) majority vote of the active members present is allowed prior to the vote. Any business which has been assigned to a committee may be brought to the floor by that committee whether or not the item appears on the Agenda.

(d) If a committee fails to review business within a reasonable period of time, a one-third (1/3) vote of the active members present and voting at a stated or special meeting shall take the business from the committee and allow the EC to consider it.

(e) A quorum of the EC shall be at least four (4) members and no proxies shall be permitted; no business shall be conducted without the presence of a quorum.

Article V: Faculty Advisor

Section I: The Faculty Advisor(s) shall be chosen by a simple majority of the active members present and voting at a stated or special meeting. The Faculty Advisor shall be chosen from a list of volunteers submitted by the Office of the Associate Dean for Research and Graduate Programs, or selected by the EC.

Section II: The Faculty Advisor(s) role is to ensure all rules and regulations are being following during all activities of the GSA-CVM including, but not limited to:

(a) Meetings

(b) Research Symposium
Article VI: Finances

Section I: An annual budget will be proposed by the Treasurer and approved by the EC and faculty advisor before being presented to the active membership. The budget should address the following:

(a) Fundraising
(b) Meeting Costs
(c) Travel Awards
(d) Research Symposium
(e) Community Service Events

Section II: All monies belonging to this organization shall be deposited and disbursed through a bank account established at the Student Organization Finance Center and/or the Fiscal Office. All funds must be deposited within 24 hours after collection. The advisor to this organization must approve and sign each expenditure before payment.

Section III: In the event that the GSA-CVM is dissolved, all remaining monies after all debts are paid are to be donated to the Office of the Dean of the College of Veterinary Medicine of Texas A&M University.

Section IV: All monies in the budget that arise from the Graduate Enhancement Fund which is controlled by the CVM Dean’s Office will be handled and delegated according to the CVM Dean’s Office guidelines.
**Article VII: Amendments & Ratification**

**Section I:** This Constitution must be ratified and may be amended by a two-thirds (2/3) majority vote of the active members present and voting at a stated or special meeting. All approved amendments will be incorporated into the body of the Constitution in the appropriate place. Upon approval of any amendment, an updated Constitution and By-laws must be submitted to and approved by the Department of Student Activities.

**Section II:** All previous Constitutions are null and void, and the current constitution will be reviewed annually by the EC. This constitution is also reviewed annually and subject to the approval of the Department of Student Activities regardless of the addition or lack of addition of amendments.

**Section III:** This Constitution stands approved as of ________________________.

Approved: Dr. Weston Porter, Faculty Advisor

Approved: Kory C. Douglas, CVM-GSA President, 2010-11

Approved: Director of Student Activities
By-Laws of the GSA-CVM

I: BY-LAWS

These By-Laws to the Constitution of the Graduate Student Association of the College of Veterinary Medicine (hereinafter referred to as the GSA-CVM) of Texas A&M University shall govern the GSA-CVM and official committees in all cases in which they are not in conflict with the Constitution of the GSA-CVM. These By-Laws will be reviewed annually and revised if necessary.

II: MEMBERSHIP

“Active Membership” is defined as: current graduate student enrolled in the College of Veterinary Medicine that participates in at least one GSA-CVM activity per academic year. Activities may be meetings, community service events, fundraisers or the annual research symposium.

III: ELECTIONS AND TERMS

1. All departmental representatives shall be elected to the EC during the annual elections to be held during the April meeting.

   (a) Potential members of the Executive Committee will be nominated by members in attendance at this meeting.

   (b) Nominees need not be present.

   (c) The members in attendance will nominate two (2) representatives per department in the CVM.

   (d) After nominations are complete, voting will proceed by a show of hands.

   (e) Electees, if not present, must accept the position. If an electee chooses not to accept their position, then the vote which elected them is considered null and void.

2. The annual elections shall be held during the month of April of each year. A term shall be one calendar year starting on the 1st day of June following the general election.

IV: OFFICERS

(a) Election of Officers: Officers shall be elected by simple majority of the quorum present and voting at the first stated or special meeting of the EC following elections.
(b) During their term of office, officers are considered to be at-large members, and the President may appoint a replacement departmental representative to the EC.

(c) Duties of the Officers:

1. An officer of the GSA-CVM shall be required to attend all stated and special meetings.

2. An officer who misses three (3) consecutive stated and/or special meetings without giving prior notification to the EC of the GSA-CVM shall be considered an absentee officer and shall be removed from office. An absentee officer may be reinstated by a simple majority vote at a stated or special meeting of the students.

VI: TRAVEL AWARDS

A) ELIGIBILITY REQUIREMENTS
The eligibility and requirements for receiving a GSA-CVM Travel Award are as follows:

1) Must be a student registered in a graduate program at CVM at the time of travel.
2) The student must be an employee of Texas A&M University (consult your department for becoming TAMU employee during travel).
3) The meeting or conference must be professional in nature and of scientific importance in the student's field of study.
4) The student must be the first and the presenting author.
5) An abstract and evidence of its acceptance is required.
6) The presentation must be a poster or platform format.
7) A student is limited to one travel award per academic year.
8) The final application must be completed & submitted prior to the deadline.
9) The research to be presented should positively represent the College of Veterinary Medicine and its students.
10) Work to be presented must be “new”, abstracts from previous awarded travel grants will be reviewed to ensure that “new” work is presented
11) Students must be of good academic standing and the student grade point average will be used to judge the academic performance.

B) Application Procedure
1) Two pre-application deadlines, for corresponding Fall and Spring/Summer travel, will be announced at the first GSA-CVM meeting of the academic year and will also be available on the GSA-CVM website. A pre-application is highly recommended and those students who submit pre-applications will be considered before students that did not. Pre-
applications are available on-line at the GSA-CVM website

2) Final application forms are available at the GSA-CVM website and must be submitted at least one month before expected travel. Specific application deadline dates are available on-line at the GSA-CVM website.

3) Final application forms should include the following and be submitted to the GSA-CVM Travel Grant Secretary:
   a) A copy of your abstract.
   b) Evidence of abstract acceptance.

4) **In case you do not have evidence of an accepted abstract by the submission deadline:** Submit your application with evidence of abstract submission and indicate in the comments section of the application when you expect acceptance notification. You will be required to submit evidence of acceptance as soon as it becomes available. If you are selected to receive an award you will not be given any funds until we have evidence your abstract was accepted.

C) SELECTION COMMITTEE & CRITERIA

The GSA faculty advisor and the GSA Travel Grant Secretary will review the applications and select the awardees. In the event, the Advisor and Travel Secretary do not agree or a student feels he/she has been unjustly denied an award, the EC will meet and a majority vote will decide if the award is to be granted.

In the case of limiting funds, the following point system will be used to decide which students who meet all eligibility requirements will receive travel awards:

Point System
1) Pre-application = 20 pts
2) Attendance at GSA-CVM meetings = 2 points per meeting
3) Vendor show participation = 4 points
4) Open house participation = 8 points
5) GSA-CVM Symposium Volunteer = 8 points
6) Other GSA-CVM events = 4 points

There will be sign-up sheets to record the names of those who participated in all GSA-CVM events.
D) DISTRIBUTION OF GSA-CVM TRAVEL AWARDS

Awards are given for registration, transportation, lodging, and meals excluding alcoholic beverages. The amount awarded will be determined annually as determined by the GSA-CVM approved budget and number of pre-applications. Travel arrangements should be made through your departmental contact to ensure full use of the award and reimbursement of eligible expenses. It is the awardee’s responsibility to notify the travel arrangement contact for their department of their award. Departmental contacts must be notified of the expected amount of travel award to be received.

A University Travel Request must be submitted and approved before the award can be dispersed through respective departmental contacts. All receipts must be turned in to respective departmental contacts, and a copy of all receipts must be given to the GSA-CVM Treasurer to ensure proper records. In the case of a student receiving additional travel awards for travel to the same meeting, those awards must be applied first towards travel expenses and GSA-CVM Travel Award will be applied towards the remainder of expenses, up to budgeted award amount. Applying/receiving additional travel awards will NOT affect the review or judging of your GSA-CVM Travel Award application.

E) OBLIGATION OF ACCEPTING A GSA-CVM TRAVEL AWARD

Students accepting a GSA-CVM Travel Award are required to present their work at the Spring CVM Research Symposium during the same academic year that their meeting/conference falls.

Poster or platform presentations should include an acknowledgement of the College of Veterinary Medicine & CVM Graduate Student Association for their travel award.

VII: PROXY VOTE

In case of absences due to just cause, any member of the EC, excluding the presiding officer, may appoint a proxy. The proxy shall be a graduate student member of the member’s constituency. The proxy shall bring to the meeting(s), at which he or she is to serve, any special voting instructions in writing for the proxy. This letter shall be signed by the representative member and retained by the secretary of the EC. The General Secretary shall collect and
maintain a list of the *bona fide* signatures of all the representative members. Disputes in seating of proxies shall be settled by a simple majority vote of the active members present and voting.

**VIII: VALIDITY OF BY-LAWS**

All previous By-Laws are null and void.

**IX: BY-LAWS CHANGE OR APPROVAL**

A change or approval of any By-Law shall require a two-thirds majority vote of the members present and voting at a stated or special meeting. All additions to or corrections of the By-Laws must be presented to the GSA-CVM one meeting prior to action of said additions or corrections, with at least a 24-hour interval between meetings. Upon approval of any amendment, an updated By-laws must be submitted to and approved by the Department of Student Activities.

**X: APPROVAL**

These By-Laws stand approved as of: ____________________________

__________________________

Approved: Kory C. Douglas, President 2010-2011

__________________________

Approved: Dr. Weston Porter, Faculty Advisor
APPENDIX 5

Fellowships, Scholarships, Enhanced Educational Opportunities and Proposals to the OGS
Proposed described to the OGS to enhance graduate education in the CVM

**COLLEGE OF VETERINARY MEDICINE & BIOMEDICAL SCIENCES**

Proposal prepared in response to the RFP for: University Strategic Reallocation Funds for Graduate Education

**Guiding principle:** Strategically increase funding packages for graduate students to encourage excellence and diversity in the graduate student body

The graduate program at the College of Veterinary Medicine & Biomedical Sciences is unique because in addition to offering MS/PhD programs in various Biomedical Science disciplines, it offers PhD training to DVMs in the field of veterinary medicine. **Our primary objective through this request for graduate funding is to ensure that the CVM is able to recruit and graduate a diverse, exceptionally talented, and highly competitive graduate student body to**

- strengthen the higher education mission of the college,
- significantly improve the quality of our graduate programs and thus create a highly qualified work force bearing the CVM/TAMU name,
- purposefully institute diversity in the graduate student body including increased enrollment of underrepresented minorities, and
- serve the current critical needs of the veterinary medical profession.

It is evident that the reputation of any graduate program and the pool of applicants it attracts are directly dependent on the quality and national/international reputation of the research conducted at that institution. However, we also recognize that the stipend/benefit-package offered to the incoming students plays a significant role in their decision making particularly when several closely competitive choices are available. Our request enhances the current graduate program for non-DVM students in a targeted manner by **first** strategically recruiting a specific number of highly meritorious students, raising the expectation bar for them and instituting a carefully crafted rigorous mentoring plan to enable them to meet the high expectations and **second**, rewarding excellence and creating high-level training opportunities for all graduate students. Additionally, in close alignment with the mission of the college, we must strategically address the shortage of DVM-PhDs in the work force, which is seriously affecting veterinary medical profession. This proposal will create an attractive and affordable incentive to encourage DVMs to pursue PhD education/training. In all instances, we will purposefully promote diversity and will support under-represented minorities during recruitment.

1. **Promoting excellence and diversity in the CVM PhD program**

The PhD program (non-DVM) at the CVM enjoys mixed success. While it does attract some outstanding students, there is evident variation in the qualifications and experience of the applicant pool. This directly impacts graduation rate and also influences the quality of research conducted by the students in the short-term and long-term during their graduate education. Recruiting the best possible pool of students substantially enhances the prospect of quality research, thus contributing to the overall excellence of the program. Despite our nationally recognized research programs, one of the key reasons we are unable to effectively recruit some of the best students is the low stipends we traditionally offer compared to our peer institutions. We will take the steps outlined below to attract meritorious students to our graduate program by providing competitive stipends to **a select group** of the incoming students who will be designated **CVM Merit Scholars.** In addition, we need to take concrete measures that will markedly improve the learning experience **for all the graduate students** and provide them with incentives to excel.

**Stipend:** On average, the CVM has 90 PhD students in a given year and enrolls/graduates ~20-25 students each year. The CVM Merit Scholars will represent 25-30% of the new recruits.
beginning FY12. These recruits will be chosen through a stringent selection process, and subjected to a rigorous curriculum and training. Their progress will be closely monitored by a designated mentoring committee (analogous to an honors program at an undergraduate level), will be held to higher standards and expectations, and will have an obligation to excel in pre-specified areas. The training and anticipated success of this group will serve as a model to revitalize the CVM graduate program.

The annual stipend for PhD students at the CVM is $16,500 to $23,000, with considerable variation in tuition and fees remuneration. To be competitive in selecting and recruiting the CVM Merit Scholars, we propose a $34,000 composite package ($25,000 stipend + tuition/fees). The college will provide $20,000/year stipend for each graduate student and requests the remaining $14,000 ($9,000 as tuition+fees and $5,000 for enhancing the package) for the scholars in FY12 and subsequent years.

FY12: $14,000 x 6 = $84,000
FY13: $14,000 x 12 = $168,000
FY14: $14,000 x 18 = $252,000

Metrics of success: see end of section 2

Metrics of success:
- CVM Merit Scholars will be the show-case of graduate education at the CVM with guaranteed graduation within 4 – 4 ½ years;
- A required peer-reviewed international journal publication based dissertation by Merit Scholars, and a public/open defense will raise the bar of PhD education at the CVM
- 100% placement of the CVM Merit scholars in internationally reputed academic institutions, industry or public/private sector and a 50% increase in better placements for other PhD scholars
- Submission of at least 3 extramural research proposals by the Merit Scholars and at least 1 proposal submission by the other graduate scholars; the number of proposals submitted by the latter group will increase to at least 2 by year 3.
- Marked increase in the number of publications by graduate students (prior to defense)

2. Reorganizing and revitalizing the PhD program for DVMs

The CVM has considerable strengths for imparting PhD level education and training to individuals with a DVM degree. However, the enrollment has been frustratingly low and it has been extremely difficult to recruit DVMs into a PhD program (explained below). Our objective is to strategically reinvest into the PhD program for DVMs (one of the primary missions of the CVM) by creating a strong support environment for the applicants such that
- the most qualified and diverse set of applicants are attracted to the program, and
- a stipend support commensurate with education levels is provided to the DVMs as an incentive to undertake graduate education.

Strategically, it is also critical that the CVM gets national visibility as a Veterinary Medical Institution that not only invests in professional education, but is equally committed to and highly qualified for imparting higher education to the DVMs. DVMs with a PhD degree will be highly sought after as academicians and/or researchers in state, federal and public sector enterprises, and educational institutes.

Outlining the problem:
The veterinary medical profession is in dire need of highly trained next generation academics (teachers and researchers). Despite having an excellent mentor base at the CVM, and unparalleled facilities and environment to conduct doctoral research, it is extremely difficult to
attract DVMs to undertake a 3-4 year dedicated PhD program focused on basic or clinical research because of 2 key reasons:

a) Substantially high debt accumulated during DVM education dissuades the potential applicants (young veterinarians) to undertake yet another 3-4 years of PhD education to become part of a research and teaching enterprise.

b) Unusually low stipends (~$30K) make it very unattractive for the DVMs to go directly into a PhD program after their education particularly when they can easily make ~$75,000 annually as beginning practitioners. The same applies to young veterinarians, who after 2-3 years in service, are at the verge of being an integral part of a thriving practice, and find participating in a PhD program economically unappealing.

Proposed solutions (implementation plan):

a) Provide stipends commensurate with the degree (DVM) and experience (those wanting to join after 2-3 years in practice or following residency).

b) Have a highly structured mentoring plan with constant support and regular evaluations monitored through a college-wide DVM-PhD oversight committee.

c) Build on our current efforts to promote diversity and increase participation by under-represented minorities (e.g., The Patterson Fellowship recently announced by the CVM).

Cost & Justification:

On average the college has 30 DVMs working towards a PhD degree. The stipends of these DVMs presently range from $29,500 (+ tuition/fees paid) – $35,000 (no tuition/fees offered). This is substantially lower than the ~$45,000 stipend recommended by NIH for DVM (based on T-32 grants awarded to the CVM where tuition/fees are paid). Presuming that there are 6 new incoming and 6 graduating PhDs every year, we envision implementing the following model for recruitment that will ensure a larger and better qualified applicant pool of DVMs for FY12:

Metrics of success:

a) A 50-70% increase in the applicant pool and a distinct increase in the number of highly qualified and serious applicants

b) A completion rate of 100% is the target; Less than 80% completion would be insufficient.

c) A 100% employment rate in academic veterinary positions in the US or abroad is the goal. An 80% academic employment rate would be acceptable; ≤60% employment would be insufficient.

d) Recruiting and graduating under-represented minorities every year.

3. Intensive Course in Research Writing for DVMs pursuing a PhD degree:

Two priorities of the College of Veterinary Medicine and Biomedical Sciences are (1) to establish a DVM-PhD program and (1) to promote diversity in the PhD program, especially among PhD students who are veterinarians. For DVM-PhD and PhD students, the ability to prepare scientific papers and presentations is crucial to the timely and successful completion of the PhD and to subsequent career success. Yet typically DVM-PhD and veterinarian PhD students have been even less versed in such skills than their counterparts who have first completed master's degrees. Further, those who come from minority, rural, disadvantaged, or international backgrounds often face particular challenges regarding such skills.

To help address these challenges and give DVM-PhD students and veterinarian PhD students skills needed to succeed in their PhD programs and beyond, we propose adding to the funding packages of 5 DVM-PhD or veterinarian PhD students per year a scholarship to attend the Intensive Course in Research Writing offered each summer at the CVM. In this non-credit 3-
week course, each student writes a scientific paper and receives guidance in various aspects of scientific communication. Each awardee would take the course once he/she has done some research and is ready to write his or her first or second scientific paper.

A committee could establish scholarship criteria and choose recipients. Students with minority or disadvantaged backgrounds or other features contributing to diversity would received particular consideration. DVM-PhD students could be particularly favored.

By helping DVM-PhD and veterinarian PhD students, especially those from minority and disadvantaged backgrounds, to obtain or refine crucial scientific-communication skills, the program could encourage a combination of excellence and diversity. Potential indicators of success could include the following:

- time from submission to acceptance of the scientific paper worked on in the course
- feedback from peer reviewers and journal editor on the scientific paper worked on in the course
- number of scientific papers submitted between completion of the course and completion of the DVM-PhD or PhD program
- number of papers published in the 3 years or 5 years after completion of the course
- time from course completion to dissertation completion
- numbers of conference presentations and poster presentations given in the 3 years or 5 years after the course
- feedback from the scholarship recipients regarding the course and regarding their subsequent experience in writing, publishing, and presenting
- any prizes or recognitions received for publications, poster presentations, or oral presentations in the few years after the course

Although there wouldn’t be a true control group, perhaps some of the above items could be compared with the norms for fellow students in the DVM-PhD or PhD programs or with typical values for previous students with backgrounds similar to those of the scholarship recipients.
Award Information

The Texas A&M University Office of Graduate Studies is offering a Dissertation Fellowship to support students in the dissertation phase of their degree program. This one year, January 15 to December 15, 2012 fellowship, is intended to support doctoral students in the final analysis of the research topic and the final writing of the dissertation, and will be awarded to 5 students who will graduate by December 2012. This fellowship is NOT intended to finance data collection or the completion of doctoral coursework. Priority will be given to doctoral students whose primary support for 2012 is NOT related to their research (e.g. GANT, GAL, GAT, Self). Students who have funding related to their dissertation will be least likely to receive this fellowship.

Tuition and Stipends

The 12 month dissertation fellowship stipend is $15,000 (paid out in monthly increments over 12 months) plus a tuition payment (the student is required to register for the minimum number of credit hours, which is typically one hour per semester on this fellowship). During the 12 month fellowship period, recipients also will receive up to $2,469 reimbursement of receipts relative to the cost of the graduate student health insurance. U.S. citizens, permanent residents, and international doctoral students are eligible to apply for this fellowship.

Please note: Federal student loans require you to be at least half time to continue in your grace period or defer your student loan repayment. One hour of registration will not be considered half time by your loan holder in most cases (even though the university may consider you full time), thus your grace period or repayment period will begin. You should check with your loan holder before applying for this fellowship to ensure your loan holder will continue to defer your loan payments while you are registered for only one hour. A full time course of study does not always mean full time enrollment of hours to a holder, you may have to complete a deferment form (we have some in our office), stating to your loan holder that you are on a fellowship and request a deferment until graduation.

Applicant Requirements

- Must be a candidate for a doctoral degree at Texas A&M University, College Station campus. (To be admitted to candidacy for a doctoral degree, a student must have (1) completed all formal coursework on the degree plan with the exception of any remaining 681, 684, 690, 69 and 692; (2) a 3.0 Graduate GPR and a Degree Plan GPR of at least 3.0 with no grade lower than C in any course on the degree plan; (3) passed the preliminary examination (written and oral portions); (4) submitted an approved dissertation proposal); (5) met the residence requirements. The dissertation fellowship will not be authorized for any doctoral student who has not been admitted to candidacy.
- Must document that all pre-dissertation doctoral candidate requirements will be completed by December 15, 2011 (completed everything on a degree plan and been admitted to candidacy).
- Must provide a clear and specific plan for completing the dissertation within a 9 month time frame.
• Must reside in Bryan/College Station, and conduct the dissertation fellowship work on campus, during the fellowship year beginning January 15 through December 15, 2012.

Restrictions

Dissertation fellowship students may not accept employment of over $2000 during the period between January 15, 2012 and December 15, 2012, nor may the student accept other financial awards providing duplicate benefits.

Once again please note: This fellowship is NOT intended to finance data collection or the completion of doctoral coursework. Priority will be given to doctoral students whose primary support for 2012 is NOT related to their research (e.g. GANT, GAL, GAT, Self). Students who have funding related to their dissertation will be least likely to receive this fellowship.

If a student is offered any additional support while receiving this fellowship or before the start of the fellowship, they must notify and request permission to use additional support from the Associate Provost for Graduate Studies, Dr. Karen Butler-Purry.

Criteria

Reviewers will consider the following:

• Academic performance
• Potential impact of scholarship on society
• Students whose primary support is not related to their research*
• Applications that include all requested material

Application Procedure

Student applicants should submit the following details on their application:

• Application form (at the bottom of this email)
• Number of journal publications; published articles or reviews, book chapters, conference paper (must provide citations for each); and number of conference poster presentations
• Sources of support (past and current)
• Abstract
• Personal impact statement (a statement speaking to the impact of the scholarly work on the student’s local community, state, nation or the global society).
• Work plan for completing the dissertation in a 9 month time frame
• Curriculum Vitae
• Letter of support from student’s committee chair

Completed applications must be submitted by the deadline of December 9, 2011. Awards will be announced in December 2011 for fellowships that can begin as early as January 2012.

Each awarded student must submit a report at the end of each semester documenting his/her successful completion of outlined milestones.

Deadline Dates
All application materials must reach the Office of Graduate Studies by 5 p.m. on Friday, December 9, 2011. There will be NO exceptions to this date or time.

Instructions for Submittal

Use the application form below and attach as the cover page to the application packet.

Please submit each application packet as a single pdf file attached to an email to Megan Palsa at meganp@tamu.edu

Deadline: Friday, December 9, 2011 by 5 p.m.

The Application Form can be found on the OGS website at http://ogs.tamu.edu in the right hand column of the front page of the website beginning Tuesday November 15. You will fill out the online application.

The student’s committee chair/advisor should send their recommendation letter directly to Dr. Megan Palsa at meganp@tamu.edu. The instructions for the information we require in the recommendation letter are on the last page of the application.
MEMORANDUM

TO: Deans
Graduate Council/Graduate Operations Committee
Department Heads
Graduate Advisors
Interdisciplinary Degree Program Chairs

FROM: Karen Butler-Purry, Ph.D., P.E.
Associate Provost for Graduate Studies

SUBJECT: Call for Nominations
Association of Former Students/TAMU Graduate Merit Fellowship – Jan. 19
Texas A&M University Graduate Diversity Fellowship – Feb. 9

I am pleased to announce a call for nominations of prospective graduate students for the 2012-2013 Graduate Diversity and Merit Fellowships. These two fellowships provide excellent opportunities for departments to recruit outstanding students to their graduate programs. The fellowship selection committee understands that each department would like to secure as many awards as possible, but due to the limited amount of funds, we ask that each department nominate only their best prospective students for consideration.

Both fellowships will use the Internet Grant Proposal System (IGPS.tamu.edu) for nomination submission and review.

Only U.S. citizens or permanent residents will be eligible for these awards. A student who is currently a Master’s student, cannot be nominated for either of these awards unless they are graduating with their Master’s degree in August of the nominating year. Also, students who are non-degree seeking, or currently enrolled at Texas A&M University, cannot be nominated for these fellowships. Nominees must have already applied for graduate admission to Texas A&M in order to be considered for either fellowship. We believe that this demonstrates the student’s genuine interest in attending the University and will decrease the number of declined awards. Students do not have to be admitted at the time of nomination. However, should a student be awarded either fellowship, the department will be expected to admit these students. This understanding will prevent unnecessary review of students who may not meet the criteria of the nominating department or the standards of Texas A&M.

Please note the following information which provides pertinent details on eligibility requirements, the nomination process and deadlines for each of these fellowships. Attached to this memo is the Fellowship Evaluation Criteria, which provides a detailed description of the elements of a nomination that will be used by reviewers in evaluating nominees for these fellowships.
Graduate Merit Fellowship — Deadline for submission: 5 p.m. January 19, 2012

For Merit Fellowship Awards, reviewers will consider the Masters and Doctoral applicant nominations separately.

The Merit Fellowship provides funding for Masters and Doctoral students.

First time enrolled TAMU domestic Doctoral students who are awarded the fellowship receive approximately $63,112 a over a 4 year period. This includes a $25,000 stipend paid over 1 year, a $9,000 per year tuition and fees payment for 4 years and a $2,112 insurance reimbursement for one year. In fall 2012, it is anticipated that 25 Doctoral merit fellowships will be awarded. Each recipient will be permitted a reimbursement of up to $2,112 for personal health insurance coverage (first year only). No matching funding is required from the department for the first year. However, the expectation is that the department/college will provide financial assistance for subsequent years through a graduate assistantship or other departmental financial contributions.

First time enrolled TAMU domestic Masters students will receive $31,112 in funding over 1 year which includes a $20,000 stipend paid over one year and $9000 payment for tuition and fees for their first year only. Each recipient will be permitted a reimbursement of up to $2,112 for personal health insurance coverage (first year only).

Non-thesis master’s students are NOT eligible for a master’s fellowship except select professional degree programs (e.g. MBA, MArch, MPA). No matching funding is required from the department for the first year. However, the expectation is that the department/college will provide financial assistance for subsequent years through a graduate assistantship or other departmental financial contributions.

For the Merit Fellowship, the selection committee will consider the applicant’s past academic performance, experience outside of the classroom as well as indicators for future success in the evaluation process with a focus on academic achievement. As part of the nomination process, nominators must submit the student’s application and a nomination letter. Letters of nomination should not exceed two double-spaced pages in length. The letter must include three sections providing 1) assessment and evaluation of past academic performance, 2) experience outside the classroom, and 3) other indicators of future success. Attached you will find a checklist that MUST be completed when you submit your nomination packet. Reviewing these now will assist you as you prepare for the IGPS submittal process.

The deadline for submitting a nomination is 5 p.m. January 19, 2012. Nominations will automatically be forwarded to appropriate department and college personnel for approvals. The award selection committee will complete their review by February 11, and the official award letters will be distributed to recipients shortly thereafter. Nominators, graduate advisors, department heads and graduate deans will be notified of the fellowship recipients. Departments are responsible for following up with the prospective student. OGS must be copied on all correspondence to fellowship recipients.
Graduate Diversity Fellowship — Deadline for submission: 5 p.m. Friday, February 9, 2012

The Diversity Fellowship provides funding for Masters and Doctoral students.

The Diversity Fellowship provides funding for a first time enrolled domestic Doctoral student in the amount of approximately $103,707 over a 3 year period. The fellowship provides an $18,000 stipend per year for 3 years, $9,000 per year for tuition and fees for 3 years, plus a departmental scholarship or assistantship worth at least $7,569 per year for 3 years. In the spirit of this fellowship, we strongly recommend, that departments support with an assistantship.

First time domestic Master’s diversity fellowship recipients will receive $59,138 over a 2 year period. This includes a $13,000 stipend per year for 2 years, $9,000 for tuition and fees per year for 2 years, and a $7,569 assistantship or scholarship from the nominating department each year for 2 years. In the spirit of this fellowship, we strongly recommend if possible, that departments support with an assistantship.

It is essential that Graduate Diversity Fellowship recipients be given ample opportunities for success and integration into the culture of their respective department early in their campus residence. A plan of mentoring is required for each diversity fellow. The nominating faculty member will closely mentor, develop a community, and guide the graduate student, specifically monitoring and encouraging them in their fellowship and academic program. One outcome of this mentoring relationship might be the writing of a grant proposal to fund the students’ research in succeeding years.

As stated earlier, in the spirit of this fellowship, we strongly recommend that departments support with an assistantship, but in instances where the college or department cannot provide an assistantship, they will be required to provide a scholarship of at least $7,569 per year, and additionally, provide payment for health insurance for the student from the graduate student health plan. Colleges or departments will be required to request the scholarship option when nominating the student for the fellowship.

For Diversity Fellowship Awards, reviewers will consider the Master’s and Doctoral applicant’s nominations separately. Some of the criteria include: past academic performance, research and presentation experience, experience outside of the classroom, as well as indicators for future success in their evaluation process with a focus on contribution to diversity both inside and outside of Texas A&M, as well as evidence of the nominee’s successful participation in a diverse environment. Priority will be given to students who further the goals and core actions of the Texas A&M Campus Diversity Plan, which can be found at http://diversity.tamu.edu/plan/index.asp, and students who will contribute to the overall diversity of the University.

As part of the nomination process, nominators must submit the student’s application and a two-page description/nomination letter. The letter must include three sections providing 1) assessment and evaluation of past academic performance, 2) experience outside the classroom, and 3) other indicators of future success. Attached you will find a checklist that MUST be completed when you submit your nomination packet. Reviewing these now will assist you as you prepare for the IGPS submittal process.

The deadline for submitting Diversity Fellowship nominations is 5 p.m. February 9, 2012. Nominations will automatically be forwarded to appropriate department and college personnel for approval. The award selection committee, made up of faculty/staff strongly dedicated to diversity issues and representing various ethnic backgrounds, will complete their review by February 25, and the official award letters will be distributed to recipients shortly thereafter. Nominators, graduate advisors,
department heads and graduate deans will be notified of the fellowship recipients. Departments are responsible for following up with the prospective student. OGS must be copied on all correspondence to fellowship recipients.

Immediate contact with high-quality students is crucial for success. GS will work with the department and college to follow up each offer with a personal email, phone call and additional contacts in an effort to improve our acceptance rates.

The attached Checklist for Nominations (last page of this document) lists the documents necessary for each fellowship.

The nominators must submit the following documents to IGPS all in ONE pdf file:

The nomination process is now completely on-line in an easy-to-use format. OGS has developed a fellowship tutorial that can be accessed by logging on to: http://ogs3.tamu.edu/ogs-help-center/tutorial/merit-fellowship-nominations. This tutorial will provide you with general guidelines and samples for submitting a nomination packet. To familiarize yourself with the process, go to the submission web site at igps.tamu.edu as soon as possible. To log on to this web site, you must have a Texas A&M NET ID. Once logged in, you will choose the appropriate fellowship and will be asked to provide some demographic information and answer several questions. **You will then attach a single PDF file per nominee including both the nomination letter (limited to two double-spaced pages) and the student's application materials.**

If you have any problems or questions regarding the submission process, contact Ms. Patty Garza at 862-7740. For general questions about fellowship requirements contact Ms. Garza or Ms. Megan Palsa at 845-8240.

I look forward to working closely with you, as we continue on our journey to increase the quality and diversity of our graduate student population at Texas A&M University.

pc:

Dr. R. Bowen Loftin  
Dr. Karan L. Watson  
College Business Administrators
Fellowship Evaluation Criteria

The awarding process has been refined to establish a more consistent evaluation system among reviewers. Explicit, detailed evaluation criteria are needed because of the continuing increase in nominations, and the difficulty in ranking large numbers of nominees. The criteria to be used for selection of 2012-2013 fellowship recipients are provided below.

Graduate Merit Fellowship-Masters

Reviewers will consider all aspects of the applicant’s experiences in the evaluation process with a focus on academic achievement. Specifically, reviewers will consider the following elements of the nomination (weights are given in parenthesis):

- **Past Academic Performance** (50%) - class rank or GPA, standardized test scores, quality of past undergraduate programs, etc.

- **Experience Outside of the Classroom** (25%) – participation working or living in diverse environments; extracurricular experience relating to course of study; leadership experiences; work experiences; internships; personal history; international experiences (i.e., study abroad, semester at sea, etc.); experience with undergraduate research (either at their own university or participated in summer undergraduate research opportunities at other universities); internship or work experience; oral or poster presentations; publications.

- **Other Indicator of Future Success** (25%) – letters of recommendation; awards; honors; proven ability to overcome challenges relating to personal history, financial position, disability; etc.

Graduate Merit Fellowship-Doctoral

Reviewers will consider all aspects of the applicant’s experiences in the evaluation process with a focus on academic achievement. Specifically, reviewers will consider the following elements of the nomination (weights are given in parenthesis):

- **Past Academic Performance** (50%) - class rank or GPA, standardized test scores, quality of past graduate or undergraduate programs, etc.

- **Research Experience/Publications/Presentations** (30%) – participation working or living in diverse environments; extracurricular experience relating to course of study; leadership experiences; work experiences; internships; personal history; international experiences (i.e., study abroad, semester at sea, etc.); experience with undergraduate research (either at their own university or participated in summer undergraduate research opportunities at other universities); internship or work experience; oral or poster presentations; publications.

- **Other Indicators of Future Success** (20%) - letters of recommendation; awards; honors; proven ability to overcome challenges relating to personal history, financial position, disability; etc.
Graduate Diversity Fellowship-Masters

Reviewers will consider all aspects of the applicant’s experiences in the evaluation process with a focus on contribution to diversity both inside and outside of Texas A&M, as well as evidence of the nominee’s successful participation in a diverse environment. Priority will be given to students who further the goals and core actions of the Texas A&M Campus Diversity Plan, which can be found at http://diversity.tamu.edu/plan/index.asp, and students who will contribute to the overall diversity of the University.

Specifically, reviewers will consider the following elements of the nomination (weights are given in parenthesis):

- **Past Academic Performance** (35%) - class rank or GPA, standardized test scores, quality of past undergraduate programs, etc.

- **Experience Outside of the Classroom** (45%) – participation working or living in diverse environments; extracurricular experience relative to course of study; leadership experiences; work experiences; internships; personal history (is there anything in their purpose statement that discusses how their personal history leads to an understanding of diverse perspectives); international experiences (i.e., study abroad, semester at sea, etc.); internship or scholarly work experience; oral or poster presentations; publications; research experience.

- **Other Indicators of Future Success** (20%) - letters of recommendation; awards; honors; proven ability to overcome challenges relating to personal history, financial position, disability, etc.

Graduate Diversity Fellowship-Doctoral

Reviewers will consider all aspects of the applicant’s experiences in the evaluation process with a focus on contribution to diversity both inside and outside of Texas A&M, as well as evidence of the nominee’s successful participation in a diverse environment. Priority will be given to students who further the goals and core actions of the Texas A&M Campus Diversity Plan, which can be found at http://diversity.tamu.edu/plan/index.asp, and students who will contribute to the overall diversity of the University.

Specifically, reviewers will consider the following elements of the nomination (weights are given in parenthesis):

- **Past Academic Performance** (40%) - class rank or GPA, standardized test scores, quality of past undergraduate programs, etc.

- **Experience Outside of the Classroom** (40%) – participation working or living in diverse environments; extracurricular experience relative to course of study; leadership experiences; work experiences; internships; personal history (is there anything in their purpose statement that discusses how their personal history leads to an understanding of diverse perspectives); international experiences (i.e., study abroad, semester at sea, etc.); internship or scholarly work experience; oral or poster presentations; publications; research experience.

- **Other Indicators of Future Success** (20%) - letters of recommendation; awards; honors; proven ability to overcome challenges relating to personal history, financial position, disability, etc.
CHECKLIST FOR NOMINATORS

MERIT nominators MUST submit the following 5 items online to IGPS and you MUST submit in the correct database...one is for prospective MASTER’S students and the OTHER FOR prospective Doctoral students:

YOU MUST HAVE the following information in ONE PDF file, IN THE FOLLOWING ORDER (1-5) submitted to IGPS by Jan. 19, 2012.

1. Completed Apply Texas Application.

2. Three references for the student (no more than 6 total pages).

3. Student’s resume or curriculum vitae (no more than 4 total pages).

4. Completed nomination letter clearly describing how this student’s application meets all of the criteria regarding selection for the Master’s or the Doctoral Merit Fellowship...see on previous page in this letter (no more than 2 pages).

5. A statement that you are willing to support the student 1 year beyond the Masters, or 3 years beyond the Doctoral Merit Fellowship.

DIVERSITY nominators MUST submit the following 8 items online to IGPS and you MUST submit in the correct database....one is for prospective MASTER’S students and the OTHER FOR prospective Doctoral students:

YOU MUST HAVE the following information in ONE PDF file, submitted to IGPS by Feb. 9, 2012.

1. Completed Apply Texas Application.

2. Three references for the student (no more than 6 total pages).

3. One page (or less) description written by either nominator or student about how this student will bring a diverse perspective to your department (no more than 1 total page).

4. Student’s resume or curriculum vitae (no more than 4 total pages).

5. Completed nomination letter clearly describing how this student’s application meets all of the criteria regarding selection for the Diversity Fellowship ...For more information see “Fellowship Evaluation Criteria” (no more than 2 total pages).

6. A statement that you are willing to support the student throughout the 2 year Master’s degree and at least 2 year’s beyond the 3 year Doctoral Diversity Fellowship.

7. A statement that you will support, with either an assistantship or a scholarship.

8. The amount you are willing to support with an assistantship or a scholarship ($ amount).
**Lechner Scholarship**

**Description:** This scholarship is supported from the Walter W. Lechner Estate Endowment. The scholarship is awarded to new, incoming graduate students through a competitive process. The scholarships can range from $1,000-$4,000. The funds can be used toward tuition, fees, and books. All recipients of this scholarship are designated Lechner Scholars.

**Deadline:** June 1, 2012

**Application Documents:** The student must be nominated by their mentor. The mentor must submit a letter of support detailing why the student is deserving of this scholarship and a copy of the student’s CV. The students CANNOT nominate themselves for this award.
The College of Veterinary Medicine & Biomedical Sciences (CVM) at Texas A&M University is offering a Merit Graduate Scholar Fellowship for highly qualified students interested in pursuing a Ph.D. in any of the following disciplines: Biomedical Genomics, Neuroscience, Cardiovascular Sciences, Infectious Diseases and Biodefense, Toxicology, Oncology, Environmental Health Sciences, and Veterinary Clinical Research. Successful applicants will join a nationally competitive, multidisciplinary graduate program with over 150 students engaged in cutting-edge research. The CVM seeks to expand these programs by offering this fellowship, which includes an extremely competitive graduate stipend of $36,000 annually for high quality students interested in pursuing careers in basic or applied research. Students are required to have a 3.2 GPA or equivalent and a score of at least 1200 on the GRE examination. Applicants with documented research experience, such as an undergraduate or Masters’ thesis, presentations, and/or publications, are strongly encouraged to apply. Only US citizens or permanent residents will be eligible.

Texas A&M University is a multicultural, tier one research institution located in College Station, Texas - 1.5 hours from Houston or Austin and 2.5 hours from Dallas or San Antonio. College Station offers a variety of housing options in a safe community with an extremely low cost of living. Both the community and our college are very close knit and offer diverse opportunities for personal, professional, and intellectual growth.

If interested in the Merit Graduate Scholar Fellowship, please apply for admission to Texas A&M University using the Texas Common Application and select CLVM as the department. Then, send a curriculum vitae, a two-page personal statement of research interests & future goals, as well as the names and contact information (e-mails and phone numbers) for three references to the Associate Dean for Research & Graduate Studies, Dr. Bhanu Chowdhary, (bchowdhary@cvm.tamu.edu). Texas A&M University is a diversity minded Affirmative Action/Equal opportunity employer.
The CVM Graduate Trainee Research Grant - Request for Proposals

Proposal deadline: The deadline for proposal submission is October 15, 2011. All applications must be sent via e-mail to the office of Associate Dean for Research & Graduate Studies (rbenbow@cvm.tamu.edu) College of Veterinary Medicine & Biomedical Sciences, by 5:00pm CST on this date. No late submissions will be accepted.

If you have any questions please contact Dr. Ashley Gustafson Seabury (agustafson@cvm.tamu.edu) by email or by phone 979-845-6820.

The awards are expected to be announced by mid-November 2011.

Eligibility: All applicants must meet the following requirements:
1. Be a current graduate student in one of the CVM departments (your home department must be in the CVM, even if your PI has a joint appointment)
2. Have not previously received a CVM Graduate Trainee Research Grant
3. Will be graduating after the Fall 2011 semester

Required formatting: 12pt font, single-space, one inch margins on each side, and page numbers at the bottom of each page. Please submit the proposal as a single PDF file with the sections in the order listed below.

Proposals should contain the following (proposals not following the proposed format will not be reviewed):
1. Cover Letter: Please complete and include the provided cover letter
2. Project Narrative: Should include the following subsection, and should not exceed 5 pages
   a. Title: Be sure it accurately reflects the proposed research.
   b. Goals and Objectives: Indicate long- and short-term goals and outline specific objectives; state hypothesis
   c. Introduction: Current status of research on proposed topic as evident through published literature, shortcomings, preliminary data.
   d. Rationale and Significance: Reason for approach, its significance to the scientific field, novel ideas and approaches
   e. Agencies and Programs to which this proposal will be submitted in the future with a justification explaining how the proposed research will addresses the priority area(s) of individual programs
   f. Research Methods: Hypotheses to be tested, experimental designs, techniques to be utilized, results expected, data analyses, pitfalls and limitations, tentative schedule of research
3. Literature Cited: Should not exceed 1 page.
4. Budget and Budget Justification: Detail how the $5,000 will be used and the justification for expenditures. You will be expected to adhere to the budgeting described in the proposal. Specify additional support (if any) from the mentor. This money cannot be used for salary or for international travel. Should not exceed 1 page.
5. CV: Provide your most current CV. Should not exceed 2 pages.
6. Letter of Support from Mentor: Indicate that the mentor will actively engage with the student in proposal development, the laboratory has necessary equipment and facilities to conduct the work, and the mentor guarantees that the student will submit 2-3 proposals in 2012 to various extramural agencies (federal, state, and/or private agencies – of which at least one is federal). Should not exceed 1 page.

NOTE: Please do not include any documents that are not requested. They will not be reviewed.
Proposal Development (http://opd.tamu.edu), Grants.gov (http://www.grants.gov), and GrantsNet (http://www.grantsnet.org), all of which offer tools and resources for grant-writing.

Criteria to consider for proposal development:

1. **Overall Impact**
   a. Does your project have a sustained, powerful influence on the research field(s) involved?

2. **Significance**
   a. Does your project address an important problem or barrier to progress in the field?
   b. How will your project affect or improve your field?

3. **Investigators**
   a. What kind of track record do you and your PI have? (Publications, presentations, etc.)

4. **Innovation**
   a. Will your project involve novel theoretical concepts, approaches/methods, etc.? (In other words, are you looking at a scientific question in a new way or using a new technique?)

5. **Approach**
   a. Is the strategy you have proposed for your project well-reasoned and appropriate to accomplish your goals?
   b. What potential pitfalls are there?

6. **Environment**
   a. Is the proper equipment in place, are the protocols you will be using feasible in that environment, etc.?
CVM Graduate Student Trainee Research Grant Proposal Cover Sheet

Name:
Highest Degree Received:
Department:
Mail Stop:
Phone number:
Email address:

Are you a member of the CVM Graduate Student Association?
❏ yes  ❏ no
Have you attended CVM Graduate Student Association meetings?
❏ yes  ❏ no
Have you submitted a grant proposal before?
❏ yes  ❏ no
If so, what funding agency was it submitted to and what type of award was it?
Have you received a grant?
❏ yes  ❏ no
If so please list the funding agency and the type of grant awarded:

Proposal Details:
Title:
Mentor:
Mentor’s Department:

Questions:
1. Will you be using human subjects?
   ❏ yes  ❏ no
2. Will you be using lab animals?
   a. What species?
   b. Will you/mentor need an AUP for this work?
   ❏ yes  ❏ no
3. Will you be using recombinant DNA?
   ❏ yes  ❏ no
4. Will you be using radioactive material?
   a. Do you/mentor have a permit?
   b. Are you a licensed user on a TAMU radiation permit?
   ❏ yes  ❏ no
5. Will you be using infectious biohazards?
   a. What Biosafety Level?
   ❏ 1  ❏ 2  ❏ 3
   b. Do you/mentor have an IBC permit for the proposed work?
   ❏ yes  ❏ no
   c. Are you a user on an IBC permit?
   ❏ yes  ❏ no

Goals:
Where do you intend to submit a proposal with the preliminary data obtained from this award?
Agency(s):
Program (s):
Priority area(s):
Type of award(s):

Applicant Signature:         Date:
Mentor Signature:         Date:
Department Head Signature:         Date:
External Education Opportunity

**Description:** initiative for graduate (PhD and Masters) students that will support a substantial part of their travel within the US (and probably Canada) for the following purposes:

1. To attend courses/training that are of the caliber provided by e.g., Cold Spring Harbor Course series,

2. To attend conferences that are equivalent to e.g., Gordon Conferences (i.e., targeting frontier research and its application in specific areas)

3. To visit national laboratories of international eminence that are conducting leading/cutting-edge research (e.g., Lawrence Livermore National Laboratories, NIH Institutes, etc.) and obtain training in specific techniques from which the incumbent and the mentor's laboratory can substantially benefit

4. The initiative will support other similar possibilities but will NOT support travel for "routine" conferences for poster/oral presentations (some funds for the latter will be available through Graduate Student Association - GSA).

**The GOAL of this funding is to:**

1. encourage graduate students to attend high-end courses, training and conferences that have the potential to substantially enhance their learning/knowledge,

2. gain experience in laboratories outside the mentor's lab to
   - learn novel techniques that will considerably augment their thesis research
   - add a new dimension to the mentor's laboratory (by bringing in experience in a new technology)
   - gain perspective and learning/research experience in a laboratory outside mentor's lab.

**Deadline:** Applications will be accepted at any time. The review committee will evaluate applications every 1-2 months.

**Application Documents:** Please complete the attached document and obtain your mentor and department heads signatures. Please note these signatures acknowledge that your mentor and department head will each pay 20% of the cost of the travel.
CVM Graduate Student External Education Opportunity Application
(not to exceed 2 pages)

Name:       PI:

Expected Graduation Date:       Have you taken your preliminary exam?

Department:      Have you filed your proposal with OGS?

Travel Request (include the location, when and what you will be doing—Must list the Institute and PI if visiting a lab for specific training)

Short Project Description (400 words or less)

Justification for Travel

Impact-(describe the impact this opportunity will have on you, your research, and your laboratory)

Budget with appropriate details and estimated expenses (ie airfare, lodging per night, food, etc.)

For the PI and Department Head: By signing this application you are agreeing to pay for 20% (each) of the cost of this educational travel. This includes registration and all travel expenses.

___________________________________________ _________________
Student Signature      Date

___________________________________________ _________________
PI Signature       Date

___________________________________________ _________________
Department Head Signature      Date

21
CVM Graduate Student Association Travel Awards

Travel Award Deadlines

There will be two deadlines for travel award funding this year. If you are planning on traveling between September 1 and December 31, 2011, you must complete and submit an application on or before October 15th. If you are planning on traveling between January 1st and August 31, 2012, you must complete and submit an application on or before February 4, 2012. Late applications will not be accepted. If you have any questions contact Satya Pathi or Kory Douglas as soon as possible.

If you are awarded a travel award, the funds will be made available to you for travel/board/registration after we have received proof of acceptance to a conference. Two separate deadlines will make it easier for students traveling in the Fall and Spring to receive their funding in a timely manner with respect to their travel dates.

Eligibility & Requirements

1. Must be a student registered in a graduate program at CVM at the time of travel.
2. Student must be an employee of Texas A&M University (consult your department for becoming TAMU employee during travel).
3. The meeting or conference must be professional in nature & of scientific importance in the student's field of study.
4. The student must be the first and the presenting author.
5. An abstract and evidence of its acceptance is required.
6. The presentation must be a poster or platform format.
7. A student is limited to one travel award per academic year.
8. The application must be submitted prior to the deadline.
9. The application must be complete.

Selection Committee & Criteria

The GSA faculty advisor and the GSA executive officers will review the applications and select the awardees.

If all the eligibility requirements are satisfied, then the following criteria will be used to decide whether the student will receive a travel award:

1. Participation in GSA activities: students who attend GSA meetings and who participate in GSA events. There will be sign up sheets to record the names of those who participated in the events including the meetings. Additional sign-up sheets will be kept during the meetings soliciting your participation in future GSA activities like vendor shows, open house, and research symposium.
2. Will the research to be presented represent the College of Veterinary Medicine and its students well?
3. Merit of the research and conference or workshop attending.
4. Academic performance: the students grade point average will be used to judge the academic performance.

**Application Procedure**

1. Download the Travel Award Application Form.
2. Include a copy of your abstract.
3. Include evidence of acceptance of your abstract for presentation at the meeting or conference.
4. Submit your completed application via hard copy or electronic copy to Satya Pathi.

**If meeting the updated deadline means you will not have evidence of an accepted abstract yet:** Submit your application with evidence of abstract submission and indicate in the comments section of the application when you expect acceptance notification. You will be required to submit evidence of acceptance as soon as it becomes available. If you are selected to receive an award you will not be given any funds until we have evidence your abstract was accepted.

**Application Deadline**

It is strongly recommended that you apply as soon as you have confirmation of abstract acceptance regardless of the deadline date. Applicants will be informed of award status 7 days following the deadline for application. No awards will be given retroactively (i.e. after you have traveled).

1. September 1 - December 31 - deadline is October 15, 2011
2. January 1 - August 31st - deadline is February 4, 2012

**If You Are Awarded a CVM - GSA Travel Award**

1. Awards are given for transportation, lodging, and meals.
2. Travel arrangements should be made through your departmental contact to ensure full use of the award and reimbursement of eligible expenses.
3. It is the awardee's responsibility to notify the travel arrangement contact for their department of their award.

- VTPB - Diane McCleary
- VIBS - Deborah Daniel
- VTPP - Heather Kocurek
- VSCS - Sherri Holmes
- VLSC - Gail Snook

1. A University Travel Request must be submitted and approved **before** the award can be dispersed. This is done through your departmental contact.
2. Remember to **keep all your receipts** & turn them in to your departmental contact.
3. If you receive additional travel awards for travel to the same meeting, those awards will be applied first to your travel expenses. Your CVM - GSA travel award will be applied to the remainder of your expenses.

- Working with your departmental contact will ensure that you get the maximum use of all your travel awards.
- Applying/receiving additional travel awards will NOT affect the review or judging of your CVM - GSA travel award application.

**Obligation of Accepting a CVM - GSA Travel Award**

1. In accepting a GSA Travel Award, you are required to present your work at the Spring CVM Research Symposium following your meeting/conference.
2. Your poster or platform presentation should include an acknowledgement of the College of Veterinary Medicine & CVM Graduate Student Association for the travel award.
3. If you receive additional travel awards for travel to the same meeting, these funds must be applied to your travel expenses prior to utilizing the CVM - GSA travel award funds. You **MUST** notify your departmental contact of the amount you have or will receive.
APPLICATION FOR GSA-CVM TRAVEL AWARD
September 1, 2011 to August 31, 2012

CHECKLIST:

Attending a Conference:
  o Completed application form
  o Attach Abstract

Attending a Workshop/Short-Course
  o Completed application form
  o Attach justification for attending
  o Attach letter of recommendation from P.I. (or equivalent mentor)

BIOGRAPHICAL INFORMATION

Name:

E-mail address:

Department:

Mail Stop:

Laboratory P.I.:

Office Phone Number:

Fax Number (Optional):

Stipend Source:
CONFERENCE/WORSHOP/SHORT-COURSE INFORMATION

Select one of the following (You can only apply for funding for one type of travel):

_______Conference   _______Workshop/Short-Course

Conference/Workshop/Short-Course you are attending:

Dates of Attendance:

Location of meeting/conference:

If you are attending a conference:

Title of your abstract:

Presentation Format (poster or oral):

If you are attending a Workshop/Short-Course:

Please attach an essay (500 words or less) justifying your need to attend

Please attach an informal letter of recommendation (limit one page) from your P.I. justifying your need to attend.

Have you or will you apply for additional travel awards for this event? (Applying for other awards will NOT affect your GSA-CVM travel award application.)

If yes, when will you be notified if you are a recipient?

What is the amount or potential amount of the award?

OTHER QUESTIONS

Have you ever received a GSA-CVM travel award? (If yes, when did you receive the award?)
Will you be a TAMU employee at the time of travel? (If you are not a TAMU employee, please talk to your departmental contact about arranging employment during travel.)

What degree are you seeking?

When did you begin this degree program?

PhD Students: Have you completed your preliminary examination?

Expected graduation semester and year:

Number of first-author publications:

Conference Applications Only: Additional comments you would like the travel grant reviewer to consider: (You may attach a separate sheet if necessary.)
APPENDIX 6

Texas A&M University
Graduate Tuition Rates
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<thead>
<tr>
<th>Semester Hour</th>
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Table 1: Tuition and Fees (Fall 2011-Spring 2012)

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Table 2: Tuition and Fees (Fall 2011-Spring 2012)

This list does NOT include the following fees:
- Course-related Educational Enhancement, Equipment Access, Lab and/or Field Trip Fees.
- Equipment Access, Lab and/or Field Trip Fees.
- Property Deposit $100 fee for new, transfer, re-admitted students or ones without one on file.
- International Student Admin Fee of $200-$500 per semester charged to third party sponsored students.
- International Student Services Fee of $46 per semester.
- International Student Insurance
- Orientation Fees
<table>
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This list does not include the following fees:
- Course related Educational Enhancement, Equipment Access, Lab and/or Field Trip Fees.
- Optional Fees (housing, meal plans, parking, etc.)
- Property Deposit $100 fee for new, transfer, re-admitted students or ones without one on file.
- International Student Admin Fee of $200-$500 per semester charged to third party sponsored students.
- International Student Services Fee of $46 per semester.
- International Student Insurance Orientation Fees.
APPENDIX 7

Graduate Course Descriptions and History of Availability
**Veterinary Integrative Biosciences (VIBS)**

**VIBS 602. Histology. (2-6). Credit 4.**
Molecular phenomena placed in context with tissues, organs and organ systems; cell and tissue structures visualized by light microscopy and electron micrographs for functional relationships; clinical correlations reveal relevance of histology in specific disease states; conceptual thinking exercises facilitate problem-solving skills.  
*Prerequisite:* Graduate classification.

**VIBS 603. Neuroanatomy. (2-6). Credit 4.**
Gross, developmental and microscopic anatomy of nervous system of selected laboratory and domestic animals.  
*Prerequisite:* Approval of instructor.  
Cross-listed with NRSC 603.

**VIBS 604. Biomedical Neuroendocrinology and Endocrine Disorders. (3-0). Credit 3.**
*Prerequisite:* Approval of instructor.  
Cross-listed with NRSC 604.

**VIBS 605. Chemical Hazard Assessment. (3-0). Credit 3.**
Chemical and biological methods for testing hazardous chemicals and complex mixtures; chemical analysis; microbial bioassays; developmental toxicity; enzyme induction; mammalian cell culture.  
*Prerequisite:* Graduate classification.

**VIBS 606. Neuroanatomical Systems. (3-0). Credit 3.**
Course emphasis is on major neural systems that govern identifiable physiological functions, behavior and neurodegenerative disease. Whole-brain anatomy is approached from a “systems” perspective, wherein components of defined functional systems are described in terms of their location, inputs and outputs, and physiological /behavioral significance in health and disease.  
*Prerequisite:* Approval of instructor.  
Cross-listed with NRSC 605.
An introductory course of the application of epidemiological concepts to the study of disease occurrence in populations of lower animals and man. The purpose of epidemiology is to identify the host, agent and environmental determinants and dynamics of disease spread that provide the basis for successful preventive medicine and public health programs.

Epidemiology concepts and methods used in the investigation of determinants of health or disease in populations; stressing basic methods for experimental design, conduct and analysis of both observational and experimental studies.
Prerequisite: STAT 651 or equivalent.

Gross and microscopic anatomy of the reproductive systems of domestic animals.
Prerequisite: VIBS 601 or 602 or 910 or equivalent. (Offered in alternate years.)

VIBS 610. Epidemiologic Methods II and Data Analysis. (3-3). Credit 4.
Principles and methods for the analysis of data from epidemiologic studies including the purpose of data analysis and role of statistics, sampling distributions, probability distributions, analysis of crude, stratified and matched data, and the use of linear and logistic regression methods.
Prerequisites: VIBS 608 and STAT 651 or approval of instructor.

Embryology of domestic mammals; gametogenesis, fertilization, cell proliferation and differentiation, and organogenesis; selected commonly occurring congenital defects of domestic animals used to emphasize embryologic sequences and processes.
Prerequisites: VIBS 601 and 602 or approval of instructor. (Offered in 1991 and in alternate years thereafter.)

VIBS 614. Biodegradation and Bioremediation. (3-0). Credit 3.
Processes affecting the biodegradation of organic chemicals in the environment; assessment of the utility of various remedial procedures, including biodegradation and bioremediation.

VIBS 615. Food Hygiene. (3-3). Credit 4.
The clinical description, pathogenesis, diagnosis, source, epidemiology and prevention or control of food borne diseases caused by biological, chemical and natural hazards.
Prerequisite: Graduate classification.
VIBS 617. Cell Biology. Credit 1 to 5.
Series of five 1-hour credit modules focusing on selected aspects of structure, function, and signal transduction in eukaryotic cells through critical analysis of recent literature in the field.
Each module listed as separate course section; students may enroll in up to five 1-hour module sections per semester.
Prerequisite: Approval of instructor

VIBS 618. Food Toxicology. (3-0). Credit 3.
The study of food additives, chemical and microbial contaminants, and naturally occurring toxins associated with foods.
Prerequisite: Graduate classification.

VIBS 619. Food Toxicology II. (3-0). Credit 3.
Public health implications of toxic factors in foods, their source, nature, occurrence and distributions; emphasis on mycotoxins including their isolation, detection, identification and toxicology; study of state-of-the-art food safety research techniques.
Prerequisite: Graduate classification.

Principles of electron interaction with solids; application of secondary and backscatter electron images.
Prerequisite: Approval of instructor one semester prior to registration.

The study of major zoonotic diseases, including frequency of occurrence, clinical signs, diagnosis, epidemiology, bioterrorism concerns and the prevention or control in animals and humans.
Prerequisite: Graduate classification.

VIBS 640. Neurobiology. Credit 1 to 5.
Biology of the mammalian central nervous system with emphasis on cellular and molecular interactions; contemporary research topics in areas such as neuron-glia interactions, neuroimmunology, neuroendocrinology, developmental neurobiology and neurogenetics; extensive readings from primary literature.
Prerequisite: Undergraduate or graduate cell biology, genetics and biochemistry or approval of instructor.
Cross-listed with NRSC 640.

VIBS 650. Education in a Veterinary Medical and Biomedical Environment. Credit 1 to 3.
Philosophical, stylistic and methodological consideration for designing, planning implementing and evaluating effective veterinary medical and biomedical teaching and learning. Orientation for graduate school.
Prerequisite: Graduate classification.
VISS 655. Methods of Specialized Journalism. (3-0). Credit 3.
Writing and placement of magazine and journal articles in specialized areas of media content such as agriculture, ecology, science, business, education, natural resources; individual projects directed to student’s field of interest.

Current issues, fundamental concepts in science and technology journalism, communication theory, science and journalism components, philosophy and literature of the field.

Research methods including theory, hypothesis formulation, design, data collection, data analysis, measurement and report writing. Qualitative and quantitative methods. Research topics.

VISS 660. Reporting Science and Technology. (3-0). Credit 3.
Gathering, writing and editing complex information, translation techniques, interpretation and analysis, literary and organizational devices and measurement of readability.

VISS 662. Reporting Science Policy. (3-0). Credit 3.
Analysis and reporting of legal, political, economic and business issues in science and technology, public policy-making processes and procedures, interdependence of science and technology, and public policy.

VISS 663. Biomedical Reporting. (3-0). Credit 3.
Sources of biomedical information, specialized information-gathering skills, key biomedical vocabulary/concepts, audiences, outlets, translation/interpretation, research, ethical issues.

Assessment and analysis of environmental and health risk, analytical procedures, interpretation of risk factors, reporting science crisis events.

VISS 670. Basic Environmental Toxicology. (3-0). Credit 3.
Introduction to general principles of toxicology; test methods, target organs, toxicity of major classes of toxins/toxicants, and risk assessment for engineers and other non-toxicologists; risk assessment methodology.
Prerequisite: VISS 602 or approval of instructor.

Review and discussion of current scientific work in one of the department’s areas of specialization (anatomy, cellular and molecular biology, epidemiology, food safety, genetics, informatics, neuroscience, public health concepts, reproduction/developmental biology, toxicology, zoonoses).
VIBS 684. Professional Internship. Credit 1 to 4.
A directed internship in an organization to provide students with on-the-job training with professionals in settings appropriate to the student’s professional objectives.
Prerequisite: Approval by committee chair.

VIBS 685. Directed Studies. Credit 1 to 4 each semester.
Research problem in one of the department’s areas of specialization (anatomy, cellular and molecular biology, epidemiology, food safety, genetics, informatics, neuroscience, public health concepts, reproduction/developmental biology, toxicology, zoonoses, science and technology journalism).

VIBS 689. Special Topics in... Credit 1 to 4.
Selected topics in one of the department’s areas of specialization (anatomy, cellular and molecular biology, epidemiology, food safety, genetics, informatics, neuroscience, public health concepts, reproduction/developmental biology, toxicology, zoonoses, science and technology journalism).

VIBS 690. Theory of Research. (3-0). Credit 3.
Theory and design of research related to current biomedical problems especially those involving study of animal disease; philosophical perspectives underlying historical advances in research pertaining to the study, prevention and treatment of disease.
Prerequisite: Graduate classification.
Cross-listed with VTPP 690 and VPAT 690.

VIBS 691. Research. Credit 1 or more each semester.
Research reported by writing of thesis or dissertation as partial requirement for MS or PhD degree.
Prerequisite: Approval of department head.
Veterinary Large Animal Clinical Sciences (VLCS)

VLCS 685. Directed Studies. Credit 1 to 8 each semester.
Original investigations of problems in the field of large animal surgery, therapeutics, preventive veterinary medicine or radiology. May be repeated for credit.
Prerequisites: Approval of instructor.

VLCS 691. Research. Credit 1 or more each semester.
Research for thesis.
Veterinary Small Animal Clinical Sciences (VSCS)

Current scientific work in medical and surgical fields in and related to small animal medicine and surgery. May be repeated for credit.
Prerequisite: DVM degree or approval of department head.

VSCS 685. Directed Studies. Credit 1 to 8 each semester.
Original investigations of problems in field of small animal surgery, therapeutics or radiology.
Prerequisite: DVM degree or approval of instructor and department head.

VSCS 689. Special Topics in... Credit 1 to 4.
Special topics in an identified area of small animal medicine or surgery. May be repeated for credit.
Prerequisite: DVM degree
Veterinary Pathobiology (VTPB)

BIOT 602 Biotechnology Principles and Techniques II is a team-taught, advanced laboratory methods course designed to provide students with basic theories and techniques essential to laboratory research in agricultural, environmental or medical biotechnology such as laboratory safety and records keeping, genome informatics, DNA analysis, RNA analysis, protein analysis, small animal use and antibodies methods in research.

Veterinary Microbiology (VTMI)

Encompasses the concepts of pathobiology including bacterial, viral and parasitic diseases, the host response to infectious agents, pathology, and metabolic and genetic diseases; includes animal and human diseases and provides enough background to facilitate students in advanced graduate courses.
Prerequisite(s): Graduate classification.

VTMI 614. Fermentation and Gastrointestinal Microbiology. (3-0). Credit 3.
Fermentation and gastrointestinal ecosystems in terms of microorganisms present, their activities and requirements and their interactions in a dynamic system.
Prerequisite: Beginning microbiology and/or biochemistry or approval of instructor.
Cross-listed with POSC 614 and NUTR 614.

VTMI 615. Immunogenetics and Comparative Immunology
Is a unique advanced molecular immunology course divided into three sections each taught by Dr. Criscitiello. The first third of the course is an in depth study of the antigen recognition repertoires of the vertebrate adaptive immune system, focusing on the immunogenetics of antibody, T cell receptor, major histocompatibility complex and natural killer cell receptor genes and their diversification mechanisms. The second portion of the course delves deep into case studies of (mostly human) diseases with an immunogenetic component. Lastly, an evolutionary survey of immune mechanisms from plants to invertebrates to vertebrates of veterinary interest are studied.

Underlying principles of molecular methods for microbial detection and characterization in natural and man-made ecosystems; emphasis on method application and data interpretation; emphasis on microbial pathogens and indicator organisms in foods and environment; laboratory covers select protocols.
Prerequisite: POSC 429/FSTC 326/AGRO 405/approval of instructor.
Cross-listed with AGRO 619/FSTC 619/POSC 619.
Pathogenic bacteria, their cultural and biological characteristics and pathogenicity.
Prerequisite: Minimum of eight hours of undergraduate microbiology.

VTMI 645. Host Agent Interactions In Veterinary Medicine. (3-0). Credit 3.
Basic concepts of infection versus disease. Interdisciplinary approaches to problems in microbiology; inducible host responses, agent escape mechanisms and movement of potential pathogens in the ecosystem.
Prerequisite: VTMI 405 or equivalent.

Virus infections in animals; types of infections, mode of transmission, intracellular pathology, epidemiology, isolation and identification of inciting agents. Tissue cultivation, animal inoculations and diagnostic tests.
Prerequisite: VTMI 438 or equivalent.

Actinomycetes, yeasts and molds that are pathogenic to humans and animals; morphology, cultural characteristics, pathogenicity and identification. Practice consists of exercises in cultural methods, morphological characteristics, biochemical reactions and diagnosis.
Prerequisite: Minimum of eight hours of undergraduate microbiology.

VTMI 649. Immunology. (3-0). Credit 3.
Cellular basis of the immune response; relationships between inflammation and acquired immunity. MHC and cell activation; the role of cytokines in inflammation and acquired immunity. MHC and cell activation; the role of cytokines in immunoregulation and hypersensitivity, vaccines, and the mechanism of immunity to viruses, bacteria and parasites.
Prerequisite: VTPB 409 or equivalent.
Cross-listed with POSC 649.

VTMI 650. Experimental Immunology. (3-3). Credit 4.
Familiarization, development and integration of techniques into experimental design of immunologic investigation. Virus and protein purification, immunofluorescence, agar diffusion immunoelectrophoresis, germ free animal techniques and specialized serologic tests.
Cross-listed with POSC 660.

Tissue culture techniques particularly in application to virus isolation; principles of cell, organ and explant culture in vitro.
Prerequisites: VTMI 647 or equivalent; graduate classification.
Modular course with detailed discussions, workshops and assigned reading/problem solving on advanced topics; structural organization of molecules; genetic regulation; cytokine cascades; pathophysiology of autoimmunity.

VTMI 663. Molecular Biology of Animal Viruses. (3-0) Credit 3.
In-depth studies of the biochemistry and replication strategies of animal viruses and molecular mechanisms of pathogenesis for selected viral systems. Prerequisites: Graduate classification in virology, molecular biology, biochemistry or approval of instructor.
Cross-listed with MIMM 663.

VTMI 664. Strategies for Manipulating the Mouse Genome. (3-0). Credit 3.
This course will provide students with an in-depth working knowledge of the strategies used to modify the mouse genome, including transgenes, homologous recombination-based gene targeting, gene trapping, siRNA interference, size-specific recombinases, and inducible systems.

Review and discussion of current scientific work and research in field of microbiology and related subjects.
Prerequisite: Graduate major or minor in microbiology or related fields.

VTMI 685. Directed Studies. Credit 1-4 each semester.
Problems course in microbiology.
Prerequisites: Approval of department head.

VTMI 689. Special Topics. Credit 1-4.
Selected topics in an identified area of veterinary microbiology. May be repeated for credit.
Prerequisite: Approval of instructor.

VTMI 691. Research. Credit 1 or more with maximum of 23.
Research for thesis or dissertation.
Veterinary Parasitology (VPAR)

VPAR 601. Parasitology. (3-3). Credit 4. Important helminth parasites of domestic and laboratory animals; their identification, distribution and life history.
Prerequisite: VTPB 487 or equivalent.

VPAR 604. Parasitic Protozoa. (3-3). Credit 4. Taxonomy, morphology, life cycle, physiology, distribution, genetics, host relations, methods and diagnosis concerned with protozoan parasites affecting vertebrates including humans.
Prerequisite: VPAR 484 or BIOL 108 or 438 or ENTO 208 or equivalent.

Prerequisites: VPAR 487 and VTMI 640 or equivalents.

VPAR 685. Directed Studies. Credit 1-4 each semester. Special problems concerned with parasites of domestic animals or poultry.
Prerequisites: VPAR 601 or equivalent; approval of instructor.

VPAR 689. Special Topics in... Credit 1-4. Selected topics in an identified area of biomedical parasitology.

VPAR 691. Research. Credit 1 or more each semester. Research for thesis.
**Veterinary Pathology (VPAT)**

**VPAT 601. Comparative Pathology. (3-3). Credit 4.**
Pathologic processes occurring in diseased cells, tissues and organs of animals and humans; their pathogenesis and morphologic manifestations.
*Prerequisite:* Courses in gross and microscopic mammalian anatomy and physiology and approval of instructor.

**VPAT 620. Humane, Public Health and Regulatory Aspects of Animal Use. (1-0). Credit 1.** Emphasizes thoughtful and humane use of animals in teaching, research and service; human and animal health benefits of biomedical research; governmental policies regulations, public health implications, management practices, and public relations pertaining to animal use in research and teaching.

**VPAT 640. Mechanisms of Disease. (3-0). Credit 3.**
Concepts of pathogenesis of disease in animals.
*Prerequisite:* D.V.M. degree or approval of department head.

**VPAT 641. Systemic Pathology I. (2-4). Credit 4.**
Disease manifestations in special organs and tissues and interrelations of pathologic processes in individual and functionally related organs.
*Prerequisite:* D.V.M. degree or equivalent.

**VPAT 642. Mechanisms of Metabolic Disease. (3-0). Credit 3.**
Characteristics and mechanisms of diseases caused either by deficiency, imbalance, excess of specific nutrients or chemicals, or by regulatory disturbances of metabolism.
*Prerequisite:* D.V.M. degree or approval of department head.

**VPAT 643. Applied Pathology.** Credit 1 or more each semester.
Application of information and concepts of anatomic and clinical pathology to the diagnosis of animal disease; gross pathological changes observed in necropsy are correlated with and corrected by histopathologic observations; confirmatory methods of clinical pathology and laboratory medicine used where indicated. May be taken more than once but not to exceed 6 hours of credit toward a graduate degree.
*Prerequisite:* D.V.M. degree or equivalent.

**VPAT 645. Neoplastic Diseases.** Credit 1-8.
Theoretical, histopathological and clinical aspects of neoplasia. Diagnosis of neoplastic and related conditions in all species. May be taken more than once but not to exceed 8 hours of credit toward a graduate degree.
*Prerequisite:* D.V.M. degree or equivalent.
Pathology and pathogenesis of diseases of the central and peripheral nervous systems. Interpretation of gross and microscopic lesions of the nervous system associated with disease processes. May be taken more than once but not to exceed 4 hours of credit toward a graduate degree.
Prerequisite: D.V.M. degree or equivalent.

651. Systemic Pathology II. (1-3) Credit 2.
Continuation of VPAT 641. Disease manifestations in special organs and tissues and interrelations of pathologic processes in individual and functionally related organs.
Prerequisite: VPAT 641.

VPAT 653. Diseases of Laboratory Animals. (2-2). Credit 3.
Pathology and pathogenesis of spontaneous infectious, parasitic, metabolic and neoplastic diseases of laboratory animals.
Prerequisite: VMID 922 or equivalent.

For graduate and special students in veterinary pathology. Presentation and discussion of special topics and research data concerning pathology and pathogenesis of diseases.
Prerequisite: Approval of department head.

VPAT 685. Directed Studies. Credit 1-4 each semester. Advanced special problems concerned with pathogenesis and pathology of disease.
Prerequisite: Approval of department head.

VPAT 689. Special Topics. Credit 1-4.
Selected topics in an identified area of veterinary pathology. May be repeated for credit.

VPAT 690. Theory of Research. (3-0). Credit 3.
Theory and design of research related to current biomedical problems especially those involving study of animal disease. Philosophical perspectives underlying historical advances in research pertaining to the study, prevention and treatment of disease.
Prerequisite: Graduate classification.

VPAT 691. Research. Credit 1 or more each semester.
Research reported by writing of thesis or dissertation as partial requirement for M.S. or Ph.D. degree.
Genetics and Molecular and Cell Biology (GENE)

Development of fundamental concepts related to the structure, function, organization, transmission and distribution of genetic material.
Prerequisite: GENE 301 or equivalent.

GENE 610. Mammalian Immunogenetics. (3-0). Credit 3.
Basic immunogenetics concepts derived from mouse, rabbit and human, and applied to domestic or other laboratory animal species; theory and techniques in immunohematology, histocompatibility genetics, genetics of immunoglobulins, genetics of immune responsiveness.
Prerequisites: GENE 301, BIOL 458.

Biological approach to genetic characteristics of populations dealing with genetic equilibrium, allelic variation, determination of genetic variation in populations, effects of mating systems, selection, mutation and ploidy on population parameters.
Prerequisites: GENE 603 STAT 651.

GENE 613. Quantitative Genetics I. Credit 3.
Quantitative genetics concepts particularly dealing with partitioning of phenotypic variance into genetic and environmental components, selection response, effects of systems of mating, genetic covariance and threshold effects.
Prerequisites: GENE 612; STAT 652.

Theoretical and analytical approaches to the application of maximum likelihood for the estimation of parameters under linear and non-linear models; single and polygene genetic models including Hardy-Weinberg equilibrium, linkage analysis and quantitative trait loci detection.
Prerequisites: STAT 651, STAT 652 or 601, GENE 603. Cross-listed with ANSC 614.

Examination and analysis of variation in chromosome structure, behavior and number; developmental and evolutionary effects of this variation.
Prerequisite: GENE 603.

GENE 626. Analysis of Gene Expression. (0-3). Credit 1.
Proficiency in handling DNA and RNA gained during exercises used routinely in analyses of gene expression; RNA preparation and analysis of Northern blots; in vitro transcription and polyacrylamide gel analysis of nucleic acids, sub-cloning and mRNA quantitation using polymerase chain reaction.
Prerequisites: BICH/GENE 450 or approval of instructor, radiation safety training.
Cross-listed with ANSC 626.
Genetic control of cellular metabolism. Mechanism of gene action; gene-enzyme relationships; regulation of gene expression; structure and organization of genomes; biochemical manipulation and characterization of genetic molecules.
Prerequisites: BICH 604 or GENE 431.
Cross-listed with BICH 631.

History and current status of genetic and molecular analysis of higher eukaryotic genomes; coverage of techniques for dissection of genomes into manageable parts; investigations in genetics, breeding and evolution; emphasis on quantitative inheritance, genetic mapping, physical mapping, map-based cloning, with examples drawn from a wide range of organisms.
Prerequisite: GENE 603.
Cross-listed with AGRO 654 and PPHY 654.

Intensive short course in molecular mechanisms of eukaryotic transcription and its regulation.
Prerequisite: BICH/GENE 661 or approval of instructor.
Cross-listed with BICH 662.

Reports and discussions of topics of current importance in genetics; reports to be prepared and presented by graduate students enrolled in course.

GENE 685. Directed Studies. Credit 1-4 each semester.
Individual problems or research not pertaining to thesis or dissertation.
Prerequisite: Approval of instructor.

GENE 689. Special Topics in... Credit 1-4.
Selected topics in an identified area of genetics. May be repeated for credit.
Prerequisite: Approval of instructor.

GENE 691. Research. Credit 1 or more each semester.
Prerequisite: GENE 603.

GENE 697. Teaching Genetics Labs. (1-0). Credit 1.
Theory and practical aspects of teaching genetics labs, with emphasis on content, grading, instructional methods, and practical aspects of genetics labs. May be repeated for credit.
Prerequisites: Graduate classification in genetics; appointment as a TA for genetics labs.
Veterinary Physiology and Pharmacology (VTPP)

VTPP 605. Systemic Veterinary Physiology I. (5-0). Credit 5.
Aspects of cellular physiology, physiology of excitable membranes, physiology of body fluids, neurophysiology, and the physiology of smooth, cardiac and skeletal muscle; provides a basic understanding of mammalian physiology essential as a framework for advanced graduate studies.
Prerequisite: Graduate classification.

VTPP 606. Systemic Veterinary Physiology II. (5-0). Credit 5.
In-depth study covering cardiovascular, respiratory, renal physiology, gastrointestinal and endocrine physiology; provides a basic understanding of mammalian physiology essential as a framework for advanced graduate studies.
Prerequisite: VTPP 605.

Introduction to physiology: cell physiology, cell signaling, cell cycle, body fluids, translocation of materials, membrane potentials, neurophysiology, autonomic nervous system, thermoregulation, cardiovascular, and muscle physiology.
Prerequisites: Enrollment in MS/PhD program in Veterinary Physiology and Pharmacology; approval of instructor.

Blood and lymph, respiration, renal physiology, and acid-based balance, gastrointestinal physiology, metabolism, endocrinology, and reproduction.
Prerequisites: Enrollment in MS/PhD program in Veterinary Physiology and Pharmacology; approval of instructor.

Physiological principles, review of cellular physiology, and development of an understanding of the nervous system and muscle, cardiovascular, and respiratory physiology; clinical applications related to organ systems.
Prerequisites: Graduate classification; BICH 410 and VIIBS 305 recommended.

VTPP 625. Pharmacology. (3-0). Credit 3.
Introduction to pharmacokinetics and pharmacodynamics; survey of major pharmaceutical classes; uses, mechanisms of action and adverse reactions of selected agents.
Prerequisites: Graduate classification; VTPP 423 or Approval of instructor.
VTPP 627. Biomedical Physiology II. (3-0). Credit 3.
Continuation of VTPP 623 Fluid balance and acid-base balance; development of an understanding of renal, gastrointestinal, endocrine and reproductive physiology using human and other mammalian models; clinical applications related to organ systems.
Prerequisites: Graduate classification; VTPP 623.

VTPP 628. Pharmacology I. (4-2). Credit 5.
Pharmacokinetics, pharmacodynamics, CNS pharmacology, autonomic pharmacology, antineoplastic agents, immunopharmacology, recombinant products, fluid.

VTPP 629. Pharmacology II. (2-2). Credit 3.
Antimicrobials, endocrine pharmacology, eicosanoids, anti-inflammatory agents, respiratory pharmacology, anticoagulants and hematins, GI pharmacology, cardiovascular pharmacology.
Prerequisite: Approval of instructor.

VTPP 630. Pharmacology/Toxicology. (2-2). Credit 3.
Management and treatment of toxicosis, antidotal pharmacology, toxic plants, mycotoxins, chemical toxicants, metals, euthanasia.
Prerequisite: Approval of instructor.

Cellular anatomy, cellular physiology and biochemistry; systems analysis of digestive, endocrine and musculoskeletal system function including information related to gross anatomy, histology and disease states; quantitative aspects of physiology and engineering applications to clinical medicine.
Prerequisite: Biomedical Engineering major or instructor approval.

VTPP 635. Physiology for Bioengineers II. (3-3). Credit 4.
A systems analysis of nervous, cardiovascular, respiratory and urinary function including information related to gross anatomy, histology and disease states; quantitative aspects of physiology and engineering applications to clinical medicine.
Prerequisite: VTPP 634.

Overview of current high throughput technology for data acquisition and analysis of genomic signals (e.g., mRNA or proteins); emphasis on microarray technology, methods for analyzing microarray data, and approaches to model the underlying phenomena from the systems biology perspective.
Prerequisites: BIOL 451 or GENE 320/BIMS 320 or equivalent; STAT 651 or equivalent; or approval of instructor.
Physiology, biochemistry and pharmacology of the endocrines. Laboratory emphasizes a number of classical experiments with clinical application.
Prerequisite: Approval of instructor.

VTPP 654. Molecular Endocrinology. (3-0). Credit 3.
Structure-function relationships of hormones, their receptors and biologic activities.
Prerequisites: VTPP 653 or BIOL 649 and BICH 410 or equivalent or approval of instructor.
Cross-listed with ANSC 654.

Structure and function of blood vessels and vascular beds; molecular and cell biology of endothelium and vascular smooth muscle; microcirculation; capillary exchange; regulation of blood flow by local, neural and humoral signals.
Prerequisite: MPHY 901 or approval of department head.

VTPP 656. Physiology of the Heart. (4-0). Credit 4.
Structure and function of the heart; molecular and cell biology of cardiac myocytes; electrophysiology of myocardium, pacemaker cells and conducting tissue; cardiac mechanics; control of cardiac performance; coronary circulation.
Prerequisite: MPHY 901 or 604 or approval of department head.

VTPP 657. Cardiovascular Physiology. (3-3). Credit 4.
Physiological considerations of the circulatory system including general and integrative aspects of the heart and blood vessels.

VTPP 658. Anatomy and Physiology of the Equine Foot. (3-0). Credit 3.
In-depth study of the anatomy and physiology of the foot of the horse; includes both gross and histologic anatomy, metabolic and nutrition and biomechanics of the equine foot.
Prerequisites: VTPP 323 and 423.

Physiology of gametes and preimplantation embryos in livestock and laboratory animals; oocyte growth and maturation in-vivo and in-vitro, fertilization in-vivo and in-vitro, embryo transfer, cryopreservation, nuclear transfer, chimera formation, gene transfer.

Pharmacokinetic and pharmacodynamic principles of pharmacology, absorption, biotransformation, distribution, excretion, dose-response relationships, adverse reactions, and interactions.
Prerequisites: Undergraduate, professional or equivalent course in physiology, pharmacology, biochemistry, introductory calculus.
Discussions of literature regarding topics of current research interest; physiochemical or physiologic effects of drugs at sites from molecular to whole body.
Prerequisite: Approval of instructor.

VTPP 670. Toxicology. (3-3). Credit 4.
Fundamentals of toxicology including the disease syndromes produced in humans and animals by organic and inorganic chemicals; environmental factors in intoxications.
Prerequisites: Advanced standing in biochemistry and physiology; approval of instructor.

Approval processes for compliance with federal drug and chemical laws.
Prerequisites: VTPP 665 and 670 or approval of instructor.

VTPP 672. Toxic Plants and Biotoxins. (2-3). Credit 3.
An examination of the disease syndromes produced in animals and humans by native, ornamental and introduced plants, vertebrate and invertebrate toxins and mycotoxins; field trips for plant identification.
Prerequisites: VTPP 670; approval of instructor.

VTPP 673. Metabolic and Detoxication Mechanisms. (3-0). Credit 3.
Fate of foreign compounds; their inhibitory and antagonistic action toward normal metabolic processes of the animal body.
Prerequisites: BICH 603; approval of instructor and department head.

VTPP 674. Natural Products Toxicology. (3-0). Credit 3.
Occurrence, identification and metabolism of naturally occurring toxicants of plant, animal and microbial origin.
Prerequisites: CHEM 628; approval of instructor.

VTPP 675. Industrial and Environmental Toxicology. (3-0). Credit 3.
Fundamentals of toxicology and risk assessment; effects of selected classes of hazardous chemicals encountered in the workplace or environment on human health will be considered.
Prerequisite: Approval of instructor.

VTPP 676. Genetic and Molecular Toxicology. (3-0). Credit 3.
Mechanisms of toxicant-induced target organ toxicity with emphasis on molecular control of mammalian and cell growth differentiation.
Prerequisite: Graduate course in cell biology and biochemistry.
Fluorescence spectroscopy and confocal/multiphoton microscopy in research; intro of pharmacology, life science, and physical science students to fluorophores, anisotropy, ligand binding, energy transfer, cytometry, lifetime imaging, correlation spectroscopy, immunocytochemistry, and image analysis with an emphasis on instrumental/sample artifacts, fluorescence application, literature evaluation, and communication of rationales to other scientists.
Prerequisite: General chemistry and biology course.

Review and discussion of current scientific work in physiology and related subjects.
Prerequisite: Approval of department head.

VTPP 685. Directed Studies. Credit 1 to 4 each semester.
Problems in physiology, pharmacology or toxicology.
Prerequisite: Approval of instructor

VTPP 689. Special Topics in... Credit 1 to 4.
Selected topics in an identified area of veterinary physiology and pharmacology. May be repeated for credit.
Prerequisite: Approval of instructor.

VTPP 690. Theory of Research. (3-0). Credit 3.
Theory and design of research related to current biomedical problems especially those involving study of animal disease; philosophical perspectives underlying historical advances in research pertaining to the study, prevention and treatment of disease.
Prerequisite: Graduate classification.
Cross-listed with VIBS 690 and VPAT 690.

VTPP 691. Research. Credit 1 or more each semester.
Original investigations in veterinary physiology, pharmacology or toxicology to be submitted by writing of thesis or dissertation as partial fulfillment for MS or PhD degree.
Prerequisite: Approval of department head.
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- VLCS: Veterinary Clinical Sciences
- VPAR: Veterinary Parasitology
- VPAT: Veterinary Pathology
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