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<td>Impediments to Excellence</td>
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Diskette
Charge to Review Team

Plant Pathology and Microbiology Program Review

This letter provides you with a brief background on the Department of Plant Pathology and Microbiology at Texas A&M University, and explains the expectations for our upcoming departmental review. The Department of Plant Pathology and Microbiology was created in 1985 from the Department of Plant Sciences. The department offers an undergraduate B.S. in Bioenvironmental Sciences as well as the M.S. and Ph.D. in Plant Pathology and Microbiology, plus a M.Agr. in Plant Protection or Plant Sciences. Each year, the department awards approximately 60 B.S. degrees in Bioenvironmental Sciences and 2-3 M.S. or Ph.D. degrees in Plant Pathology and Microbiology.

This review is part of a periodic review of all Texas A&M University academic programs, and offers an opportunity to assess the standards of the programs and to learn from review team member’s experiences with similar programs.

I request that the review team examine the undergraduate, graduate and research programs of the Department using the materials that will be provided, information you gain through personal interactions while visiting Texas A&M, and any additional information that you might request. While evaluating the program, please consider the allocation of resources within the department (both human and fiscal) and the absolute level of support the department receives from the university. Please comment as appropriate on current and potential leveraging of these resources, as well as 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 Department have ongoing and integrated planning and evaluation processes that assess its programs and services that result in continuing improvement and that demonstrate that the Department is effectively accomplishing its mission?
- Has the Department identified expected outcomes for its educational programs?
- Does the Department have evidence of improvement based upon analysis of results?

In addition, I ask that you address the impact of the Faculty Reinvestment Program, started by Texas A&M University in 2003. The reinvestment program resulted in the hiring of approximately 450 new faculty members dispersed throughout the University. The goal is to improve the quality of education for Texas A&M students by having more faculty available for mentoring and advising, whether more courses or sections are available, or by simply being more responsive to student needs. Through this review we plan to track and measure real increases and improvements in the quality of the graduate and undergraduate experiences across all dimensions. The Department was allowed to use some of the reinvestment funding from the College of Agriculture and Life Sciences for salary and startup for a Director of the Institute for Plant Genomics and Biotechnology (M. Dickman) and one Assistant Professor (L. Shan). We ask that you assess the success of the Department in moving their teaching and research agendas forward with these hires based on information provided to you in the forthcoming self-study.

I look forward to meeting with you and the entire committee in April. If you have any questions or require additional information, please contact me.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
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<tbody>
<tr>
<td>Team members arrive in College Station and are transported to Rudder</td>
<td>6:00 – 8:00 PM</td>
</tr>
<tr>
<td>Jessup B&amp;B, 115 Lee Avenue, College Station (866-744-2470).</td>
<td></td>
</tr>
<tr>
<td>6:00 – 8:00 PM Dinner with Dept. Head Dr. Sandy Pierson, and Associate</td>
<td></td>
</tr>
<tr>
<td>DHs Dr. David Appel and Dr. Chuck Kenerley.</td>
<td></td>
</tr>
<tr>
<td>Team is picked up by Dr. Pierson and transported to the new Agricultural Administration Building on west campus.</td>
<td>7:30 - 8:30 AM</td>
</tr>
<tr>
<td>Meet with Dean’s office.</td>
<td>9:00 – 10:00 AM</td>
</tr>
<tr>
<td>Pick up by Dr. Pierson, transported to Peterson Building on main campus.</td>
<td>10:00 AM</td>
</tr>
<tr>
<td>Meet with PLPM administration (Dr. Pierson, Dr. Appel, Dr. Kenerley,</td>
<td>10:30 – 11:30 AM</td>
</tr>
<tr>
<td>and Linda Brochu).</td>
<td></td>
</tr>
<tr>
<td>Lunch with PLPM graduate students (Peterson 112).</td>
<td>11:30 – 12:30 PM</td>
</tr>
<tr>
<td>Tour of Peterson Building and main campus greenhouses.</td>
<td>12:30 – 1:30 PM</td>
</tr>
<tr>
<td>Meet with a Faculty group (Peterson 103).</td>
<td>1:30 – 2:00 PM</td>
</tr>
<tr>
<td>Meet with a Faculty group (Peterson 103).</td>
<td>2:00 – 3:00 PM</td>
</tr>
<tr>
<td>Break.</td>
<td>3:00 – 3:15 PM</td>
</tr>
<tr>
<td>Refreshments with BESC undergraduate students (Peterson 112).</td>
<td>3:15 – 3:45 PM</td>
</tr>
<tr>
<td>Meet with a Faculty group (Peterson 103).</td>
<td>3:45 – 4:15 PM</td>
</tr>
<tr>
<td>Informal department reception (Fox and Hound).</td>
<td>4:15 – 5:00 PM</td>
</tr>
<tr>
<td>Transport back to B&amp;B.</td>
<td>5:00 PM</td>
</tr>
<tr>
<td>Dinner.</td>
<td>6:00 – 8:00 PM</td>
</tr>
</tbody>
</table>
Review Team Itinerary

Tuesday, April 19

8:00 – 9:00 AM Breakfast on own at B&B.

9:00 AM Pick up by Dr. Pierson, transported to Peterson Building.

9:30 – 10:00 AM Meet with Undergraduate Program Committee (UPC) (Peterson 103).

10:00 – 10:30 AM Meet with Graduate Program Committee (GPC) (Peterson 103).

10:30 AM Break.

10:45 – 11:15 AM Meet with Student Advising and Assessment Committees (Peterson 103).

12:00 – 1:00 PM Lunch with COALS Department Heads (Rudder Tower University Club).

1:00 PM Transport to Borlaug Center on west campus.

1:30 – 2:00 PM Meet with Faculty at IPGB in Borlaug Center (M. Dickman, Director, L. Shan, J. Yuan, P. de Figueiredo).

2:00 – 2:45 PM Tour of Borlaug Center and greenhouses.

2:45 PM Transport to Peterson.

3:00 – 5:00 PM Review Team’s choice: follow-ups, report discussion, or relax.

5:00 PM Transport to B&B. Working dinner.

Wednesday, April 20

7:30 – 9:00 AM Breakfast at B&B with Provost, Vice Provost, and Dean’s office.

9:30 AM Picked up by Dr. Pierson (with baggage).

10:00 – 10:45 AM Report to PLPM administrative team with discussion (Peterson 103).

10:45 – 11:15 AM Time for review team alone.

11:15 – 12:15 PM Open meeting between review team and department members (Evans Library Room 106).

12:15 PM Brunch. Get team members to airport for flights home.
Snapshot of Plant Pathology and Microbiology

The Department of Plant Pathology & Microbiology (PLPM) is committed to advancing its educational, research and extension programs with the goal of being recognized for excellence both within its discipline and within the university. The department educates students at both the undergraduate and graduate levels in bioenvironmental sciences and plant pathology, respectively. The undergraduate Bioenvironmental Sciences (BESC) program consists of approximately 200 majors that are trained for a variety of careers in the environmental, consulting, and governmental areas of microbiology. We have recently initiated a BESC Honors curriculum, the first in the college. The graduate plant pathology program offers both a M.S. and a Ph.D. in Plant Pathology. Graduate students are trained in fundamental, molecular and practical concepts associated with plant pathology. While students in BESC and PLPM receive formal classroom learning, the degrees include significant hands-on learning. Students gain valuable experience, learn to think critically, and how to reach their maximum potential. Graduate areas covered include mycology, bacteriology, virology, nematology, plant biology, biochemistry and physiology, genetics, genomics and bioinformatics. The department’s overall goal is to be recognized as one of the elite research, extension and educational programs in the United States.

As of September 2010:

- 19 faculty (including 2 partial faculty) administratively located with the department in COALS, 9 faculty administratively located in AgriLife Extension Service and overseen by the department, and 8 AgriLife Research faculty administratively located with the Agriculture Experiment Station Directors.
- 21 are located on the College Station campus.
- 1 faculty member is the Director of the Institute for Plant Genomics and Biotechnology (IPGB) located in the Borlaug Center on the west campus.
- The department houses the interdisciplinary Program for the Biology of Filamentous Fungi (PBoFF).

Faculty are focused on multiple aspects of plant pathology and microbiology, including:

- The physiology, genetics and genomics of plant pathogens.
- Plant-associated microorganisms and biological control.
- Plant innate immunity and genetics.
- Plant virology, mycology, bacteriology, and nematology.
- Plant resistance genes and traits.
- Bioenergy and Biotechnology (one faculty member works on cancer cell biology).
- AgriLife Extension Specialists focus on diseases of field and horticultural crops important to Texas agriculture.
- AgriLife Research faculty are involved in a wide range of areas, including plant pathogens, transgenic crops, plant biology, and water quality issues.

Extramural support:

- $1.9 million in competitive awards as of August 2010. The department is currently ranked 9th (of 14) in the College of Agriculture and Life Sciences.
The Plant Pathology and Microbiology has a Department Head with oversight of the entire department. The Department Head works closely with two Associate Department Heads (Teaching and Extension) and the departmental Business Administrator. Together they oversee all of the research, teaching and extension missions of the department.
College of Agriculture and Life Sciences Organization Chart, including AgriLife Research and AgriLife Extension Service
Texas A&M University
December 1, 2010

President
Dr. R. Bowen Loftin

Interim Provost and
Executive Vice President for Academic Affairs
Dr. Karen L. Watson

Deans
College of Agriculture & Life Sciences
  Dr. Mark Hussey
College of Architecture
  Dr. Jorge Vanegas
Mays Business School
  Dr. Jerry R. Strawser
College of Education & Human Development
  Dr. Douglas J. Palmer
Dwight Look College of Engineering
  Dr. G. Kemble Bennett
College of Geosciences
  Dr. Kate Miller
George Bush School of Government & Public Service
  Ambassador Ryan Crocker (Ret.)
College of Liberal Arts
  Dr. José Luis Bermúdez
College of Science
  Dr. H. Joseph Newton
College of Veterinary Medicine & Biomedical Sciences
  Dr. Eleanor M. Green
University Libraries
  Mr. Charles Gilreath (interim)
Texas A&M University at Qatar
  Dr. Mark H. Weichold

Academic Affairs Leadership
Vice Provost for Academic Affairs
  Dr. J. Martyn Gunn
Vice President for Government Relations*
  Mr. Michael G. O’Quinn
Vice President for Research & Graduate Studies
  Dr. Jeffrey R. Seemann
Interim Vice President of Texas A&M University & CEO of Texas A&M University at Galveston*
  Dr. William J. Merrell
Vice President & Associate Provost for Diversity
  Dr. Christine A. Stanley
Vice President & Associate Provost for Information Technology
  Dr. Pierce E. Cantrell
Vice President for Global Initiatives
  Ambassador Eric Bost (Ret.)
Dean of Faculties & Associate Provost
  Dr. Antonio Cepeda-Benito
Associate Provost for Undergraduate Studies
  Dr. Pamela R. Matthews
Associate Vice President for Academic Services
  Mr. Joseph Pettibon II
Assistant Provost for Enrollment
  Dr. Alice Reinarz
Associate Vice President for External Affairs
  Mr. Chad E. Wootton
Associate Vice President for Finance & Administration
  Ms. Terry Spang

*Reports directly to the President; liaison to the Provost

Other Reporting Units
Academy for the Visual and Performing Arts
  Mr. Ward V. Wells
Faculty Ombuds Officer
  Dr. Michael J. Benedik
Private Enterprise Research Center
  Dr. Thomas R. Saving
Texas A&M University Press
  Dr. Charles Backus
Texas A&M campus (partial)

L.F. Peterson Building
(PLPM & BESC Programs)

Wellborn Rd.

Main part of COALS
Ag Economics
Ag Leadership, Education & Comm.
Animal Sciences
Biochemistry/Biophysics
Ecosystem Science & Management
Entomology
Horticultural Sciences
Nutrition & Food Science
Poultry Sciences
Soil and Crop Sciences

Borlaug Center
The Department of Plant Pathology and Microbiology runs two plant disease diagnostic clinics for the state.

**Texas Plant Disease Diagnostic Laboratory (TPDDL)**
The Texas Plant Disease Diagnostic Laboratory (TPDDL) was created in 1983 to provide plant disease diagnostic support to our AgriLife Extension personnel and to assist clients in the identification of plant disease problems. The laboratory, located on the west campus in the Centeq Building, is devoted to the isolation and identification of plant pathogens. This laboratory provides a fee-based plant disease diagnostic service to AgriLife Extension personnel, homeowners, farmers, greenhouse and nursery producers, landscape contractors, interiorscapers, arborists, consultants, and any other group or individual needing accurate identification of plant disease problems. The TPDDL strives to provide the most accurate and rapid plant disease diagnosis together with recommendations for effective plant disease management.

The TPDDL is a member of the National Plant Diagnostic Network (NPDN). The laboratory website (http://plantclinic.tamu.edu) provides a number of services, including contact information, how to submit samples, and fee structures. Additionally, the clinic website provides information on current and emerging disease issues affecting Texans such as Citrus Greening (Huanglongbing), powdery mildews, turf pathogens, composting, etc.

Laboratory personnel include Dr. Kevin Ong, (Director), Ms. Sheila McBride (Diagnostics), and Ms. Bobbi Dupree (Technical Secretary). Additionally, the laboratory has two student workers and routinely mentors visiting students and graduate students.

**Texas Plant Diagnostic Clinic**
The Texas High Plains Plant Diagnostic Lab (now referred to as the Texas Plant Diagnostic Clinic) in Amarillo was initiated in 2003 by Dr. Charlie Rush with funding provided by the Great Plains Diagnostic Network (GPDN) through the National Plant Diagnostic Network (NPDN) through Texas Tech University. There were no formalized plant diagnostic extension activities in the Texas Panhandle until that time. The lab provides small grain pathogen diagnostic services to producers throughout the Northern Texas area and also to those in Southwestern Kansas, parts of Oklahoma and New Mexico.

With the 2007 hire of Dr. Ronald (“Ron”) French-Monar, Statewide Small Grains Plant Pathologist, and Regional Grain and Vegetable pathologist, diagnostic services were expanded to cover the full range of potential crops and plant pathogens and diseases that may occur in...
Northern Texas and statewide. The diagnostic lab in Amarillo serves as a source of information for faculty, county agents, scouts, IPM agents, and crop consultants. We also cater to small producers, homeowners, and non-profit agencies such as Food Banks.

**Role of Diagnostic laboratories and Extension in Teaching**

The training of a small number of students by the diagnostic labs is augmented by the direct interaction and training of literally thousands of producers each year by the department’s Extension Specialists across the state. These instructional activities have direct impacts on Texas and Texas agriculture.

**Challenges**

One challenge facing plant pathology today is a lack of adequately trained plant disease clinical diagnosticians. It is difficult to recruit students into this area and even more difficult to fund their studies while they master the art of disease diagnosis. As support from the college and university becomes more limited, alternative strategies must be developed. One approach being considered is to develop a Graduate Fellowship in Plant Disease Diagnostics.
Overview and History

Texas A&M University System

The Department of Plant Pathology & Microbiology (PLPM) is a member of a large, comprehensive state-wide organization called the Texas A&M University System. At Texas A&M University, the Agricultural program of Texas A&M includes two state-wide agencies, eighteen institutes and centers, including the Colleges of Agriculture & Life Sciences, College of Science, College of Education & Human Development, College of Liberal Arts, College of Geosciences, and College of Veterinary Medicine & Biomedical Sciences. A review of PLPM programs should be done in the context of this broad operating environment. Plant Pathology & Microbiology is one of 14 departments in the College of Agriculture and Life Sciences (COALS) located on the Texas A&M College Station campus. The college has approximately 445 faculty, 6,500 students and offers more than 80 undergraduate and graduate degrees. Many faculty have split appointments in COALS and AgriLife Research or AgriLife Extension. Research programs include food sustainability and safety; plant, human and animal health; genetics; renewable natural resources; and bioenergy. The college has numerous institutes and centers, including the Institute for Countermeasures Against Agricultural Bioterrorism, the Institute for Plant Genomics and Biotechnology, the Norman Borlaug Institute for International Agriculture, Agricultural and Food Policy Center, and the Center for Food Safety. In addition, members of the department are also affiliated with two state-wide agencies, Texas AgriLife Research and Texas AgriLife Extension. Texas AgriLife Research is headquartered in College Station, and has 13 research centers reaching from El Paso to Beaumont and Amarillo to Weslaco. Texas AgriLife Extension, also headquartered in College Station, serves the entire state through its 250 county extension offices. Its overall mission is to improve the lives of people, businesses and communities across Texas.

Origin and Growth of Plant Pathology and Microbiology

The Department of Plant Pathology & Microbiology was established in 1985 as an independent administrative unit upon the dissolution of the Department of Plant Sciences. Faculty with expertise in Plant Pathology were moved into the new Department of Plant Pathology & Microbiology under the direction of Dr. J. Artie Browning. The addition of “Microbiology” to the department name was the result of plans for future development. All the curricula formerly associated with Plant Sciences was incorporated into Plant Pathology & Microbiology, including a M.S. and a Ph.D. in Plant Pathology, a M.S. in Plant Protection, and a MAgri. in Plant Sciences. The curricula also included undergraduate B.S. degrees in Plant Pathology, Plant Protection and Bioenvironmental Sciences. The department originally had 16 faculty assigned to College Station and an additional 25 faculty distributed around the state at Research and Extension Centers.

Since 1985 major changes have occurred in every aspect of departmental operations, some based on budgetary or mandatory considerations, but most were efforts to improve the departmental mission. During Dr. Browning’s five year period as Department Head, he did not have direct responsibility for the Extension Specialists. These were supervised by Dr. Wendell Horne,
Program Group Leader for Extension. Dr. Horne had full and separate budgetary authority for all Texas Agriculture Extension Service (known as TAEX then) operations in plant pathology.

In 1990 Dr. Neal Van Alfen was appointed as Department Head. Dr. Van Alfen was given significant increased space and sufficient funding to renovate some existing space in the Peterson Building and purchase new equipment. During this time period, the department’s mission became more integrated as Extension was incorporated into the Teaching and Research efforts of the department under Dr. Van Alfen’s oversight. Several changes were also made to the departmental infrastructure and use of common resources, its participation in undergraduate education and issues in graduate education, and internal departmental communications. One important change was a larger allocation of resources to the department’s junior faculty. Dr. Van Alfen left the department in 2000.

Dr. Dennis C. Gross became head of the department in 2001. Shortly after he arrived, the department lost a total of twelve faculty (7 to retirement and 5 for other positions). This provided a rare opportunity to bring in new expertise and directions for the department. Since 2001, 9 new departmental faculty members were hired, including M. Kolomiets, B. Shaw, W. Shim, M. Thon, M. Dickman, P. de Figueiredo, J. Yuan and L. Shan. Additionally, 4 new AgriLife research faculty were hired (G. DiGiovanni, X. Wang, Q. Yu, and S. Zhou) as were 6 new Extension Specialists (C. Bogran, R. French-Monar, Y. Jo, K. Ong, G. Schuster and K. Steddom). In total 19 new positions were filled in the department. In addition to changes in the composition of the faculty, the department’s focus expanded to include bioenergy and biotechnology. Dr. Gross stepped down as Department Head to return to the faculty in fall 2009.

**Current and Future Directions**

Dr. Leland S. (Sandy) Pierson III was recruited to lead the department September 1, 2009. Dr. Pierson is in his second year as Department Head and has initiated a number of changes to provide the department more visibility across campus and the state. He is working to improve communication among college faculty on campus and faculty and Research and Extension Specialists located across the state. One goal is to further strengthen the department by integrating it firmly into the strategic plans of the college and university. Several initial plans have been altered due to the severity of state budgetary issues not projected during the new Department Head’s recruitment. The current financial crisis in Texas is a major threat to the continued excellence of the department. These state budgetary issues, the worst to hit Texas A&M in 70 years, plus increasing uncertainty associated with federal funding (e.g. changing NIFA priorities), are requiring the department to prepare for drastic steps. The ability of the department to be involved in the recruitment of a junior faculty member as part of a joint Center for Phage Technology is in doubt. In addition, two faculty members are nearing retirement, and these positions will need to be replaced. However, current budget issues may affect all of these positions.
Changes in the Department since Its Inception

The Department of Plant Pathology and Microbiology (PLPM) became an independent administrative unit in 1985. The department had 32 faculty, of which 18 were located in College Station, while seven TAES (now AgriLife Research) and seven TAEX (now AgriLife Extension) faculty were located across the state at various Research and Extension Centers. The department offered a Ph.D. and M.S. degree in Plant Pathology, a M. Agr. in Plant Protection and a MAgr. in Plant Sciences. A B.S. in Bioenvironmental Sciences (BESC) was added in 1990. Originally, departmental research focused primarily on selected diseases of important Texas crops, such as cotton, corn, sorghum, peanuts and small grains. The majority of programs were focused on near term improvements in disease control. Extension efforts were similar, with emphasis placed on responding to a broad array of grower, landowner and producer concerns.

In 2010, the department has 28 faculty administratively tied to PLPM plus 8 faculty located at Research Centers (administered by the Research Center Directors). Additionally, nine AgriLife Research and four AgriLife Extension faculty are located either on campus or at one of eight Research and Extension Centers across the state. The department offers a M.S. and Ph.D. in Plant Pathology, a MAgr. in Plant Protection and a MAgr. in Plant Sciences. The department continues to offer a B.S. in Bioenvironmental Sciences (BESC). Departmental research still focuses on current and emerging plant disease issues but has also expanded to include more fundamental and molecular studies of an array of plant pathogens, plant-microbe interactions, plant immunity, plant biology and resistance, bioenergy, biotechnology, and microbial ecology.

- During the past 25 years, total faculty numbers in the department have increased by only three, while during the same period of time the focus of the department has changed dramatically.
The breadth of research in the Department reflects an impressive array of approaches and technologies, particularly given the small size of the faculty.

P = Professor, Ac = Associate Professor, As = Assistant Professor, ES = Extension Specialist.
Departmental Committees

Undergraduate Programs Committee  
(UPC)  
2009-2011  
Dr. Karen-Beth Scholthof, Chair  
Dr. Libo Shan  
Dr. David Appel  
Mr. Sam Murdock  
Dr. Charles Kenerley, ex-officio  
Mr. Stephen Ahern

Graduate Programs Committee (GPC)  
2009-2011  
Dr. Herman Scholthof, Chair  
Dr. Clint Magill  
Dr. Jim Starr  
Dr. Joshua Yuan  
Dr. Charles Kenerley, ex-officio  
Ms. Dawoon Chung (Graduate Student)

Graduate and Undergraduate Assessment Committee  
2009-2011  
Dr. Brian Shaw, Chair  
Dr. Mike Kolomiets

Graduate Recruitment Committee  
2009-2011  
Dr. Won-Bo Shim, Chair  
Dr. Heather Wilkinson  
Ms. Karen Hodges

Seminar and Distinguished Visitor Committee  
2009-2011  
Dr. Paul de Figueiredo, Chair for 2009-2010  
Dr. Young-Ki Jo, Chair for 2010-2011  
Dr. Marty Dickman

Awards and Honors Committee  
2009-2011  
Dr. Carlos Gonzales, Chair  
Dr. Dennis Gross  
Ms. Linda Brochu  
Ms. Martha Malapi-Nelson (Graduate student)

Departmental Services Committee  
2009-2011  
Ms. Elena Kolomiets, Chair  
Dr. Ramasamy Perumal  
Mr. Robert Kwiatkowski

Information Technology Committee  
2009-2011  
Dr. Tom Isakeit, Chair  
Mr. Chris Court  
Dr. Kevin Ong  
Dr. Dennis Gross  
Ms. Linda Brochu

Facilities and Equipment Committee  
2009-2011  
Dr. Jim Starr, Chair  
Dr. Dan Ebbole  
Dr. Carlos Bogran  
Ms. Betty Morgan
Departmental Bylaws & Committee s

Department Bylaws

Preamble

The Bylaws of the faculty of the Department of Plant Pathology and Microbiology guide the process of governance of the faculty and to assure that academic responsibilities are handled in an orderly manner. This document describes the processes and delegation of responsibilities within the department.

Procedures

Any changes in the Bylaws are made by vote of the faculty. The faculty of the department are defined as those who hold the rank of Assistant Professor or higher in COALS, AgriLife Research, or AgriLife Extension Service. Changes in the Bylaws can only be made by a majority vote of a quorum of the faculty during two successive faculty meetings held on different days. A quorum is defined as two-thirds of the College Station faculty.

Faculty meetings are to be called by the Department Head and held at least once each semester. (Currently, faculty meetings occur monthly).

The Bylaws are defined to include the Department Committees document and the Graduate Student Handbook.

Department Standing Committees

Appointment of Committee Members:
The Department Head, acting with the advice of the Associate Department Heads, will appoint committee members and designate a chairperson and a vice-chair for each committee. A committee member will serve for three years, with one-third of the committee being rotated-off each year. The chairperson will serve for one year, unless otherwise agreed upon, and will be replaced by the vice-chair. Each committee will have a student member who will be appointed for a one-year term. All committee meetings are open to those who are qualified to serve on committees. Committee chairs are encouraged to announce meetings and agendas in advance.

Undergraduate Programs Committee

Responsible for the undergraduate degree programs and curriculum of the department. There are three appointed faculty members. The Associate Department Head for Academic Programs and the undergraduate advisors are ex-officio members of the committee. The chair of this committee will serve a term of two years. The duties of the committee include the following:

- Coordination of content and scheduling of undergraduate service courses with the departments being served.
- Review of new undergraduate courses, and of significant content changes in courses currently being offered.
- Monitors the relevance of the undergraduate curriculum offered by the department.
- Makes recommendations to the Department Head for awarding of undergraduate scholarships.
- Recruiting of students into the department's undergraduate program.
Departmental Bylaws & Committee s

- Development of effective placement procedures for graduates of the undergraduate program.
- Responsible for Career Day and other events associated with undergraduate programs.

Graduate Programs Committee
Responsible for the graduate degree programs of the department. There are five appointed faculty members. The Associate Department Head for Academic Programs and the graduate student advisor are ex-officio members of the committee. The chair of this committee will serve a term of two years. The duties of the committee include the following:
  - Coordination of content of graduate courses.
  - Review of new graduate courses, and of significant changes in courses currently being offered.
  - Monitors the progress of graduate students.
  - Serves as a review and appeals committee for adjudication of student-advisor disputes.
  - Makes recommendations to the Department Head for awarding of graduate fellowships and assistantships.
  - Reviews nominations for graduate faculty membership.

Graduate and Undergraduate Assessment Committee
Responsible for the development and implementation of appropriate assessment criteria to evaluate the effectiveness of faculty instruction and student learning outcomes. The committee is charged with identifying the programmatic goals for each degree granting program the department offers, including:
  - Bachelor of Science in Bioenvironmental Sciences (BESC)
  - Master of Science in Plant Pathology (PLPA)
  - Master of Agriculture in Plant Protection (PLPA)
  - Master of Agriculture in Plant Science (PLPA)
  - Doctor of Philosophy in Plant Pathology (PLPA)
  - Designs assessment plans that evaluates each program.
  - Coordinates implementation of program assessment plans with the teaching faculty.
  - Coordinates collection of assessment data from the teaching faculty.
  - Analyzes and interprets assessment data to evaluate programmatic effectiveness.
  - Reports data annually via the University ‘WEAVE’ online database.
  - Reports outcomes to the teaching faculty and solicits input on refinement of the assessment plans and on improving programmatic effectiveness.
  - Refines each plan annually and make suggestions to faculty on programmatic effectiveness.

Graduate Recruitment Committee
The committee is responsible for identifying, contacting and recruiting outstanding graduate student applicants. In addition, this committee receives screens and evaluates all applications to the PLPM graduate program and makes recommendations to the Department Head for admissions and departmental assistantships.
Facilities and Equipment Committee
Serves to advise the Department Head to assure that faculty, staff, and students have the opportunity to counsel the Department Head in space and facility decisions. There are six members of the committee, one of whom is a technical staff member of the Department. The department safety officer and Technical Laboratory Coordinator are ex-officio members. The responsibilities of the committee include the following:

- Advises the Department Head on an ad hoc basis concerning specific facility and equipment uses and future needs.
- Schedules use, proposes guidelines, and assures proper maintenance of common-use facilities, including: growth chambers, autoclave and media areas, dish-washing areas, equipment rooms, teaching labs, common research labs, hallways, computer room, greenhouses, soil handling areas, etc.
- Advises the Department Head on research and teaching equipment needs of the department.
- Responsible for fire and safety activities of the department.

Seminar and Distinguished Visitor Committee
Organizes and coordinates departmental seminars, visits by distinguished scientists and teachers. The committee determines the seminar schedule for each semester. The size of the committee will be variable according to need.

- Makes recommendations of individuals for University-supported sabbatical programs.
- Invites one speaker per year based on the recommendation of the graduate students.
- Invites one speaker per year as selected by the post-doctoral students. Both sets of students gain insight into essential organizational skills by serving as the hosts for the visiting speaker and by arranging all faculty appointments to meet with the visiting speaker.

Awards and Honors Committee
Recommends faculty, staff, and students for honors, awards, and recognition as a result of the person’s achievements. It is the charge of the committee to maintain a current file of appropriate awards and to initiate the recommendations based upon qualification of individuals in the department for such awards. The Associate Head for Extension is an ex-officio member of the committee.

Department Staff Committee
Responsible for assuring that department service functions are coordinated and responsive to the needs of the department. It also serves in an advisory capacity to the Department Head to assure that the needs and concerns of the staff are being adequately addressed. The Department Head and Business Administrator are ex-officio members. The committee consists of six staff members.
Department Standing Committees

Tenure and Promotion

Individual Promotion and Mentoring Committees:

- An Individualized Promotion and Mentoring Committee (IPMC) is assigned during the first two years of the individual’s residence in the department.
- The Department Head cannot be a member of the IPMC.
- The committee will consist of five faculty, with one faculty member serving as chair. The committee members are selected by the Department Head after consultation with the candidate. The candidate has the right to reject proposed members of the committee.
- This committee will evaluate and advise the candidate for the entire period leading up to the tenure evaluation (or promotion evaluation for Research or Extension faculty).
- The function of the IPMC is to mentor and evaluate the candidate and to represent the needs of the candidate to the Department Head.
- At the appropriate times, based on the candidate’s tenure/promotion clock, the committee evaluates the candidate’s bid for promotion. The IPMC assists the candidate in the preparation of the midterm dossier and the dossier and other materials required for tenure and promotion (or promotion as appropriate for Research and Extension faculty).
- As the committee knows the candidate well, the committee assists the Department Head in the selection of appropriate outside reviewers.
- The committee jointly writes three summary statements, one evaluating the candidate’s contributions to teaching, one for research (or extension as appropriate) and a third for service. The committee votes and provides the three summaries, an overall summation, and the vote tally to the Departmental T&P Committee (DTPC) with a copy to the Department Head.

Departmental Tenure and Promotion Committee (DTPC):

In August of the final year of evaluation of a candidate for tenure and promotion, promotion to full professor, or promotion for Research/Extension faculty, the Departmental Tenure and Promotion Committee (DTPC) receives the IPMC summary reports, its overall summation and final vote. The DTPC reviews the candidate’s packet and the materials submitted by the IPMC. The committee discusses and writes three summary statements evaluating the candidate’s contributions to teaching, research and service (or extension as appropriate). The committee can use or modify the summations provided by the IPMC or write independent summaries. The DTPC votes and provides the vote tally, the individual summary statements, and an overall summation of the candidate to the Department Head.

Specifics of the Departmental Tenure and Promotion (DTPC) Committee:

- This committee is the group whose vote is forwarded to the college as the official faculty vote on the candidate.
- This is a faculty committee composed of all tenured faculty in the department.
- Only tenured faculty are eligible to vote on tenure cases.
- Voting faculty must hold a rank equal or higher than the candidate. Therefore, some members might be ineligible to vote on some candidates (ex. Associate rank cannot evaluate and vote on full rank).
- A member of the IPMC can be a member of the DTPC.
• The Department Head cannot be a member of the DTPC nor can the Department Head participate during the DTPC evaluations of the candidate.
• The actual process of evaluating and discussing candidates must be systematic and uniform across candidates.
• All DTPC members must be active participants in the evaluation process and must read all of the pertinent materials. If a member has not read the dossier they should abstain from voting.
• Minority reports are strongly discouraged. If submitted, the names of the authors must be indicated.
Responses to Previous 2003 Departmental Review

The Department of Plant Pathology and Microbiology last underwent an Academic Program Review in 2003. After the review, the external review team met with Dr. Elsa Murano (then Dean of the college), and the Dean of Graduate Studies. The review committee made a number of recommendations. The recommendations and subsequent responses are provided below.

- **Recommendation:** Appoint a committee in COALS to examine the feasibility of expanding faculty expertise in the area of environmental microbiology to enable the development of a M.S. degree in Bioenvironmental Sciences.
- **Response:** The plan to offer a M.S. in Bioenvironmental Sciences was contingent on the acquisition of new faculty specifically focused on bioenvironmental issues to the department. Since such new faculty were not hired, the decision was to postpone development of the graduate degree and focus on diversifying the courses available to the undergraduate major. This has been done.

- **Recommendation:** The condition of the Peterson building was noted as poor with chronic problems with air handling/quality, electrical, plumbing, and heating systems. Improvements were needed.
- **Response:** The electrical panels in the basement were upgraded, code issues in the stairwells were addressed, the roof was resurfaced, and the HVAC system in the building was renovated. The review team also remarked that the laboratories were “inadequate for attracting and sustaining contemporary programs.” Unfortunately, this continues to be an ongoing issue with the Peterson building, as is the lack of backup power.

- **Recommendation:** Enhance departmental faculty via the faculty reinvestment program initiated by then President Robert Gates.
- **Response:** The faculty reinvestment program successfully recruited Dr. Martin Dickman as Professor and holder of the Christine Richardson Professorship in Agriculture. Dr. Dickman is Director of the Institute for Plant Genomics and Biotechnology (IPGB) located in the Borlaug Center on west campus. In 2009 the department hired Dr. Libo Shan as an Assistant Professor.

- **Recommendation:** Several faculty needed equity/parity salary additions to base salary to elevate their salaries to be more in line with faculty salaries at peer institutions. Several mid-career faculty had left the department due to salary issues.
- **Response:** Faculty salaries were and continue to be increased through promotions, equity adjustments, faculty retention raises, as appropriate.

- **Recommendation:** Increase the number of graduate students that receive in-state tuition waivers to make the department more competitive for top quality applicants.
- **Response:** All graduate students now receive coverage of the costs for in-state tuition.
Affiliated Programs

Many PLPM faculty members participate in programs that promote linkages among faculty in related disciplines and which offer enrichment opportunities for graduate students that may lead to broader career choices. The following interdisciplinary programs can have a significant role in the overall system of doctoral training available to PLPM faculty and students. In particular, PLPM faculty members continue to have a leading role in the establishment and growth of the Program for the Biology of Filamentous Fungi and the Intercollegiate Faculty of Virology.

- **Institute for Plant Genomics & Biotechnology (IPGB)**
  (http://ipgb.tamu.edu/)
  The IPGB is a multi-unit, multidisciplinary organization with participating faculty, students and scientists from 14 units affiliated with Texas A&M University, the Texas Agricultural Experiment Station, and the USDA-ARS. The IPGB mission is to develop plant genomics, biotechnology, and allied life science technologies and to foster technology utilization through multidisciplinary research and improvement activities on model plant systems, field, forest, and horticultural crops. The Borlaug Center for Southern Crop Improvement on the west campus provides IPGB with a base of operations including teaching and research laboratories, greenhouses, infrastructure, and equipment for the plant science community at TAMU.

  The IPGB is the home for the AgriLife Genomics and Bioinformatics Center and the Laboratory for Genome Technology that offer researchers a fee-based range of Next generation sequencing, bioinformatics and statistical services. The center has two Illumina Genome Analyzers (GAII) and a Roche 454 FLX sequencer, as well as a Illumina iScan system. The center also has a staff of experienced bioinformaticians who can assist with bioinformatic analysis, data acquisition, sequence analysis and sequence management.

  Currently, the Department of Plant Pathology and Microbiology has four faculty members located in the Borlaug Center. These include the IPGB Director, Dr. Marty Dickman (Professor), Dr. Libo Shan (Assistant Professor), Dr. Joshua Yuan (Assistant Professor) and Dr. Paul de Figueiredo (Assistant Professor).

- **Program for the Biology of Filamentous Fungi (PBoFF)**
  (http://pboff.tamu.edu/Site/Welcome.html)
  Filamentous fungi are eukaryotic microorganisms that influence our everyday lives in such diverse areas as industry, medicine, agriculture, and basic science. These fungi are responsible for billions of dollars in crop losses annually from disease and post-harvest food spoilage. The industrial production of valuable molecules and materials by genetically engineered fungi has tremendous potential, and fungi are becoming recognized as important human pathogens and allergens.

  Increasing recognition of the importance of filamentous fungi has led to more intensive research toward increasing the benefits and mitigating the damages attributable to these fungi. Recent genome sequencing efforts and newly developed techniques in molecular biology provide ways of addressing many scientific problems that were previously intractable. The relative simplicity
of fungal organisms makes them ideal tools for investigating basic biochemical and genetic questions.

PLPM participating PBoFF faculty include David Appel, Marty Dickman, Dan Ebbole, Charles Kenerley, Clint Magill, Brian Shaw, Won-Bo Shim, and Heather Wilkinson. Participating faculty in the Biology Department include: Rodolfo Aramayo, Deborah Bell-Pedersen, Xiaorong Lin, Kathy Ryan, Matt Sachs, Wayne Versaw, and Terry Thomas.

The PBoFF program was initiated in 1991 with a College of Agriculture Research Enhancement Program training grant to support stipends for two students for two years and support for an annual Symposium in fungal biology. In July 1994, support for the PBoFF Program was obtained via an NSF IGERT award 0115642 that terminated in 2002. The award of $566,500 funded 25 graduate students over a 5-year period.

The current greatest need of PBoFF is the recruitment of high quality students that are U.S. citizens. In particular, the IGERT program and many other training grant programs allow support only for US citizens and permanent residents and the majority of students in PBoFF do not qualify for this support mechanism. An area of significant opportunity for PBoFF is to organize data mining and analysis of fungal genome sequences to generate program project grants for functional analysis of fungal genomes.

- **Molecular and Environmental Plant Sciences (MEPS)**
  (http://meps.tamu.edu)

MEPS evolved from the intercollegiate Faculty of Plant Physiology, originally formed in 1983, in response to recommendations from an external panel of scientists convened to review the Faculty's programs in 1998. The recommendation to make the Plant Physiology program more inclusive of scientists in the plant sciences recognized an academic and research environment that is rich in facilities and personnel resources that support the plant sciences. MEPS promotes the unification of plant sciences at Texas A&M University through active support of departmental and interdisciplinary efforts to develop internationally recognized programs of excellence in research and graduate education. Prospective members are nominated through their respective department heads, voted to membership by full MEPS members, and approved by the appropriate dean. The MEPS Faculty comprises 42 full and 7 associate members. Associate members, usually post-doctoral researchers and adjunct faculty, have all the rights and privileges of full members except they may not vote nor hold elected office. PLPM has five faculty in the MEPS program, including Mike Kolomiets (a member of the Executive Committee), Marty Dickman, Paul de Figueiredo, Libo Shan, and Clint Magill. One adjunct faculty member, Elizabeth Pierson, is also in the MEPS program.

- **Center for Phage Technology (CPT)**
  (http://young.tamu.edu/center_for_phage_technology.htm)

In 2009 the university accepted faculty-driven “white papers” describing a number of areas of potential future focus. The white paper for a Center for Phage Technology, written by Drs. Carlos Gonzalez of Plant Pathology and Microbiology and Dr. Ry Young of Biochemistry and Biophysics, was one of eleven selected for implementation. Bacteriophages (“phages”) are viruses that kill bacteria and are the most numerous life form in the biosphere. Coupled with
modern DNA-based biotechnology, phages have enormous potential as "green" anti-bacterial agents by reducing the effects of deleterious bacteria on human health and agriculture, microbial corrosion, and biofouling. The CPT will be launched by the hiring of four junior faculty level positions. The first two positions are proposed to be located in PLPM and in Biochemistry and Biophysics. The remaining two hires will be split between Veterinary Medicine and Food Safety. The CPT will position Texas A&M University as the world leader in the application of phage 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.

- **Intercollegiate Faculty of Virology (IFOV)**
  (http://vtpb-www2.cvm.tamu.edu/Virology/Faculty.html)

  The Intercollegiate Faculty of Virology at Texas A&M University provides a unique collective effort in the country for comprehensive training in virology. The IFOV includes faculty from the Colleges of Agriculture and Life Sciences, Science, and Veterinary Medicine, and the Health Science Center. IFOV Members from Plant Pathology and Microbiology include Dr. Erik Mirkov, Dr. Herman B. Scholthof, Dr. Karen-Beth G. Scholthof, and Dr. Xiaofeng Wang. This diverse faculty has research, clinical, and teaching expertise with viruses that infect humans, vertebrate animals, insects, fungi, bacteria, and plants. An interdisciplinary approach to virology enables competitive graduate students to obtain virology positions in teaching, research, and industry. All students have the opportunity to specialize in one of four areas: Biotechnology, Virus-Host Interactions, Virus Immunology, or Molecular Virology. Our course PLPA 665 ‘Virus Vectors and Gene Therapy’ is cross-listed within the Health Sciences Center and the College of Veterinary Medicine.

  Viruses represent some of the most difficult to control diseases in animals and plants. Advances in the control of agriculturally important viruses have economically important consequences in efficiently feeding and maintaining the health of an ever-increasing human population. The health of companion animals, livestock, and wildlife affects the quality of human life. In addition, non-human viral systems are a valuable resource towards understanding human disease. The control of viral disease in fish, poultry, cattle, and plants that feed both humans and livestock has a positive impact on agricultural economics and the quality of our lives.

  Molecular virology continues to make major contributions to the understanding of the molecular processes of life and to utilize viruses as tools in biotechnology. Our research and teaching programs at Texas A&M University exemplify the diverse contributions that virology makes to life sciences research. As part of this contribution a Ph.D. program is underway to train the next generation of scientists to further our understanding of viruses with long term goals of developing new and better treatment strategies with innovative research programs. Faculty participating in IFOV received competitive funding from the USDA, NSF, NIH, and private industry.
Intercollegiate Faculty of Genetics (FOG)
(http://genetics.tamu.edu/)
Graduate degrees in Genetics at Texas A&M University are awarded through an Interdisciplinary Faculty of Genetics (FOG). Currently, the faculty has 84 members representing 19 departments from the Colleges of Agriculture & Life Sciences, Science, Veterinary Medicine and the Health Science Center (College of Medicine and Institute of Biosciences & Technology). University-approved bylaws of the FOG provide for a nine member executive committee elected by the membership to serve staggered three year terms. The executive committee in turn selects a Chair from its membership. Funds for the program are administered through the Department of Biochemistry and Biophysics, which also administers an undergraduate Genetics degree and provides an office for the FOG program.

Annual activities of the FOG include recruitment of graduate students (8 teaching assistantships and 3 Regents Fellowships are available each year), a weekly seminar series, travel and presentation awards for graduate students and oversight of the graduate curriculum. There are currently 59 GENE graduate students scattered across most of the departments represented by FOG members. Graduate students must satisfy degree requirements established by the program, but are considered also to be members of the Department of their primary advisor. Most GENE graduate students have committee members from several departments, which also helps to foster collegiality among FOG members.

The FOG is able to function on a volunteer basis in part because the program attracts many high quality graduate applications and also because teaching- and student-credits for GENE courses are awarded to the instructors' home department. This applies not only to graduate but also to undergraduate courses, the majority of which are taught by FOG members outside the Department of Biochemistry and Biophysics. State rules mandating that all faculty members teach formal courses has at times meant that teaching of GENE courses provided an important buffer, especially for small departments.

Five PLPM faculty are members of the Faculty of Genetics. These include Clint Magill, who teaches GENE 310, GENE 482 and GENE 603. Carlos Gonzalez, Paul de Figueiredo, Dan Ebbole, Charles Kenerley, Brian Shaw, Heather Wilkinson and Herman Scholthof are also members, but do not teach GENE courses. C. Kenerley, Marty Dickman, and Herman Scholthof each have a Genetics graduate student.
Vision, Mission and Goals: Department of Plant Pathology & Microbiology

The Department of Plant Pathology & Microbiology is committed to advancing its educational, research and extension programs with the goal of being recognized for excellence both within its discipline and within the college, university and community. The department developed a strategic plan for the period 2001-2006 as part of a university-wide effort known as Vision 2020. Recently, the College of Agriculture and Life Sciences and AgriLife Research released new Strategic Plans (July 2010). In addition, the university is releasing Action 2015, its next 5-year plan to complete Vision 2010.

Executive Summary

“Over the next 40 years, the world must produce more food than has been produced over the past 10,000 years combined, while also providing feedstock for energy production.”

(Coalition for a Sustainable Agricultural Workforce, 2010).

The Department of Plant Pathology and Microbiology is contributing to this goal by educating students and the public in plant pathology, plant-microbe interactions, plant health management and bioenvironmental sciences. Our goal is to advance the understanding of plant-microbe interactions and their effects on plant health management. We extend that knowledge to other scientists and the public at large. We also provide leadership to the TAMU Agricultural Program in the areas of plant diseases, plant health management, and environmental sciences. The department aims to be one of the elite research, extension and education programs in the United States.

Department of Plant Pathology and Microbiology

Vision

The Department will establish a culture of excellence in its teaching, research and extension activities. We will provide pre-eminent programs and people as the premier source for excellence in research on plant disease processes, pathogenic and beneficial plant-microbe interactions, and plant health management. We will convey the expertise needed to protect the environment from hazardous materials, including approaches for monitoring and modifying environmental hazards. We will inspire students to excellence both at Texas A&M and in their future career choices.

Mission

Our mission is to educate students in plant pathology and microbiology and the bioenvironmental sciences. We expand understanding of the basis of plant-microbe-environment interactions and bioenvironmental science and extend this knowledge to other scientists, the public at large, and provide leadership to the Texas A&M University Agricultural Program in the areas of plant health management, plant-microbe interactions, and the environmental sciences.
Vision, Mission and Goals

Goals and Priority Objectives for the Future (5-10 yrs)

The Department’s objectives and goals complement the university’s Vision 2020 initiative and the College of Agriculture and Life Sciences and AgriLife Research Strategic Plans. The current departmental efforts exemplify the university’s Action 2015 ‘Education First’ 5-year plan.

Background and Context

Plant diseases have greatly influenced human behavior since the earliest examples of recorded history. There are numerous descriptions of plagues of crops over time and one pathogen, *Puccinia graminis*, causative agent of cereal rust, was so devastating that the Romans created a unique god, Robigus, and made animal sacrifices to him in an attempt to avoid this disease. Many other pathogens also have caused widespread famine and altered human society, including *P. infestans* Potato Late Blight diseases, ergot, and other rusts and smuts. More recently, issues such as coliform bacteria contamination of produce and other food safety issues are becoming a growing concern. In addition to biotic factors, many abiotic factors are also affecting crop production. The amount of arable land available for agriculture is decreasing due to urban growth, and more marginal land is being used. Limitations and competition for water between urban areas and agriculture is a growing crisis, and global climate changes are altering plant stress and hence susceptibility to pathogen attack. These changes are also altering pathogen distribution and mechanisms of potential spread. The ever increasing dependence of the U.S. on international food shipments also is increasing the risk of pathogen and disease spread.

In spite of these issues, research on plant pathology and plant-associated microbes continues to receive only modest budgets and student interest nationally and internationally. Plant pathology departments across the country have experienced significant decreases in faculty numbers over the past several decades. This is occurring in spite of the fact that knowledge of crop species and their pathogens is becoming increasingly important to maximize crop productivity which will be required for the well being and survival of the human population. One of the largest threats to the field of plant pathology in the U.S. is the affordability of food and a lack of understanding by the general public of the importance of plant pathology to the sufficient production of food to feed the U.S. and the world.

Plant Pathology and Microbiology threads a fine line between the need to focus on research competitive at the national level for funding versus programs focused on state, regional and local needs. This balancing has become more difficult, as support for responses to local needs is suffering from severe decreases in state and commodity group funding. Additionally, the reorganization and uncertainty associated with national granting agencies, especially NIFA, has made national funding even more competitive. While resources to work on important plant pathogens is decreasing, the arrival of new and exotic plant pathogens and the emergence of pathogen variants that overcome current management practices continue to increase. Pathogens able to overcome crop resistance continually appear. There is an increased risk that as the successful production of sufficient food, feed, fiber and bioenergy crops becomes critical we will be unable to maintain sufficient yield increases to meet the needs of the growing population. As societies turn to the universities for solutions, they may find deficiencies in knowledge and insufficient numbers of well-trained personnel who can perform the research and disseminate the results. We must continue to be able to perform cutting-edge research and extension.
Additionally, we must continue to improve in our efforts to train the next generation of scientists and to educate the public at large as to the importance of agriculture to the continued success of the United States and the world.

**Plant Pathology and Microbiology: Strategic Plan**

Recently, the College of Agriculture and Life Sciences, AgriLife Research, and Texas A&M University released revised strategic plans. Although each has similarities and differences, the goals of the Department of Plant Pathology and Microbiology exemplify the strategic goals of the college, AgriLife Research, AgriLife Extension, and Texas A&M.

Education of undergraduate, graduate and post-doctoral students is a core component of the department. The training of our students occurs at several levels, including classical discourse in lectures, hands-on experiences in laboratory classes, and via applied research experiences in the laboratory and the field.

**Plant Pathology and Microbiology Teaching Components**

In 2000 under then-President Dr. Robert Gates, Texas A&M University launched a bold series of objectives to revamp education at the university by 2020. This plan, known as Vision 2020, set out specific objectives to be reached. As it is now halfway through the Vision 2020 timeline, the university revised its 5-year strategic plan (FY 11-FY 15) in a document known as Action 2015. The basic idea behind Action 2015 is that there is no separation between teaching, research and service. This is called ‘Education First.’

**Texas A&M University Action 2015 5-yr Plan**

- The Action 2015 now reflects what PLPM has been doing for many years.
College of Agriculture and Life Sciences (COALS) strategic plan

- **Imperative 1: Elevate our Faculty and Their Teaching, Research and Scholarship.**
  1. Enhance the stature of our faculty.
     A. Recruit quality faculty.
     B. Promote international collaborations.
  2. Sustain and grow teaching effectiveness and learning excellence.
     A. Expand faculty mentoring for teaching.
  3. Increase basic and translational research
     A. Identify, build upon strengths.
     B. Promote research excellence.

- **Imperative 2: Strengthen our Graduate Programs.**
  1. Increase and diversify our graduate student body.
     A. Increase efforts to recruit under-represented students.
     B. Increase financial support.
  2. Increase opportunities for experiential learning.
     A. Improve preparation in classroom teaching.
     B. Broaden access to our academic programs beyond College Station.

- **Imperative 3: Enhance the Undergraduate Academic Experience.**
  1. Enhance undergraduate exposure to research.
     A. Promote REUs.
     B. Enhance honors programs.
     C. Enhance financial support for undergraduate research.
  2. Provide experiential learning opportunities that foster critical thinking, complex problem solving, strong communication skills, community interaction, and social/global awareness.
     A. Expand out-of-classroom learning.
     B. Foster real-world problem solving.
     C. Expand cross-disciplinary learning.

- **Imperative 4: Diversify and globalize the A&M and College Communities.**
  1. Enhance/broaden the student’s educational experience to make them better understand the world around them and how different perspectives contribute to its strength.
     A. Increase international activities.
     B. Increase diversity of the student body.
  2. Increase impact of faculty by broadening their experiences.

- **Imperative 5: Build engaging connections beyond the university.**
  1. Establish new and utilize existing partnerships with industry, communities and other stakeholders.
  2. Increase Intellectual Property (IP).
  3. Engage non-degree earning learners/students.
  4. Engage Pre-K through 12 education constituencies.
The department has focused historically on the first three imperatives. We are now beginning to place emphasis on Imperatives 4 and 5 which represent new directions for the department.

- The goal of the following sections is to illustrate the department’s current efforts in terms of the five college strategic imperatives and how we plan to enhance our efforts in the future.

**Imperative 1: Elevate our faculty and their Teaching, Research and Scholarship.**

1. **Enhance the stature of our faculty.**

A. **Recruit quality faculty from diverse backgrounds to broaden the thought and educational environment.**

Over the past 6 years, eleven faculty were recruited into the department by the former Department Head. These faculty appointments are split among the college, AgriLife Research or AgriLife Extension. Eight of these faculty replaced faculty that retired or left for other institutions and two were hired as part of the Faculty Reinvestment program at Texas A&M. Only five are located on the Texas A&M campus while the other six are located at Research/Extension Centers across the state. These faculty additions include:

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Yr of Hire</th>
<th>Adloc*</th>
<th>Physical Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Paul de Figueiredo</td>
<td>2005</td>
<td>COALS</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Karl Steddom</td>
<td>2005</td>
<td>Extension</td>
<td>Overton</td>
</tr>
<tr>
<td>Dr. Marty Dickman**</td>
<td>2006</td>
<td>COALS</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Jason Woodward</td>
<td>2006</td>
<td>Extension</td>
<td>Lubbock</td>
</tr>
<tr>
<td>Dr. Ron French-Monar</td>
<td>2007</td>
<td>Extension</td>
<td>Amarillo</td>
</tr>
<tr>
<td>Dr. Young-Ki Jo</td>
<td>2008</td>
<td>Extension</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Joshua Yuan</td>
<td>2008</td>
<td>COALS</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Libo Shan**</td>
<td>2009</td>
<td>COALS</td>
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</tr>
<tr>
<td>Dr. Xin-Gen ‘Shane’ Zhou</td>
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<td>Research</td>
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<td>Dr. Qingyi Yu</td>
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<td>Weslaco</td>
</tr>
<tr>
<td>Dr. Xiaofeng Wang</td>
<td>2009</td>
<td>Research</td>
<td>Weslaco</td>
</tr>
</tbody>
</table>

*Most faculty have appointments split between COALS, AgriLife Research or AgriLife Extension Service.

**Future:**

Our goal is to identify and recruit faculty in emerging areas of relevance to plant pathology and plant microbiology. Opportunities for hiring new faculty will be extremely limited due to the number recently hired and budgetary limitations. A critical issue in the department is a lack of sufficient faculty diversity. Currently, the department is 83% male, 17% female with 8% Hispanic and 17% Asian faculty members. However, issues of faculty diversity can be remedied only by additional positions. Currently, there is only one potential faculty recruitment for a junior faculty member as a member of the Center for Phage Technology (CPT).
B. Promote international collaborations.
The department historically has focused on plant pathology issues specific to Texas and other southern states to support our constituents. Recently, several of our faculty have begun establishing collaborative interactions with colleagues at institutions in other countries. This new direction supports the recent university shift to focus on international experiences for faculty and students.

Examples of international collaborations include:

- **Dr. Dan Ebbole** developed a new BESC 484W course in 2010 that involves a four-week field experience in Taiwan. Three students have taken this new course, working with Dr. Wei-Chang Shen at the National Taiwan University. This university teaches a course (in English) on ‘Biodiversity, Agriculture and Culture in Taiwan.’ A future goal is the establishment of a “3+1” program between the National Taiwan University and Texas A&M University.

- **Dr. Won-Bo Shim** is working to establish an international consortium of scientists to study pathogenic *Fusarium* spp. These pathogenic fungi represent the most important agricultural plant pathogenic fungi due to the wide range of agricultural crops they attack and their ability to produce mycotoxins that pose critical health concerns for human and animal consumption. It is estimated that ~25% of crops world-wide are contaminated with mycotoxins. Dr. Shim has traveled to China and is interacting with the laboratory of Dr. Zonghua Ma at Zhejiang University in China. This collaboration would result in students from A&M traveling to China to work in laboratories at Zhejiang University. An aspect that makes this experience even more beneficial for A&M students is that China pays living, boarding and food expenses during the student visits.

- **Dr. Young-Ki Jo** hosts one Chinese internship student in his lab each fall, which supports the Michigan State University - China Turfgrass Management Program. The student has completed most course requirements for a 4-year turfgrass management degree (B.S.) in China. The internship experience in the U.S. is a requirement for completing the degree program. During the internship in his lab, the student is involved in multiple field and lab research projects focused on turfgrass pathology.

- **Dr. Young-Ki Jo** has established a research agreement with the Rural Development Administration (RDA) in South Korea (the Korean equivalent of the USDA). The research will be carried out for three years with rice pathologists in RDA. RDA is contributing $120,000 for this project, titled “Development of control methods for seed borne diseases using plasma technology and silver nanoparticles in rice.” The goal of this project is to control important seed borne diseases on rice in Texas and South Korea. The particular objectives of this project are: 1) To develop the cold plasma technology for eradication seed borne pathogen in rice, and 2) To develop the silver nanoparticle compounds with antifungal property against pathogens concerned with seed borne diseases in rice. Each year, scientists associated with this project will be exchanged between Texas and South Korea.

- **Dr. Joshua Yuan, Dr. Won-Bo Shim** and **Dr. Dan Ebbole** traveled to China for a bioenergy conference held in Beijing in October, 2009. Dr. Yuan was an organizer and
host for the first US-China Bioenergy Forum as part of the US-China Relationship Conference. In addition, he co-hosted the International Symposium of Biotechnology and Biofuels at Peking University. He also was a keynote speaker in a symposium for the dedication of Bioenergy Research Center in Jiangsu University and has accepted an Adjunct Professorship at Jiangsu University. The US-China Bioenergy Forum is one of the first high level bioenergy specific forum with leading scientists from both nations in attendance. A TAMU graduate student, Aaron Smith from Chemical Engineering, attended the conference and gave a talk.

- **Drs. Chuck Kenerley, Heather Wilkinson, Herman Scholthof and Jim Starr** hosted four Borlaug Fellows last fall. Our faculty have participated in these international programs for several years. **Drs. Dan Ebbole** and **Brian Shaw** hosted Borlaug Fellows from Cameroon in Fall 2007.

- **Dr. Jim Starr** travels extensively to West Africa to collaborate on research to develop nematode resistant crops. He has also hosted scientists from West Africa in his laboratory at Texas A&M.

- **Dr. Mike Kolomiets** is interacting with three scientists at CONACYT in Mexico, Dr. Martin Heil (Plant-Insect Mutualism), Dr. Doralida Guzmán (Mycotoxins), and Dr. Jean-Philippe Vielle (Functional Genomics and Apomixis). To date he has obtained seed from Dr. Vielle for 16 landraces of maize to sequence LOX4 and LOX5 to see if resistance to aflatoxin contamination and drought can be associated with any alterations in those two genes.

- **Dr. Brian Shaw** traveled to Mexico three times in the past three years to attend the Latin American Mycology Congress. He has long-standing collaborations with Dr. Rosa Mourino-Perez and Dr. Meritxel Riquelme at CICESE in Ensenada Mexico and serves on the advisory committee of Diego Delgado, a Ph.D. student of Dr. Mourino-Perez. Drs. Shaw and Riquelme are co-editors for an special issue of the journal *Fungal Biology*.

- **Dr. Libo Shan** is initiating collaboration with faculty of College of Life Science at Beijing Normal University. She gave a keynote talk in their annual Plant Calcium Signaling Symposium on December 2010. The efforts to recruit talented Ph.D. students with China Scholar Council (CSC) fellowships are undergoing.

- **Dr. Libo Shan** is collaborating with Dr. Zhaohu Li, the Dean of College of Agriculture and Biotechnology, Beijing Agricultural University on the study of cotton abiotic stress resistance. One joint publication has been accepted by *The Plant Journal*. Two Ph.D. students with CSC fellowships are being recruited into Dr. Shan’s lab.

- **Dr. Libo Shan** is collaborating with Dr. Gonçalo Apolinário de Souza Filho from the Center of Bioscience and Biotechnology, North State University of Rio de Janeiro, Brazil. A Ph.D. student, Ms. Aline Chaves Intorne, will join Dr. Shan’s lab for one year (January to December 2011) to study the early signaling events in plant innate immunity.
• **Dr. Herman Scholthof** collaborates with the John Innes Center in England.

• **Drs. Herman Scholthof and Karen-Beth Scholthof** will be giving a lecture series on Plant Virology in May at the L. N. Gumilyov Eurasian National University, in Astana, Kazakhstan.

• **Fujian Agriculture and Forestry University (FAFU), FaoHou, China.** Dr. Libo Shan has a graduate student from FAFU in her laboratory. Recently, Dr. LS Pierson led a visit to FAFU to give invited lectures and discuss A&M faculty minicourses and research collaborations. Accompanying him were Drs. EA Pierson, L. Shan and Ping He. The trip was organized by Dr. Zonghua Yuan, Professor of Plant Pathology & Molecular Genetics, Vice President of Fujian Agriculture and Forestry University. An MOU is under development.
  - In the summer of 2011, Drs. Daniel Ebbole and Won-Bo Shim will teach a graduate level course in “fungal genetics/genomics and fungal-plant interactions” at Fujian Agricultural and Forestry University, Fuzhou, Peoples Republic of China. Dr. Zonghua Wang, Professor of Plant Pathology and Vice President of International Affairs, is sponsoring this two-week summer intensive course. In addition to teaching the course, Drs Ebbole and Shim will interact with graduate students and faculty at Fujian Agricultural and Forestry University to strengthen research collaborations.

• **Huazhong Agricultural University, Wuhan, China.** After a visit by several Deans and Department Heads from Huazhong, a symposium was organized by Dr. Xianlong Zhang, Vice President of HUAZ. Eight faculty (6 from PLPM) led by Dr. LS Pierson traveled to Huazhong Agricultural University this past spring break for a 2-day symposium. Mutual research interests as well as teaching and graduate student exchanges were discussed. An MOU is being developed to further promote our relationship.

**Future:**
We will continue to pursue international collaborations that can support and enhance our core mission to agriculture, Texas and its citizens. For example, several faculty are traveling to China to explore collaborations with two universities (see above). However, in order to be successful, these international efforts require sufficient levels of support from the department, the college and the university. Faculty are exploring competitive support for these programs, but in the near term immediate college and university support is needed.

2. **Sustain and grow teaching effectiveness and learning excellence that prepares students for life-long learning.**

A. **Expand faculty mentoring for teaching.**
The department encourages and has sponsored faculty participation in teaching workshops. Faculty members are recognized regularly for their teaching efforts. Measurements of faculty success in teaching include:
• **Dr. Karen-Beth Scholthof** received the 2008 Center for Teaching Excellence/University Writing Center "W-Course" Teaching Award.

• **Dr. Karen-Beth Scholthof** received the 2009 TAMU Association of Former Students Distinguished Achievement Award for Teaching.

• **Dr. Brian Shaw** received the Student-Led Awards for Teaching Excellence (SLATE), award for spring 2009 and also for spring 2010 (in 2010, only 5 were awarded in COALS).

• **Dr. Greta Schuster** received the 2008 and 2009 Texas A&M Kingsville Chancellor’s Teaching Excellence Award.

• **Dr. Jason Woodward** was nominated for the 2009 Texas Tech University CASNAR award.

• **Dr. Leland S. Pierson III** received the 2006-2007 Outstanding Faculty Teaching Award from the College of Agriculture and Life Sciences at The University of Arizona.
Future:
The Department Head has begun attending lectures by junior faculty in the department for the purpose of providing feedback support and suggestions. All faculty currently are evaluated by the Center for Teaching Excellence based on student evaluations and these ratings are discussed during the annual faculty reviews.

3. Increase basic and translational research.
A. Identify, build upon current strengths. The discipline of plant pathology covers a diversity of areas relevant to plant health and agriculture, from basic molecular studies to applied research. Being a relatively small department, each faculty member brings specific expertise and a unique perspective to the unit.

Current Focus areas and Research Strengths: (Please see Figure on pg. 18)
- Host-plant interactions.
- Bacteriology
- Bioenergy & Biotechnology
- Pathogenic fungi and mycology
- Disease resistance
- Virology & Bacteriophage biology
- Nematology
- Plant biology
- Ecology & evolutionary biology
- Waterborne pathogens
- Institute for Plant Genomics and Biotechnology

The faculty have been successful in obtaining grants in support of their research. Please see the section on Research Productivity for more detailed information on projects, grants, and funds.

Extension Research:
The department is comprised of COALS, AgriLife Research and AgriLife Extension faculty.

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Research/Extension</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. David Appel</td>
<td>Extension</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Mark Black</td>
<td>Extension</td>
<td>Uvalde</td>
</tr>
<tr>
<td>Dr. Carlos Bogran (50%)</td>
<td>Extension</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Ron French-Monar</td>
<td>Extension</td>
<td>Amarillo</td>
</tr>
<tr>
<td>Dr. George Di Giovannii</td>
<td>Research</td>
<td>El Paso</td>
</tr>
<tr>
<td>Dr. Erik Mirkov</td>
<td>Research</td>
<td>Weslaco</td>
</tr>
<tr>
<td>Dr. Tom Isakeit</td>
<td>Extension</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Young Ki Jo</td>
<td>Extension</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Gary Odvody</td>
<td>Extension</td>
<td>Corpus Christi</td>
</tr>
<tr>
<td>Dr. Kevin Ong</td>
<td>Extension</td>
<td>College Station</td>
</tr>
<tr>
<td>Dr. Charlie Rush</td>
<td>Research</td>
<td>Amarillo</td>
</tr>
<tr>
<td>Dr. Greta Schuster</td>
<td>Extension</td>
<td>Kingsville</td>
</tr>
<tr>
<td>Dr. Karl Steddom</td>
<td>Extension</td>
<td>Overton</td>
</tr>
<tr>
<td>Dr. Xiaofeng Wang</td>
<td>Research</td>
<td>Weslaco</td>
</tr>
<tr>
<td>Dr. Terry Wheeler</td>
<td>Research</td>
<td>Lubbock</td>
</tr>
<tr>
<td>Dr. Jason Woodward</td>
<td>Extension</td>
<td>Lubbock</td>
</tr>
<tr>
<td>Dr. Qingyi Yu</td>
<td>Research</td>
<td>Weslaco</td>
</tr>
<tr>
<td>Dr. Xin-Gen (Shane) Zhou</td>
<td>Research</td>
<td>Beaumont</td>
</tr>
</tbody>
</table>
Vision, Mission and Goals

The department has two plant disease diagnostic laboratories, the Texas Plant Disease Diagnostic Laboratory (TPDDL) located in the Centeq building on the College Station campus and the Great Plains Diagnostic Laboratory (GPDN) located at the Amarillo Research Center. Dr. Kevin Ong is the Director of the TPDDL and Dr. Ron French-Monar operates the GPDN laboratory.

Plant Pathology and Microbiology faculty are also working on important existing and emerging plant pathogens that threaten Texas agriculture and that of the U.S. Faculty perform research and field work supported by grants from several Texas commodity groups, including the Texas Pierce’s Disease Research & Education Program and the grape industry, the Texas Corn Producers Board, Texas Cotton State support, Cotton Incorporated, Plains Cotton Improvement Program, Texas Citrus Mutual, and Texas Wheat Producers.

Future:
Further strengthening of the connections between faculty on main campus and those located at the Research and Extension Centers around the state is needed to increase the integration between basic laboratory research with field applications. Major hurdles include the distances across Texas, schedule conflicts between field studies and classes, and funding. Many Centers lack housing, or students have to pay rent at two locations simultaneously. Also, research and extension have not been treated equivalently at some centers.

B. Promote research excellence. Examples of faculty members in the department who have been recognized recently for research excellence include:

- **Dr. Erik Mirkov** recognized by the Vice Chancellor at the 2010 Annual Patent Awards Luncheon for 4 US and 1 Australian issued patents.
- **Dr. Herman Scholthof** received the 2009 TAMU Association of Former Students Distinguished Achievement Award for Research.
- **Dr. Herman Scholthof** received the 2009 Ruth Allen Award, presented for outstanding, innovative contributions to research that has changed, or has the potential to change the direction of research.
- **Dr. Herman Scholthof** was elected a Fellow of the American Phytopathological Society in 2009.
- **Dr. George Di Giovanni** received the 2009 Faculty Fellow distinction, Texas AgriLife Research.
- **Dr. Brian Shaw** received the 2009 Alexopoulos Prize, the Outstanding Early-Career Mycologist Award awarded by the Mycological Society of America.
- **Dr. Marty Dickman** received the 2011 E. C. Stackman Award, granted to individuals of any country and nationality for outstanding achievements in plant pathology. Past recipients include Dr. Luis Sequeira and Dr. Norman Borlaug.
- **Dr. Marty Dickman** was recently elected an AAAS Fellow.
- **Dr. Mike Kolomiets** received the 2011 MEPS Outstanding Young Faculty Award.

Imperative 2: Strengthen our Graduate Programs.

1. Increase and diversify our graduate student body.

The graduate program in the Department of Plant Pathology and Microbiology has been revised several times over the years. The Graduate Program Committee is charged with the oversight of
the graduate program curriculum. Please see the section on Graduate Teaching for a full
description of the Graduate Program.

A. Increase efforts to recruit underrepresented students.
The department encourages eligible students to apply for one of several possible fellowship
programs, including:

- **Alfred P. Sloan Foundation** under-represented minority graduate recruitment. The
  Alfred P. Sloan Foundation's Minority Ph.D. Program has two components. The Ph.D.
  component offers substantial scholarship support to underrepresented minority students
  who are beginning their doctoral work in engineering, natural science and mathematics.
  Since its establishment in 1995, the program has provided direct support to over 900
  minority Ph.D. students in these fields. The smaller Feeder component offers
  underrepresented minority B.S. or M.S. student’s access to select faculty and departments
  that have demonstrated success in sending their students on to doctoral programs.

- **MANRRS (Minorities in Agriculture, Natural Resources, and Related Sciences)**
  program. The MANRRS program is aimed at the development of leadership and
  professional skills and scholarly excellence among members in the early stages of their
  careers. The overall objective of MANRRS is to foster inclusion and advancement of
  members of ethnic/cultural groups underrepresented in agricultural and natural resource
  sciences and related fields in all phases of career preparation and participation.

- **Hispanic Leadership in Agriculture and Environment Fellows program.**
- **Association for Former Students Graduate Merit Fellowship.**

B. Increase financial support.
Currently for graduate student support, the department receives $62,909 base funding plus
variable amounts in a graduate enhancement account. The new department head negotiated 2 yrs.
of an additional $50,000, expiring September 2011. These monies are primarily used for
recruitment of new students. Faculty are expected to support their students from federal or state
grant funds, or from teaching assistantships. A major area of debate, for all faculty, is whether to
use limited (and increasingly precious) support monies for graduate students or for post-doctoral
fellows. During times of limited funding opportunities, the need for rapid progress on research
areas often places the need for more productive post-doctoral students above the longer term
training of graduate students.

2. Increase opportunities for experiential learning that prepares students for life.
A. Improve preparation in classroom teaching.
The department has been updating classroom technology by the installation of Smart Boards in
most of its classrooms. One teaching laboratory had new chairs installed in fall, 2009. Since
September 2009, several updates to the Peterson building 1st floor hallway have been
implemented, including a monitor that displays information on the department, its faculty, its
programs, and additional information of current interest, such as seminars and departmental
functions.
The department has limited funds available to support student travel in order to present research
at national and international meetings. Attending and presenting their work, whether orally or at
poster sessions, is an important teaching component and trains students to become better
scientists and helps to establish useful collaborations and future contacts. In addition, the
Department Head is supportive of the request by the Post-doctoral student committee to guest lecture in specific classes to gain experience for the next level of their professional career.

**B. Broaden access to our academic programs beyond College Station.**
This is a new area for the department and we are beginning to plan how best to do this. The department currently integrates teaching, research and extension as they are inseparable in the field of plant pathology. Plant Pathology is a hands-on major. The department has several faculty associated with other educational centers around the state. These faculty include Dr. Jason Woodward who has a 75% AgriLife Extension Specialist and 25% Instruction appointment at Texas Tech University in Lubbock to teach plant pathology. He also serves as major professor and committee member for graduate students at Texas Tech. Dr. Greta Schuster has a 25% AgriLife Extension appointment and a 75% teaching appointment at the Texas A&M Kingsville campus. She currently teaches plant pathology and trains undergraduate and graduate students.
Imperative 3: Enhance the Undergraduate Academic Experience.

Since its inception in 1990, the undergraduate Bioenvironmental Sciences major has grown in size from 153 majors in 1992 to 227 majors in 2010. The major graduates on average nineteen students per semester. The BESC major has an excellent Student-to-Faculty ratio, with 227 students being taught by 20 faculty (ratio = 11.4 to 1). In addition, all BESC courses are taught by tenured or tenure-track faculty. More detailed information regarding the BESC major are provided in the section on Teaching.

1. Enhance UG exposure to research.
   A. Promote REUs. All faculty on campus are involved in training undergraduate researchers. More information on the departmental REU programs is in the Teaching section.

   B. Enhance honors programs. Dr. Karen-Beth Scholthof led the effort to develop a Honors Program for the Bioenvironmental Sciences major. This is the first honors program in COALS. Please see the Undergraduate Teaching section for more information on the BESC honors program.

   C. Increase financial support for UG research. All BESC majors must complete an internship in order to be able to graduate. Many students fulfill this requirement by working in a research laboratory. As indicated in the Undergraduate Teaching section, since 2003 PLPM faculty have trained over 200 undergraduate students in their research laboratories.

2. Provide experiential learning opportunities that foster critical thinking, complex problem solving, strong communication skills, community interaction, and social/global awareness.
   A. Expand out-of-classroom learning (Study Abroad).
   The department has had a number of undergraduate students participate in Study Abroad programs in Brazil, Costa Rica, Australia, Fiji, Ireland, Belgium, and Dominica.

   B. Foster real-world interdisciplinary problem solving.

   C. Expand cross-disciplinary learning.

Please see the Teaching section on the BESC program for more information.
Imperative 4: Diversify and globalize the A&M and College Communities.

1. Enhance and broaden the student’s educational experience to make them better understand the world around them and how different perspectives contribute to its strength.

A. Increase international activities. Please see page 37. In addition, several faculty visited CONACYT in Mexico with the goal of developing international research initiatives and student exchange programs.

B. Increase diversity of the student body.

Overall demographics of the undergraduate BESC major for the years 2008-2010:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>118</td>
<td>44.5%</td>
</tr>
<tr>
<td>Female</td>
<td>147</td>
<td>55.5%</td>
</tr>
<tr>
<td>Total</td>
<td>265</td>
<td>100.00%</td>
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</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>14</td>
<td>5.3%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>65</td>
<td>24.5%</td>
</tr>
<tr>
<td>Native American</td>
<td>5</td>
<td>1.9%</td>
</tr>
<tr>
<td>Asian</td>
<td>15</td>
<td>5.7%</td>
</tr>
<tr>
<td>White</td>
<td>166</td>
<td>62.6%</td>
</tr>
</tbody>
</table>

Overall demographics of the PLPM graduate program as of 2010:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>12</td>
<td>36.4%</td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
<td>63.6%</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>2</td>
<td>6.1%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>11</td>
<td>33.3%</td>
</tr>
<tr>
<td>Native American</td>
<td>2</td>
<td>6.1%</td>
</tr>
<tr>
<td>Asian</td>
<td>9</td>
<td>27.3%</td>
</tr>
<tr>
<td>White</td>
<td>9</td>
<td>27.3%</td>
</tr>
</tbody>
</table>

2. Increase impact of faculty by broadening their experiences.

Tenured faculty members at Texas A&M University have the ability to apply for Faculty Development Leave. Recent examples:

- Herman Scholthof spent 6 months in the laboratory of Dr. Peter Moffett whose research group focuses on molecular resistance mechanisms of plants against pathogens at the Boyce Thompson Institute (BTI) for Plant Research at Cornell University in Ithaca New York. Dr. Scholthof’s goal was to learn new research techniques applicable to my own molecular virology program by performing hands-on state-of-the-art research in the
laboratories and greenhouse facilities at BTI. To date, one publication has resulted from this visit.

- Karen-Beth Scholthof had a 6 month Visiting Scholar appointment in the Department of Science and Technology Studies at Cornell University. Her visit enabled her to continue her NSF-funded research on the history of plant virology, specifically *Tobacco mosaic virus* in the early 20th century in the United States. She spent much of the time intensively reading of plant pathology, plant genetics, and virology literature from 1900-1935 and the historiography of these topics at the Mann Agricultural Library. She also worked at the Kroch Library (Archives) to investigate the development of the American Phytopathological Society (APS), and the links between Cornell University Plant Pathology and the development of the Boyce Thompson Institute. She also prepared a manuscript on F. O. Holmes and the local lesion assay. To date, two publications resulted from this visit.

- Mike Kolomiets spent 6 months in the laboratory of Dr. Ivo Feussner at the Institute of Plant Biochemistry, University of Goettingen, Germany. Dr. Kolomiets’s Faculty Development Leave was to gain analytical expertise in modern, state-of-the-art biochemical techniques of plant metabolome and lipidome profiling. While learning new metabolome analyses techniques, another important goal was to profile and quantify lipids and major plant hormones in the maize lipid metabolism mutants that Dr. Kolomiets has generated at Texas A&M. This training was necessary to take his already successful research program in maize molecular genetics to the next level of excellence and competitiveness.

- Herman and Karen-Beth Scholthof will be giving an invited lecture series on Plant Virology in May at the L. N. Gumilyov Eurasian National University, in Astana, Kazakhstan. One of their goals is to recruit new graduate students to Texas A&M.

In addition, as a result of our interactions with Fujian Agriculture and Forestry university and Huazhong Agriculture University several faculty have the opportunity to travel and provide mini-courses at these institutions. For example:

In the summer of 2011, Drs. Daniel Ebbole and Won-Bo Shim will teach a graduate level course in “fungal genetics/genomics and fungal-plant interactions” at Fujian Agricultural and Forestry University, Fuzhou, Peoples Republic of China. Dr. Zonghua Wang, Professor of Plant Pathology and Vice President of International Affairs, is sponsoring this two-week summer intensive course. In addition to teaching the course, Drs Ebbole and Shim will interact with graduate students and faculty at Fujian Agricultural and Forestry University to strengthen research collaborations.

Several additional faculty are initiating their own international collaborations to expand their interactions which will greatly benefit the department, the college and the university.
Imperative 5: Build engaging connections beyond the university.

1. Establish new and utilize existing partnerships with industry, communities and other stakeholders.

Many faculty in the department are involved in research and field experiments funded by Texas agriculture commodity groups and companies. In addition, many are involved with public groups.

Examples of Commodity Group Interactions:
- Cotton Incorporated
- National Peanut Board
- National Cotton Foundation
- Plains Cotton Growers
- Texas Arboriculture Industry
- Texas Citrus Mutual
- Texas Citrus Producers
- Texas Corn Producer Board
- Texas Fruit Grower Association
- Texas Grape Growers
- Texas Landscape Industries
- Texas Nursery Growers
- Texas Peanut Producers Board
- Texas Potato Growers
- Texas Rice Research Foundation
- Texas Sorghum Board
- Texas Vineyard Owners/Managers
- Texas Wheat Producers Board
- Turf Producers of Texas
- Texas Department of Agriculture (government)

Examples of Industry Interactions:
- ACI
- Agraquest
- Americot-Nexgen
- Arysta
- Bayer CropScience
- BASF
- Becker Underwood
- Biotechnology and Research Development Corporation
- Bioworks
- Cerexagri
- Cheminova
- Cleary
- Dynagrow
- Devgin
- Dow Agrosciences
- DuPont
- Fibermax
Frito Lay
GmBH
Monsanto
Natural Industries, Inc.
Nichino America
Pasteuria BioSciences
Pioneer Hybrid
Plant Biosciences Ltd.
Prophyta
Quali-Pro
Sipcam
Syngenta
Valent

Examples of Public Interactions:
Blackland Urban Forestry Council
Citizen Forester Program
Coastal Ben Pest Control Association
Future Farmers of America
International Society of Arboriculture Texas
Lubbock Arborists
Lubbock Petal Pushers
Master Gardeners
Texas Bobwhite Brigade
Texas Envirothon, Environmental Institute of Houston
Urban Plant Detectives Program

2. **Increase IP.** Young Ki Jo is a member of a multi-department group exploring the use of cold plasma technology for the removal of microorganisms from seed. He has filed a Disclosure Statement with the university and is proceeding with the research. Dr. Carlos Gonzalez has agreements on his bacteriophage research and Dr. Erik Mirkov is actively pursuing patents on transgenic projects. Dr. Herman Scholthof has 1 patent pending, and another patent application with Dr. Karen-Beth Scholthof has been provisionally extended.

3. **Engage non-degree earning learners/students.**

   **Expand distance education offerings.**

Currently, the department offers one distance education course, PLPA 603 Plant Disease Management taught by Dr. J. Starr.

4. **Engage Pre-K through 12 education constituencies.** Dr. Paul de Figueiredo developed the ‘Invisible Jungle’ radio program aimed at broadcasting sound bites prepared by undergraduate honors students on topics of microbiological importance via public radio. This program is described in more detail in the Undergraduate Teaching section.
Plant Pathology and Microbiology

On campus Faculty

David Appel, Professor and Associate Department Head
- Understanding the epidemiology of plant diseases such as Oak Wilt, Pierce’s Disease of grapes, and invasive pathogens for better disease management.
- Extension Interests: Provide quality, relevant educational opportunities for Texans regarding the identification and control of important plant diseases.

Carlos Bogran (50% appt), Associate Professor & Extension Specialist
- Resistance of wax Begonia cultivars to Rhizoctonia solani.
- Enhancing pest/disease management with reduced inputs.

Thom DeWitt (25% appt), Associate Professor
- Ecological Quantitative Genetics; Functional Ecology; Phenotypic Plasticity; Natural Selection; Conservation Biology; Environmental Stochasticity; Biomathematical Models; Development; Freshwater Ecology.

Paul de Figueiredo, Assistant Professor
- Microbial physiology and molecular mechanisms mediating host-pathogen interactions.
- Animal and plant disease model systems, including Brucella spp.
- Bioenergy production.

Marty Dickman, Professor, Director of the Institute for Plant Genomics and Biotechnology
- Understanding the mechanisms that regulate plant apoptosis and implementing intervention or alternative strategies to generate transgenic plants with novel mechanisms of pathogen resistance and stress tolerance.
- Fungal genomics and pathogenic mechanisms.

Dan Ebole, Professor
- Interests are in fungal genetics, focusing on development and pathogenesis.
- Understanding of signaling in plant-microbe interactions, focusing on secreted proteins in the rice blast pathosystem.
- Exploring developmental processes in Neurospora crassa, a model genetic system, and evolution of developmental pathways in ascomycete fungi.
Carlos Gonzalez, Professor
- Encompasses a range of studies that address mechanisms involved in the plant-bacterial, human-bacterial and phage-bacterial–interactions.
- The model systems used are members of the *Burkholderia cepacia* complex (Bcc) and the xylem limited bacterium *Xylella fastidiosa* and their respective phages.

Dennis Gross, Professor
- Molecular genetic studies of plant pathogenic bacteria, especially *Pseudomonas syringae* pv. *syringae*.
- The influence of bacterial metabolites and virulence factors, as modulated by the plant environment, on ecological success.

Tom Isakeit, Professor & Extension Specialist
- Directed by the needs of Texas growers.
- Diseases of agronomic and vegetable crops.
- Management of Phymatotrichopsis (cotton) root rot, aflatoxin on corn, and downy mildew of sorghum.
- Coordination of soybean rust monitoring in Texas.
- Watermelon diseases.

Young Ki Jo, Assistant Professor & Extension Specialist
- Chemical and biological management of diseases associated with turfgrass and rice.
- Development of molecular identification and quantitative methods for plant pathogens and beneficial microbes.
- Improvement in seed treatment methods to manage seed-borne diseases.

Chuck Kenerley, Professor and Associate Department Head
- Characterizing the role of secondary metabolites in the life stages of *Trichoderma virens*.
- Understanding the mechanisms *Trichoderma virens* employs to induce resistance responses in plants.
- Discovering novel fungal elicitors involved in the induction of systemic resistance in plants.

Michael Kolomiets, Associate Professor
- Functions of lipid-based biochemical and signal transduction pathways in maize defenses against pathogens, pests and abiotic stresses.
- Requirement for host and fungal lipids as molecular signals in the regulation of pathogenicity and mycotoxin production by seed infecting fungi.
Clint Magill, Professor
· Use of molecular probes to gain new insights into fungal plant pathogens and to measure host responses to pathogens.
· Development of real-time PCR primers for downy mildew pathogens.
· PCR-based tags for genes conferring resistance to head smut, anthracnose, downy mildew and grain mold in sorghum.

Kevin Ong, Associate Professor and Director, Texas Plant Disease Diagnostic Lab
· Disease diagnostic service to AgriLife Extension personnel, homeowners, farmers, nursery producers, landscape contractors, interior scapers, arborists, consultants.
· Develop educational programs to encourage the public awareness and appreciation for plant diseases and their impact to society.
· Implementation of sound low-impact management approaches to plant disease.

Leland S. (Sandy) Pierson III, Professor and Head
· Secondary metabolite production and regulation in bacteria.
· Multiple roles of secondary metabolites, including as signals altering patterns of gene expression.
· Signaling among microbial populations in vitro and in situ.
· Microbial communities: involvement in speleothem formation.

Karen-Beth Scholthof, Professor
· Molecular virology of Panicum mosaic virus and its satellite virus, SPMV.
· Emphasis on SPMV biology and biotechnology applications.
· History of plant pathology, with an emphasis on Tobacco mosaic virus in the early 20th century in the United States.

Herman Scholthof, Professor
· Molecular and biochemical mechanisms controlling virus-induced RNA silencing, its suppression, and virus transport.
· Precision engineering of novel molecular biotechnology and bioenergy tools based on plant viruses and their encoded products.
· Characterization of emerging arthropod-transmitted diseases in Texas, such as Zebra Complex disease on potatoes.

Libo Shan, Assistant Professor
· Understanding how host-microbe interactions shape the evolution of microbial pathogenicity.
· Plant immunity in both model and economically important plants.
**Brian Shaw, Associate Professor**
- Fungal Growth and Development; Evolution of Conidiation.
- Characterization of virulence mechanisms in pathogenic fungi associated with maize stalk rot.
- Role of Endocytosis in cell shape; Characterization of Polarity Determinants

**Won-Bo Shim, Associate Professor**
- Biology of fungal pathogens of corn and sorghum.
- Mycotoxin production by *Fusarium verticillioides* and *Cercospora zeae-maydis*.

**Jim Starr, Professor**
- Identification, characterization, and deployment of resistance to nematodes in important crop species.

**Heather Wilkinson, Associate Professor**
- Understanding mechanisms underlying adaptive traits as well as their evolution.
- Exploitation of resources available from a variety of different fungal systems to understand how traits (most of which are extremely well understood genetically) contribute to fungal fitness.

**Joshua Yuan, Assistant Professor**
- Natural biocatalyst systems for reverse design of biorefinery.
- Development of strategies for structure dynamics-guided biocatalyst improvement.
- Novel solutions for algae-based biofuels.
- Plant systems biology research to study the plant insect interaction and various protein-protein and protein-DNA interaction networks for plant defense and stress responses.
- Bioinformatics tool development for the large-scale biological data analysis.
PLPM Faculty: Off Campus

Plant Pathology and Microbiology

Off campus Faculty

Mark C. Black, Professor & Extension Specialist
- Texas AgriLife Research and Extension Center at Uvalde
- Vegetation management and host plant resistance for Pierce's disease of grape
- Peanut resistance for *Tomato spotted wilt virus*
- Resistance screening nursery for cotton root rot of pecan
- Diagnostic services

Ron French-Monar, Assistant Professor & Extension Plant Pathologist
- Grain Crops and Vegetables.
- Texas A&M Research and Extension Center at Amarillo.
- Director, Texas High Plains Plant Diagnostic Lab.

George D. Di Giovanni, Professor and Faculty Fellow
- Environmental microbiology & waterborne pathogens.
- Texas A&M Agricultural Research and Extension Center at El Paso.

T. Erik Mirkov, Professor
- Plant molecular virology in subtropical crops.
- Biotechnological approaches to control viral and bacterial diseases and their vectors in citrus, sugarcane and potato.
- Development of sugarcane as a biofactory.
- Texas A&M Research and Extension Center at Weslaco.

Gary N. Odvody, Associate Professor
- Sorghum and Corn Diseases.
- Texas A&M Research and Extension Center at Corpus Christi.

Charlie Rush, Professor
- Soil borne Diseases, wheat streak virus, Zebra Chip Complex.
- Texas A&M Research and Extension Center at Amarillo.

Greta Schuster, Professor
- Integrated Pest Management.
- Texas A&M Kingsville.
**Karl Steddom, Assistant Professor & Extension Specialist**  
- Horticultural crop pathology.  
- Texas A&M Research and Extension Center at Overton.

**Xiaofeng Wang, Assistant Professor**  
- Virus replication mechanism and virus-host interactions.  
- Texas AgriLife Research Center at Weslaco.

**Terry Wheeler, Professor**  
- Soil borne diseases of cotton and peanut.  
- Texas A & M Research and Extension Center at Lubbock.

**Jason E. Woodward, Assistant Professor & Extension Plant Pathologist**  
- Peanut and cotton diseases.  
- Texas A&M Research and Extension Center at Lubbock.

**Qingyi Yu, Assistant Professor**  
- Plant molecular biologist, sex determination in papaya.  
- Texas AgriLife Research Center at Weslaco.

**Xin-Gen (Shane) Zhou, Assistant Professor**  
- Epidemiology and integrated management of rice and bioenergy crop diseases.  
- Texas A&M Research & Extension Center at Beaumont.
Adjunct Faculty

Elizabeth (Betsy) Pierson, Associate Professor (Horticulture)
·Microbe-microbe, microbe-plant, or microbe-insect interactions in plant-associated or insect-associated biofilm communities.
·Cell-cell communication among bacteria co-inhabiting plant surfaces that influence the outcome of competition by affecting the regulation of physiochemical behaviors at a genetic level.
·Dynamics of native and invasive introduced plant species.

Kelly Craven, Assistant Professor (Noble Foundation, Ardmore, OK)
·Microbial bio-diversity in the prairie grasslands.
·Exploitation of microbial symbionts and/or useful genes derived from them for crop enhancement.
·Basic tropic responses in fungi as they relate to the processes of nutrient acquisition and colonization.

Louis K. Prom, Research Plant Pathologist, Crop Germplasm Research
·Sequence repeat markers for sorghum downy mildew (Peronosclerospora sorghi) and related species.
·Infection of Claviceps africana Frederickson, Mantle and de Milliano in sorghum in Mexico and the United States.
Locations of Texas A&M AgriLife Research & Extension Centers

Center names in **bold** indicate where PLPM Research (R) and/or Extension (E) faculty are located. We have an open position in Dallas, but will probably lose this due to budget reductions.

Distance issues make frequent visits between centers difficult. The department is exploring ways to improve communication and interaction with all of its faculty.
Plant Pathology and Microbiology Faculty Awards  
2003-2011

David Appel  
2004 Outstanding Professional of the Year Community Forestry Award, Texas Urban Forestry Council and International Society of Arboriculture

Carlos Bogran  
2007 Texas AgriLife Extension Superior Service Award for Diversity

Paul de Figueiredo  
2010 Keynote speaker, Academic Scholarship Recognition Ceremony, Texas A&M  
2007 Grantsmanship Award, Mexican American U.S. Latino Research Center, Texas A&M  
2007 Awardee, Ralph E. Powe New Investigator Award  
2006 Fellow, Sloan Minority Ph.D. Program, Texas A&M University  
2006 Fellow, Mexican American U.S. Latino Research Center, Texas A&M University  
2006 Mentor, Pathways to the Doctorate Program, Texas A&M University  
2003 2nd Place, Harvard Biotechnology Business Plan Competition, Harvard Business School  
2003 Semi-finalist, MIT 50K Business Plan Competition, MIT

Martin Dickman  
2011 Fellow, American Association for the Advancement of Science (AAAS)  
2011 E.C. Stackman Award for Research Excellence in Plant Pathology  
2006 - 2011 Christine Richardson Professorship in Agriculture  
2003 - 2005 Charles Bessey Professor of Plant Pathology, University of Nebraska  
2003 Fellow, American Phytopathological Society  
2003 Distinguished Alumni Award, University of Hawaii, Hilo

George Di Giovanni  
2009 Faculty Fellow Distinction, Texas AgriLife Research  
2007 Texas Environmental Excellence Award, Texas Commission on Environmental Quality and Governor Rick Perry  
2007 Award for Outstanding Integrated Activities for Water Resources, Rio Grande Basin Initiative Team Member, USDA CSREES National Water Program  
2006 Vice Chancellor’s Award in Excellence, Rio Grande Basin Initiative Team Member, Texas A&M University Agriculture Program

Carlos Gonzalez  
2010 Chapter of the Year, Faculty Mentor, Minorities in Agriculture, Natural Resources and Related Sciences

Charles Kenerley  
2004 Faculty Award for Outstanding Achievement, Department of Plant Pathology and Microbiology
Mikhailo Kolomiets
2011  MEPS Outstanding Young Faculty Award.
2005  Faculty Award for Outstanding Achievement, Department of Plant Pathology and Microbiology

Clint Magill
2008  Fellow, American Association for the Advancement of Science (AAAS)

Erik Mirkov
2009  Vice-Chancellor’s Award in Technology Innovation, Texas A&M University
2008  Vice-Chancellor’s Award in Technology Innovation, Texas A&M University
2007  Vice-Chancellor’s Award in Technology Innovation, Texas A&M University
2007  Faculty Award for Outstanding Achievement, Department of Plant Pathology and Microbiology
2007  Vice-Chancellor’s Award in Excellence, Individual Research, Off Campus, Texas A&M University
2006  Vice-Chancellor’s Award in Technology Innovation, Texas A&M University
2004 – 2005 American Phytopathological Society Senior Editor, APS

Kevin Ong
2005  Texas Cooperative Extension Team Award for Superior Service

Leland S. Pierson III
2006  Outstanding Faculty Teaching Award, College of Agriculture and Life Sciences, University of Arizona

Charlie Rush
2008  Fellow, American Phytopathological Society
2007  Regents Fellow, Texas A&M University System
2007  Faculty Fellow, Texas Agricultural Experiment Station

Herman Scholthof
2009  Fellow, American Phytopathological Society
2009  Association of Former Students Distinguished Achievement Award for Research, Texas A&M University
2007  Ruth Allen Award, American Phytopathological Society
2006  Faculty Award for Outstanding Achievement, Department of Plant Pathology and Microbiology

Karen-Beth Scholthof
2009  Association of Former Students Distinguished Achievement Award for Teaching, Texas A&M University
2008  Center for Teaching Excellence and University Writing Center W-Course Award, Texas A&M University
2004  Excellence in Teaching Award, American Phytopathological Society

**Greta Schuster**
2010  Outstanding Junior Researcher, Texas A&M, Kingsville
2009  Chancellor’s Teaching Excellence Award, Texas A&M University
2008  Chancellor’s Teaching Excellence Award, Texas A&M University
2008  Chancellor’s Teaching Excellence Award, Texas A&M University
2002 - 2003 Outstanding Club Advisor, Collegiate 4-H, West Texas A&M

**Brian Shaw**
2010  SLATE (Student Led Award for Teaching Excellence), Texas A&M University
2009  Alexopolous Prize, Mycological Society of America
2009  SLATE (Student Led Award for Teaching Excellence), Texas A&M University

**Won-Bo Shim**
2003  Certificate of Merit, United States Department of Agriculture, Agricultural Research Service

**James Starr**
2008  Distinguished Alumni, College of Food, Agriculture and Environment, The Ohio State University
2006  Fellow, American Phytopathological Society
2003  Fellow, Society of Nematologists

**Terry Wheeler**
2009  West Texas Agricultural Chemical Institute Institutional Award

**Jason Woodward**
2010  Junior Faculty Award, Texas Tech University College of Agricultural Sciences and Natural Resources
2006  George Washington Carver Award, National Peanut Board

The following pages contain 2 page CVs of each faculty member. Complete CVs are included in Appendix E on the diskette at the back of the document.
DAVID N. APPEL
Associate Department Head and Professor
Texas AgriLife Extension Service
Department of Plant Pathology and Microbiology
Texas A&M University
College Station, TX 77843-2132

EDUCATION

1973 B.A. (Biology) West Virginia University Morgantown, WV
1976 M.S. (Plant Path) West Virginia University Morgantown, WV
1981 Ph.D. (Plant Path) Virginia Tech Blacksburg, VA

PROFESSIONAL AND ACADEMIC APPOINTMENTS

1975-76 Research Assistant, Plant Pathology West Virginia University
1976-80 Research Assistant, Plant Pathology Virginia Tech
1981-87 Assistant Professor Texas A&M University, PLPA
1987-95 Associate Professor Texas A&M University, PLPA
1995-present Professor Texas A&M University, PLPA
1989-90 Interim Department Head Texas A&M University, PLPA
1990-2006 Associate Department Head, Academics Texas A&M University, PLPA
2001-2002 Interim Department Head Texas A&M University, PLPA
2009-present Associate Department Head, Extension Texas A&M University, PLPA

PROFESSIONAL AWARDS AND RECOGNITION (Career)

1976 Graduate Student Award, Potomac Division, American Phytopathological Society
1982 Outstanding Professor, Plant Sciences Club
1991 Outstanding Plant Pathology Faculty Award, Department of Plant Pathology and Microbiology
1995 Participant in ESCOP (Experiment Station Committee on Organization and Policy) Leadership Development Program (Class 5)
2004 Outstanding Professional of the Year, Community Forestry Award, sponsored by the Texas Forest Service, Texas Urban Forestry Council and Texas Chapter of the International Society of Arboriculture

PUBLICATIONS (Past 4 Years)


**EXTERNALLY FUNDED PROJECTS (Current)**

“Streamside Survey for *Phytophthora ramorum* in Texas (Sudden Oak Death)”, 2011 – 2012, US Forest Service, Forest Health Monitoring

“Epidemiology and Control of Pierce’s Disease of Grapes”, 2011 – 2012, USDA APHIS/PPQ

“Upper Gulf Coast Survey for the Asian Citrus Psyllid”, 2010 – 2011, USDA APHIS/PPQ

**COURSES TAUGHT (Career)**

**Undergraduate**
PLPA 301 Introduction to Plant Pathology  
FRSC 307 Forest Protection  
FRSC 420 Arboriculture  
FRSC 421 Urban Forestry  
PLPA 489 Environmental Toxicology and Regulations

**Graduate**
PLPA 611 Advanced Plant Pathology  
PLPA 626 Diagnosis of Plant Diseases  
PLPA 629 Diseases of Forest and Shade Trees  
PLPA 681 Seminar

**GRADUATE STUDENTS ADVISED (Career, Major Professor)**

M. Agric. – 2  
M.S. - 13  
Ph.D. - 3

**PROFESSIONAL SOCIETY MEMBERSHIP**

American Phytopathological Society  
International Society of Arboriculture  
Nature Conservancy
MARK C. BLACK
Professor and Extension Plant Pathologist, Texas AgriLife Extension Service, Texas A&M University System, P.O. Box 1849, Uvalde, TX 78802-1849, 830-278-9151 ext. 141, FAX 830-278-4008, E-mail: m-black@tamu.edu

EDUCATION: B.S.A. (Plant Pathology), University of Arkansas, Fayetteville, 1975
M.S. (Plant Pathology), University of Arkansas, Fayetteville, 1978
Ph.D. (Plant Pathology), North Carolina State University, Raleigh, 1983

PROFESSIONAL AND ACADEMIC APPOINTMENTS:
Professor and Extension Plant Pathologist, Texas AgriLife Extension Service, TAMUS, Uvalde 1997-present
Associate Professor and Extension Plant Pathologist, Texas Agricultural Extension Service, TAMUS, Uvalde 1991-1997

RECENT PROFESSIONAL ACTIVITIES AND RECOGNITION:

RECENT PUBLICATIONS:


CARLOS E. BOGRÁN
Department of Entomology and Department of Plant Pathology & Microbiology,
Texas A&M AgriLife; 2150 TAMU, Texas A&M University. College Station, TX
Phone 979-845-6800; Fax 979-845-6800; email: c-bogran@tamu.edu

EDUCATION:
Ph.D. Entomology Texas A&M University 2000
M.S. Entomology Iowa State University 1996
B.S. Crop Protection Zamorano University (Honduras) 1993

PROFESSIONAL EXPERIENCE:
2008- present Associate Professor & Extension Specialist, Entomology and Plant Pathology &
Microbiology, Texas AgriLife Extension Service, Bryan, Texas.
2001- 2008 Assistant Professor & Extension Specialist, Entomology and Plant Pathology &
Microbiology, Texas AgriLife Extension Service, Bryan, Texas.
199- 2000 Research Assistant, Department of Entomology, Texas A&M University, College
Station, Texas.
1994- 1996 Research Assistant, Department of Entomology, Iowa State University, Ames, Iowa.
Department of Plant Protection, Zamorano University, Honduras.
1990- 1991 Production Manager, Finca Montecristo, Aamateca, Honduras (20 acres of
vegetable production).

HONORS AND AWARDS:
• Superior Service Award; Diversity Category (2007). Presented by Texas AgriLife Extension Service;
College Station, TX, January 2008.
• Outstanding State IPM Program Award (team) (2008). Presented by the Southern IPM Center;
Friends of Southern IPM Awards Program.
• John Henry Comstock Graduate Student Award (1999). Presented by the Entomological Society of
America.

SYNERGISTIC ACTIVITIES:
Research: Pest and disease management in ornamental plants. The main focus is to develop and
implement sustainable tools and practices that reduce long term costs and risks in the production and
trade of ornamental plants.
Teaching: Graduate seminar in Extension Entomology. Have hosted undergraduate student as part of
NSF funded REU program. I have also lectured in three departments at Texas A&M University
(Entomology, Plant Pathology, Horticulture).
Extension/ Outreach: Programs, presentations, and publications as part of multidisciplinary teams that
support the ornamental industry in Texas and the US.
Professional Service: Subject Editor, Journal of Integrated Pest Management (2010 – present); published
by the Entomological Society of America (ESA). Section Editor- Arthropod Management Tests (2009-
present); published by ESA. Associate Editor- Spanish, Southwestern Entomologist (2000-2004).

FUNDED GRANTS

2009. Title: Effectiveness of irradiation as a post-harvest quarantine treatment of imported cut
flowers. Colombian Association of Flower Exporters (ASOCOLFLORES). PI (T. Starman, S.
Pillai and K. Heinz Co-PI’s). $ 74,725.00.


2006. Title: ‘Enhancing efficacy of two Beauveria bassiana products using insect attractants and growth regulators. USDA-IR4 Biopesticide Grants Program. PI $20,000.00.

REFEREED JOURNAL PUBLICATIONS (last 4 years):


NON-REFEREED TECHNICAL PUBLICATIONS (last 4 years):


THOMAS J. DEWITT

Interdisciplinary Research Program in Ecology & Evolutionary Biology
Department of Wildlife & Fisheries Sciences
Department of Plant Pathology & Microbiology
Texas A&M University, 2258 TAMU, College Station, TX 77843-2258

Tel. (979) 458-1684; Fax (979) 845-4096; E-mail tdewitt@tamu.edu
Webpage http://wfsc.tamu.edu/faculty/tdewitt/webpage.htm

Professional preparation
1987 BSc, Grand Valley State University
1989 Naturalist-Ecologist Training Program, University of Michigan Biological Station
1990 MA, Boston University
1995 PhD, SUNY at Binghamton (Advisor: David Sloan Wilson)
1995-1997 Postdoc, University of Kentucky (Advisor: Andrew Sih)

Appointments
Sept. 2006- Associate Professor, Department of Wildlife & Fisheries Sciences (75%) and
Department of Plant Pathology & Microbiology (25%)
Texas A&M University
2001-2006 Assistant Professor, Department of Wildlife & Fisheries Sciences (75%) and
Department of Plant Pathology & Microbiology (25%)
Texas A&M University
1999-2001 Research Scientist, Department of Wildlife & Fisheries Sciences,
Texas A&M University
1997-1999 Research Assistant Professor, Department of Biological Sciences,
University of Kentucky

Publications (10 selected from 29 total)
Ruehl CB, Shervette V, DeWitt TJ (In press) Replicated shape variation between simple and complex
habitats in two estuarine fishes. Biological Journal of the Linnean Society.
Tobler M, DeWitt TJ, Schlupp I, García de León FJ, Herrmann R, Feulner PGD, Tiedemann R, Plath M

62:1243-1251.
Langerhans RB, Chapman LJ, DeWitt TJ (2007) Multiple phenotypes, multiple environmental gradients:
complex phenotype-environment associations in an East African cyprinid. Journal of Evolutionary Biology
20: 1171–1181.
Langerhans RB, Layman CA, DeWitt TJ (2005) Male genital size reflects a tradeoff between attracting
mates and avoiding predators in two livebearing fish species. PNAS 102: 7618-7623.
Ruehl CB, DeWitt TJ (2005) Trophic plasticity and fine-grained resource variation in populations of
Dayton GH, Saenz D, Baum KA, Langerhans RB, DeWitt TJ (2005) Body shape, burst speed and
predator susceptibility of larval anurans. Oikos 111:582-591.
American Naturalist 164: 335-349.
American Naturalist 164: 335-349.

Summary statistics on publications
• Total citations: 1200 by Web of Science; 1700 by Google Scholar.
• DeWitt articles average approximately 60.3 citations per publication (articles ≥ 2 years old).
• Journals in which DeWitt publishes have an average impact factor of 3.8.
• DeWitt’s h-index is 14 (14 by Web of Science, 15 by Google Scholar).

Synergistic Activities
Broadening participation of underrepresented groups in science. I have a long history of including in my research and mentoring students from underrepresented groups. I have included 19 undergraduate students since I assumed my tenure-track position. Of these students 10 are female and 6 are minorities. Of my 8 graduate students, past and present, 1 is female and 3 are minorities. I am a Sloan Foundation Minority Mentor.
Work with land owners / land stewards. Through my involvement with Texas EcoLab I am working with six landowners who desire to learn about and support ecological and conservation research on their land.
Innovations in teaching. My work on data analysis and shape studies has given me a unique view of statistics. I have twice taught a concept course entitled Excel Biometry. It is a graduate course in which the philosophy is that statistics is really geometry, and students learn to do all the mathematics “by hand”, using Excel spreadsheets.
Development and refinement of research tools. I am developing methods to fuse data sets, such as geometric and traditional morphometric data. I am also developing methods to test for statistical significance of parallelism for multivariate vectors.
Development of public databases. I am working with anthropologists to measure the shape of all documented human prehistory spear tips in the new world, and to provide these data to the greater scientific and public community on the internet.

Collaborators & Other Affiliations
Collaborators—Lauren Chapman (McGill University), Brent Burt (Stephen F. Austin University),
John McCachran (Texas A&M University, Emeritus), Michi Tobler (Texas A&M University), Ingo Schlupp (University of Oklahoma), Martin Plath (University of Potsdam).
Graduate Advisors and Postdoctoral Sponsors—Frederick Wasserman (Boston University), David Sloan Wilson (Binghamton University), Andrew Sih (University of California, Davis).
Thesis and Postgraduate Advisees—I have supervised nine graduate students and one postdoc. Graduate students: Brian Langerhans (North Carolina State University), Cliff Ruehl (Florida International University), Mark Garza (US Fish & Wildlife), RJ McClure (environmental consulting), Jeffrey Francis (Texas A&M University, Corpus Christi), Anthony Papadopoulos (Texas Tech University), Chevaun McCray, Nicholas Troendle (current PhD students). Postdoc: Pim Edelaar (Uppsala University).
PAUL de FIGUEIREDO
Assistant Professor
Department of Plant Pathology & Microbiology
Professional Program in Biotechnology
Faculty of Molecular & Environmental Plant Sciences
Department of Veterinary Pathobiology

A. EDUCATION
Rice University B.A. 1986 Mathematics & Political Science
Stanford University M.A. 1989 Religious Studies
Cornell University Ph.D. 1997 Biochem, Molec & Cell Biology
MIT post-doc 1998-1999 Vertebrate genetics
Univ. of Washington post-doc 2000-2005 Microbiology

B. POSITIONS AND HONORS

Positions and Employment
1989-1991 Biologist, NHLBI, National Institutes of Health
2007-present Center for Microencapsulation and Drug Delivery, Texas A&M System, Member
2007-present Program in the Biology of Filamentous Fungi, Member
2005-present Asst. Professor, Faculty of Genetics, Program in Biotechnology, Faculty of Molecular
and Environmental Plant Sciences, Department of Veterinary Pathobiology, Department
of Plant Pathology and Microbiology, Texas A&M University
2010-present Borlaug Advanced Research Center, Investigator

Other Experience and Professional Memberships
2005-2010 American Microbiological Society
2005-2010 American Association for the Advancement of Science
2005-2010 American Society for Cell Biology
2004 Founder, AvanViva, Inc.
2008, 2010 NSF Review Panel Member, Integrated and Organismal systems (IOS)
2008-present NIH Review Panel Member, Special Emphasis Panel/Scientific Review Group
ZRG1 IDM-A, Intracellular bacterial pathogenesis
2009, 2010 NSF Review Panel Member, Chemical, Bioengineering, Environmental, and
Transport Systems (CBET)

Selected Honors
National Merit Scholar
Stanford University Graduate Research Assistantship
NIH Graduate Research Training Grant
Du Pont Teaching Prize
Fuertes Writing Prize
Biochemistry Teaching Prize
The American Society for Cell Biology/Hybridon Predoctoral Travel Award
Harvard Biotechnology Business Plan Competition, Runner Up (Harvard Business School)
MIT 50K Business Plan Competition. Semifinalist
Mexican American and Latino Research Center Fellow
Alfred P. Sloan Foundation Minority Program Mentor
Hispanic Leadership Program Mentor
C. SELECTED PEER-REVIEWED PUBLICATIONS (in chronological order).


* Shared senior authorship

D. RESEARCH SUPPORT


2. 5R21AI072446-02, de Figueiredo (PI), 02.15.2008 to 09.11.2011, no cost extension, NIH/NIAID, *Identification and analysis of host factors that support Brucella infection.* Role: Project leader


GEORGE D. DI GIOVANNI
Texas AgriLife Research Center at El Paso
Texas A&M University System
1380 A&M Circle
El Paso, TX 79927-5020
Phone (915) 859-9111; Fax (915) 859-1078
gdigiovanni@ag.tamu.edu

EDUCATION

Doctor of Philosophy, Microbiology and Immunology. The University of Arizona, December 1994.
Bachelor of Science (Cum Laude), Microbiology and Immunology. The University of Arizona, December 1990.

PROFESSIONAL EXPERIENCE

Professor, Environmental Microbiology, 09/01-present. Texas AgriLife Research Center at El Paso, Texas AgriLife Research, Texas A&M University System and Department of Plant Pathology and Microbiology.
Associate Professor, Environmental Microbiology, 09/01-8/08. Texas AgriLife Research Center at El Paso, Texas AgriLife Research (formerly Texas Agricultural Experiment Station), Texas A&M University System and Department of Plant Pathology and Microbiology.
Adjunct Professor (2008-present; Associate Professor, 2007-2008). University of Texas at El Paso, Doctoral Program in Environmental Science and Engineering.
Adjunct Professor (2008-present; Associate Professor, 2005-2008). University of Texas School of Public Health at Houston, Division of Environmental and Occupational Health Sciences.
Senior Environmental Scientist, 12/99-08/01. American Water Works Service Co., Inc., Belleville, IL.
Nat. Research Council Research Associate, 01/95 - 06/97. Environmental Protection Agency, Corvallis, OR.

ACTIVITIES AND HONORS

- Awarded Faculty Fellow distinction, Texas AgriLife Research, Texas A&M University System, 2009
- Texas Environmental Excellence Award for bacterial source tracking research. Presented by the Texas Commission on Environmental Quality and Governor Rick Perry, May 2, 2007, Austin, Texas
- Appointed Member, State of Texas Bacterial TMDL Task Force
- Chair, Microbiological Contaminants Res. Comm., American Water Works Association (2006-2010)
- Technical Laboratory Auditor, USEPA Method 1623 “Detection of Cryptosporidium and Giardia in Water by Filtration/IMS/FA” (2002-present)
- Member of the American Water Works Association Organisms in Water Committee (2002 - present)
- Member of the AWWA Microbiological Contaminants Research Committee (1998 - present)
- Member of the Centers for Disease Control and Prevention (CDC) Working Group on Waterborne Cryptosporidiosis (1999-2001)

**PATENTS**


**SELECTED PUBLICATIONS**


MARTIN B. DICKMAN

Professor and Director
Institute for Plant Genomics and Biotechnology
AgriLife Research Genomics and Bioinformatics Center
Department of Plant Pathology and Microbiology
Texas A&M University
College Station, Texas 77843-2132

Education
B.S. University of Hawaii, Hilo, 1979 Horticulture
M.S. University of Hawaii, 1982 Plant Pathology
Ph.D. University of Hawaii, 1986 Plant Pathology
Post Doctoral Research Fellow, Institute of Biological Chemistry, Washington State University, Pullman, WA, 1986 - 1987

Employment Background
Professor and Director; Texas A&M University, December 2005-Present
Christine Richardson Professor, Texas A&M University, January 2006
Charles Bessey Professor, University of Nebraska, 2003- 2005
Professor, Plant Pathology, Univ. of Nebraska, July 1, 1997 – 2005
Associate Professor, Plant Pathology, Univ. of Nebraska, July 1993 - 1997
Assistant Professor, Plant Pathology, Univ. of Nebraska, August 1987 - 1993

Honors and Awards Received
University of Nebraska IANR, Junior Faculty Recognition for Excellence in Research Award, 1991
University of Hawaii-Hilo, Distinguished Alumni Award-2002
Charles Bessey Professor-University of Nebraska-2003
Fellow-American Phytopathological Society-2003
Christine Richardson Chair in Agriculture-2006; Texas A&M University
E.C. Stakman Award-2011
Fellow-American Association for the Advancement of Science (AAAS)-2011

Professional Activities
US-AID International Development Grant Program Grant Review Committee, 1990
Associate Editor, Applied Environmental Microbiology, January 1991 - February 2001
Senior Editor, Mycological, July 1996 - June 1999
Senior Editor, Physiological and Molecular Plant Pathology, June 1997 - May 2002
Senior Editor, Archives of Microbiology, July 1996 - June 1999
USDA-CSRS Competitive Grants - Panel Member Plant Pathology, 1996
Chairman and Founder, Genetic Basis for Pathogenicity in the Genus Colletotrichum
NSF/USDA Microbial Genome Sequencing-Panel Member-2003
DOE Panel Member- 2006
USDA- OSQR Program Review Panel Member, NPR 303-Plant Disease Resistance-2006
National Science Foundation (NSF) Symbiosis, Defense and Self-Recognition Panel Member-2007
Senior Editor-GM Crops 2009-
National Institute of Health (NIH) Economic Stimulus - Panel Member - 2009
American Phytopathological Society - Scientific Program Board, 2009-2012
Review Editor - Frontiers in Cellular and Infection Microbiology, 2010-

**Publication List:** (Selected publications) - from a total 116


**Synergistic Activities:** Along with Drs. Jan Leach and Thomas Wolpert, the first ever Internet 2 course was developed and delivered by myself and Drs. Leach and Wolpert. This course, Molecular Plant Pathology, has been the focus of a lead article in the Chronicle of Higher Education.

**Graduate and postdoctoral advisors:** Patil, S. S. (University of Hawaii); Kolattukudy, P. E. (Washington State)
DANIEL J. EBBOLE

(i) Professional Preparation
Indiana University  Microbiology B.A., Biochemistry B.S.  1983
Purdue University  Biochemistry  Ph.D.  1988
NIH NRSA Postdoctoral Research Fellowship  1988-1991

(ii) Appointments
Assistant Professor, Texas A&M University, Aug. 1991-1997
Associate Professor, Plant Pathology and Microbiology, and Genetics, 1997-2004
Professor, Dept. Plant Pathology and Microbiology, and Genetics, August 2004-present

(iii) Publications
Most relevant to current project
(iv) Teaching activities

PLPA689 Fungal Physiology and Genetics. This 2 cr. Lecture course is taught in the Fall semester of even numbered years. The course focuses on fungal genomes and genome evolution, environmental sensing and signal transduction, transcriptional and post-transcriptional regulation of gene expression, metabolism and physiology, fungal development and pathogenesis.

PLPA689 Fungal Physiology and Genetics Laboratory. This 1 cr. laboratory course is concurrent with the lecture and is team taught with Dr. Shaw. Students gain first hand experience examining the major groups of fungi, microscopy, cell biology, sexual and asexual development, genetics, identification of unknowns, and fungal fermentation and biotechnology.

PLPA611 Advanced Plant Pathology. This is a required course for all graduate students in the department. Topics covered include plant defense mechanisms and pathogen strategies in plant disease.

(iv) Synergistic activities

Program for the Biology of Filamentous Fungi, Texas A&M.
Member, Texas A&M Interdisciplinary Faculty of Genetics
Editor, Current Genetics.
Book Editor. Cellular and Molecular Biology of Filamentous Fungi. ASM Press.
Member, Faculty of 1000.
American Phytopathological Society Member
American Society for Microbiology Member

(v) Advisors

Howard Zalkin, Purdue University, retired.
Charles Yanofsky, Stanford University, Emeritus.

(vi) Thesis Advisor and Postdoctoral Sponsor (Last Five Years)

Ph.D. Students
Cristina Filippi Research Scientist, EMBRAPA, Brazil
Dan Li Postdoctoral Scientist, M.D. Anderson Cancer Center

Postdoctorals
Shengli Ding Postdoctoral, TAMU
Jenny Lee Currently at National Renewable Energy Lab, Colorado
MingYuan Cheng Postdoctoral, TAMU

Total Advised: 7 Graduate Students, 8 Postdoc

(vii) Current Research Support:

Title: Evolution of Asexual Sporulation in Filamentous Fungi
Agency: NSF
Total Award Amt: 438,601
Award Period: September 2007 to August 2011
Ronald D. French-Monar
Department of Plant Pathology and Microbiology
Texas AgriLife Extension-Texas A&M System
6500 Amarillo Blvd. W., Amarillo, TX 79106
Tel: 806-677-5600
E-mail: rdfrench@ag.tamu.edu

Grain and horticultural crops are produced in the Texas High Plains and face old and new disease problems. My extension and applied research programs include field days, field and lab experiments, agent training, extension bulletins, and pathogen characterization. The plant diagnostic lab tries to determine the pathogen(s) involved with a specific disease problem brought in for diagnosis.

Education
Cornell University, Ithaca, NY  Plant Science  B. S.  1992
North Carolina State University, Raleigh, NC  Plant Pathology  M. Ag.  1995
University of Florida, Gainesville, FL  Plant Pathology  Ph. D.  2004

Appointments
Assistant Professor and Extension Specialist, Department of Plant Pathology and Microbiology, Texas AgriLife Extension Service-Texas A&M System, Amarillo, TX 79106 (March 2007 – present); & Coordinator, Texas Plant Diagnostic Clinic (Texas High Plains Plant Diagnostic Laboratory, Amarillo, TX)

Postdoctoral Research Associate, University of Florida-IFAS, Southwest Florida Research and Education Center, Immokalee, FL 34142 (May 2004-February 2007)

Peer-Reviewed Publications (Since 2007)


Extension Publications-most recent (some available through http://sickcrops.tamu.edu)


**Awards and Merits**

Graduate Student Paper Competition (Florida Phytopathological Society Meeting, May 5-7, 2003, Florida). **Second Place**

Best Doctoral Student Presentation (American Phytopathological Society-Caribbean Division Meeting, April 5-10, 2003, Texas). **First Place**

Graduate Student Paper Competition (American Phytopathological Society-Southern Division Meeting, April 5-10, 2003, Texas). **Third Place**

Graduate Student Paper Competition (Soil and Crop Science Society of Florida Meeting, May 22-24, 2002, Florida). **First Place**

**Current Funded Grants**

*Texas Wheat Producers Board.* Developing a Stripe Rust management Threshold for Texas Wheat. (Co-Principle Investigator)

**Professional Development**


Co-organizer, mini-symposium “Strengthening the basis for a Survey of the Straminipiles: *Phytophthora* and *Pythium* in the Americas and Beyond”. North Carolina State University, Raleigh, May 27, 2006.


Linear Mixed Models for Analyzing Data Obtained in Designed Experiments, August 9, 2003, Charlotte, North Carolina.
CARLOS F. GONZALEZ

PROFESSIONAL TITLE: Professor of Plant Pathology & Microbiology, Faculty of Genetics

MAILING ADDRESS: Department of Plant Pathology and Microbiology
120 Peterson Bldg.
Texas A&M University
College Station, Texas 77843-2132
Phone: 979-845-8462; Fax: 979-845-6483
Email: cf-gonzalez@tamu.edu

EDUCATION: B.S. (Microbiology) Texas A&M University, 1970
M.S. (Microbiology) Texas A&M University, 1972
Ph.D. (Plant Pathology) University of Nebraska, 1978
Postdoctoral Fellow (Plant Pathology)
University of California - Davis, 1978
Postdoctoral NIH Fellow (Microbiology/Genetics)
University of Michigan-Medical School, 1979

PROFESSIONAL AND ACADEMIC APPOINTMENTS:
Professor, Department of Plant Pathology and Microbiology and Faculty of Genetics, Texas A&M
University, 2003-Present
Associate Professor, Tenured, Department of Plant Pathology and Microbiology and Faculty of
Genetics, Texas A&M University, 1992-2003
Associate Professor, Non-Tenured, Department of Plant Pathology and Microbiology and Faculty of
Genetics, Texas A&M University, 1986-1992
Microlife Genetics, Microbiologist, 1980-1986
U.S. Army Reserve, Captain, 1972-1982 (Honorable Discharge)

PROFESSIONAL MEMBERSHIPS:
American Phytopathological Society
American Society for Microbiology
Society for Minorities in Agriculture, Natural Resources, and Related Sciences

PROFESSIONAL AWARDS AND RECOGNITION:
Ford Foundation Fellowship, University of Nebraska 1974-78
Phi Sigma
Sigma Xi, Charter member of Texas A&M University Chapter, 1971
Vice Chancellor’s Award in Excellence, Texas A&M University, 1994.
Award for Exemplary Service and Leadership 1994. Society for Minorities in Agriculture Natural
Resources and Related Sciences
Award for Exemplary Service and Leadership 2000. Society for Minorities in Agriculture
Natural Resources and Related Sciences
Award for Exemplary Service as Finance Chair for 2000-2006. Society for Minorities in
Agriculture Natural Resources and Related Sciences
US PATENTS:

9 issued; 1 pending

SELECTED PUBLICATIONS:


DENNIS CHARLES GROSS

Title: Professor, Department of Plant Pathology and Microbiology
Address: Department of Plant Pathology and Microbiology
Texas A&M University
2132 TAMU
College Station, TX 77843-2132
E-mail: d-gross@tamu.edu
(979) 458-0637

Education: Iowa State University, Ames, Iowa, B.S., 1970
University of California, Davis, Calif., Ph.D., 1976

Academic and Professional Experience:
Professor, Department of Plant Pathology and Microbiology, Texas A&M University, 2001-present
Head, Department of Plant Pathology and Microbiology, Texas A&M University, 2001-2009
Chair, Department of Plant Pathology, Washington State University, July 1999-Oct. 2000
Professor and Plant Pathologist, Department of Plant Pathology, Washington State University, 1990-2000
Associate Professor and Associate Plant Pathologist, Department of Plant Pathology, Washington State University, 1984-1990
Assistant Professor and Assistant Plant Pathologist, Department of Plant Pathology, Washington State University, 1979-1984
Research Associate, Department of Plant Pathology, University of Nebraska, 1976-1979
Research Assistant, Department of Plant Pathology, University of California, Davis, 1970-1975

Research and Teaching Specialty:
Phytobacteriology, Molecular Genetics of Pseudomonads, Phytotoxins, Bacterial Ice Nucleation, Biological Control; Plant Bacterial Diseases (PLPA 618).

Professional Societies:
American Phytopathological Society
American Society for Microbiology
International Society for Molecular Plant-Microbe Interactions

Awards and Honors:
APS Fellow Award, 1997
The 1984 Stark Award for Fruit Tree Research, American Society for Horticultural Science
The 1985 Stark Award for Fruit Tree Research, American Society for Horticultural Science

Editorships:
Associate Editor for PLANT DISEASE, 1987-89, American Phytopathological Society.
Member of the Editorial Board for APPLIED AND ENVIRONMENTAL MICROBIOLOGY, 1989-91, American Society for Microbiology.
Senior Editor for PHYTOPATHOLOGY, 1990-93, American Phytopathological Society.
Editor-in-Chief of PHYTOPATHOLOGY, 1994-96, American Phytopathological Society.
Senior Editor of Advanced Section of THE PLANT HEALTH INSTRUCTOR, 2000-2002, American Phytopathological Society.

National and International Committees (Since 2001):

81
Member of the APS Awards and Honors Committee, 2001-2003.
Member of Program Review Team to evaluate the Plant Pathology Department at the University of Georgia, November 2003.
Member and Chair of the Plant Pathology Program Review team at the University of Arkansas, April 2004.
External Examiner for the Agrobiology Program of the School of Biological Sciences at the Universiti Sains Malaysia, Penang, Malaysia, May 2004.
Member of review team for the ARS Plant Diseases National Program (303) at Beltsville, MD, April 2005.
Member and Chair of the Plant Pathology Comprehensive Departmental Review team at North Carolina State University, May 2005.
Member and Chair of the PMN Strategic Planning Board for APS, 2005-2008.
Co-Chair and organizer of APS Department Heads/Chairs Conference, Orlando, FL, February 2006.
OSQR review team member and Chair of molecular biology section for ARS Plant Diseases National Program (303) at Beltsville, MD, December 2006.
Member of the Plant Pathology Comprehensive Departmental Review team at the University of Minnesota, December 2007.
Member of the PMN Joint Executive Committee and representative for APS, 2008-2009.
Member of the external review team for “Washington State University Off-Campus Centers”, October 2008. Reviewed programs at Mount Vernon, Wenatchee, Prosser, and Puyallup, WA.
Member of the Scientific Advisory Board for the Citrus Research and Development Foundation, Inc. 2009-11.
Member of the Plant Pathology Comprehensive Departmental Review Team at the University of Kentucky, March 2010.

**Current Grants:**

“Functional genomics of the pathogenic and epiphytic lifestyle of the bacterial plant pathogen *Pseudomonas syringae*”, funded by the USDA-NRI program on Functional Genomics of Microorganisms. PD’s: G. A. Beattie (lead PD), D. C. Gross, S. E. Lindow, and D. Nettleton. ($900,000 total; 2008-2011).


“Development of new technologies for detection and visualization of the ZC pathogen and application for improved field detection and identification of selectable markers for improved disease resistance”. Funded by Texas AgriLife Research through the TDA ZC research program. PD’s: E. Pierson and D. C. Gross. $200,000 from December 2009 to November 2011.

**PUBLICATIONS SINCE 2005**


**RECENT ABSTRACTS**


THOMAS ISAKEIT

ACADEMIC RANK:  Professor and extension plant pathologist

ADDRESS:  Department of Plant Pathology and Microbiology, Texas A & M University
2132 TAMU, College Station, TX 77843-2132
Phone: (979) 862-1340 (office); 862-2319 (lab)  Fax: (979) 845-6483
E-mail: tisakeit@ag.tamu.edu

EDUCATION:
M.Sc. Plant Pathology, Michigan State University, East Lansing, August, 1984
B.Sc. Agriculture, University of Alberta, Edmonton, May, 1980

PROFESSIONAL EXPERIENCE:
September, 2005 - present: Professor and extension plant pathologist, Dept. Plant Pathology and Microbiology, Texas A&M University, College Station. (75% extension, 25% research)
September, 1999 - August, 2005. Associate professor and extension plant pathologist, Dept. Plant Pathology and Microbiology, Texas A&M University, College Station. (75% ext., 25% research)

TECHNICAL PUBLICATIONS SINCE 2006 (FULL-LENGTH, REFEREED):

SHORT TECHNICAL PUBLICATIONS AND ABSTRACTS SINCE 2007 (REFEREED):


YOUNG-KI JO

Department of Plant Pathology and Microbiology
2132 TAMU, Texas A&M University, College Station, TX 77843
Tel: 979-862-1758, Fax: 979-845-6483, Email: ykjo@ag.tamu.edu

EDUCATION

Ph.D., The Ohio State University, Columbus, 2005 (Plant Pathology)
M.S., Michigan State University, East Lansing, 2000 (Entomology)
B.S., Seoul National University, South Korea, 1996 (Biology Education)

APPOINTMENTS

Assistant Professor & Extension Specialist, 2008-present
Department of Plant Pathology & Microbiology, Texas A&M University, College Station

Postdoctoral Associate, 2006-2007
Department of Plant, Soil, & Insect Sciences, University of Massachusetts, Amherst

Postdoctoral Associate, 2005-2006
Department of Plant Pathology, University of Wisconsin, Madison

AWARDS AND MERITS

1998 Ambassadorial Scholarship from the Rotary International
1994 Army Achievement Medals from the Secretary of the U.S. Army

GRANTS RECEIVED ($1,197,438 since 2008, 6 highlights)

2010 South Korea-International Collaboration. Development of control methods for seed borne disease using plasma technology and silver nano material in rice. FY 10-12 (PI) $120,000

2010 Texas Rice Research Foundation. Development of fungicide programs for ratoon crop disease management. FY 10-11 (PI) $1,725

2009 USDA-IR4 Biopesticide Research Program. Efficacy of the post-harvest biofungicide treatment for control of Rhizoctonia root disease on St. Augustinegrass sod. FY09 (PD) $15,000

2009 USDA-NRI Plant Biosecurity. Development of prototype Pathology Detection Lab-On-a-Chip (PADLOC) systems for real-time on-field plant disease diagnostics. FY09-11 (Co-PI) $999,988

2009 Fungicide field evaluation. FY09 (PI) $30,300

2008 Fungicide field evaluation. FY08 (PI) $26,675

TEACHING

Turfgrass Pathology (PLPA489 & 689, Texas A&M University) Fall 2010
Teach 11 undergraduates and 1 graduate student to recognize important turfgrass problems and understand biological mechanisms of causal pathogens

Theory of Research (PLPA690, Texas A&M University) Spring 2009
Co-teaching of 12 graduate students. Design and develop research theory, inquiry and methodology in various subfields of plant pathology and microbiology. Include examination and interpretation of data using examples from current research literature

Diseases of Field Crops (PLPA623, Texas A&M University) Summer 2009
Teach 6 graduate students to understand fundamental and practical aspects of important and representative diseases of field crops in Texas

PEER-REVIEWED PUBLICATIONS (10 during the past four year)

EXTENSION PUBLICATIONS (33 since 2008, most relevant 6)

INVITED PRESENTATIONS (24 since 2008)

PROFESSIONAL SOCIETY
Texas Turfgrass Association. 2008-present
American Phytopathological Society. 2001-present
CHARLES M. KENERLEY

Department of Plant Pathology and Microbiology
Texas A&M University
College Station, TX 77843-2132

a. Professional Preparation:
North Carolina State University, Raleigh, NC    B.S.    1972    Forestry
Washington State University, Pullman, WA       M.S.    1975    Plant Pathology
North Carolina State University, Raleigh NC     Ph.D.   1983    Plant Pathology

b. Appointments:
Associate Dept. Head, Plant Pathology & Microbiology, 2007-Present
Professor, Texas A&M University, 1995 - Present
Associate Professor, Texas A&M University, 1988 - 1995
Assistant Professor, Texas A&M University, 1983 - 1988
Member, Program for the Biology of Filamentous Fungi, Texas A&M University, 1989 - Present
Member, Interdisciplinary Program in Natural Products and Secondary Metabolites, Texas A&M University, 2000 - Present
Research Technician, Plant Pathology, University of Wisconsin, Madison, WI, 1976-1979

c. Recent Publications from Kenerley Lab:

**Synergistic Activities:**
1. As Associate Department Head for Academics of the Department of Plant Pathology & Microbiology, I am responsible for the academic affairs of our undergraduate and graduate programs, including curriculum design and assessment, recruiting, budgets and faculty teaching assignments.
2. I have served as a mentor for REU summer programs for Hispanic students from Southern Texas and participated in recruiting trips and sessions to encourage minority students for graduate enrollment in PLPA at TAMU.
3. I have been the recipient of a fellowship from the V.F. and Gertrude Neuhaus Teaching Scholars Program at Texas A&M University to develop innovative visuals for the undergraduate course “Microbial Processes in Bioremediation”.
4. As a member of the Undergraduate and Graduate Program Committees, I am involved in strategic planning for the teaching goals of the College of Agriculture and Life Sciences.
5. I have been appointed to the Graduate Appeals Committee for Texas A&M University. This committee addresses all academic appeals by graduate students at TAMU.

**Collaborators:**
Carlos Gonzalez, Texas A&M University
Alfredo Herrera-Estrella, Cinvestav Campus, Irapuato, Mexico
Ben Horwitz, Technion-Israel Institute Technology, Haifa, Israel
C.P. Kubicek, University of Vienna, Austria
S.H. Lancaster, Oklahoma State University
Keerti Rathore, Texas A&M University
Scott Senseman, Texas A&M University
Robert Stipanovic, USDA, College Station, TX
Ada Viterbo, Weizmann Institute of Science, Rehovot, Israel
Mark Weaver, USDA, Stoneville, MS
Aric Wiest, Fungal Stock Center, Kansas City, MO
Heather Wilkinson, Texas A&M University

**Graduate Advisors:**
Jack Rogers, Washington State University
Larry Grand, North Carolina State University

**Thesis Advisor and Postgraduate-Scholar Support**
Mark Weaver, Graduate Student, TAMU; Staff Scientist, USDA, Stoneville, MS
Maria Pozo, Postdoctoral Scientist, TAMU; Professor, Spanish Agriculture, Granada, Spain
Slavica Djonovic, Graduate Student, TAMU; Postdoctoral Scientist, Harvard Medical School
Pedro Uribe, Graduate Student, TAMU; Postdoctoral Scientist, USDA, Salinas, CA
Walter Vargas, Postdoctoral Scientist, TAMU; Research Scientist, University Salamanca, Spain
Merri-Beth Henry, Graduate Student, TAMU; High School Chemistry Teacher, Lubbock, TX
Frankie Crutcher, Graduate Student, TAMU (current)
Eugenia Moran-Diez, Postdoctoral Scientist, TAMU (current)
James Hurley, Graduate Student, TAMU; Chemist, Fort Lewis College, Colorado
Natthiya Buenssanteai, Postdoctoral Research Assistant, TAMU; Faculty, Thailand University
Prasun Mukherjee, Postdoctoral Research Associate, TAMU; Bhabha Atomic Research Center, India
MICHAEL V. KOLOMIETS  
Associate Professor,  
Department of Plant Pathology and Microbiology, Texas A&M University

Professional Preparation
Kiev State University, Kiev, Ukraine  
Genetics  
B.S. and M.S.  
1986
Institute of Plant Sciences, St. Petersburg, Russia  
Biochemistry  
Ph. D.  
equivalent  
1991
Iowa State University, Ames, Iowa  
Horticulture  
Ph.D.  
1998

Appointments:
Associate Professor, Department of Plant Pathology, Texas A&M University, 2008-present
Assistant Professor, Department of Plant Pathology, Texas A&M University, 2002 –August 2008
Post Doctoral Research Fellow, Disease Resistance Group, Pioneer Hi-Bred Intl., Inc., 1999-01
Post Doctoral Research Associate, Department of Agronomy, University of Missouri-Columbia, 1998-99
Graduate Research Assistant, Horticulture Department, Iowa State University, 1993-98

Selected Publications:
Gao X, Kolomiets M (2009). Host-derived lipids and oxylipins are crucial signals in modulating mycotoxin production by fungi. Toxin Reviews: DOI: 10.1080/15569540802420584
Synergistic Activities:

- Developed and teaches a new graduate level course on molecular biology of plant-pathogen interactions PLPA 617 “Molecular Plant-Pathogen Interactions”.
- Teaches an undergraduate class PLPA 301 “Plant Pathology”.
- Member of Editorial Board for the MaizeGDB database (2008).
- Member of Council of Principal Investigators (2009-2011), Texas A&M University
- Member of Executive and Symposium Committees, Molecular and Environmental Plant Sciences.
- Interdepartmental Program (2004-10), Member of Graduate Program Committees (2008-09).
- Ad hoc reviewer for Molecular Plant-Microbe Interactions, Physiological and Molecular Plant Pathology, Phytopathology, Plant Physiology, Plant Molecular Biology, Planta and others.

Collaborators and Other Affiliations:

- Collaborators and Co-Editors
  Balint-Kurti, Peter; North Carolina State University
  Ivo Feussner, Goettingen University, Goettingen, Germany
  Isakeit, Tom; Starr, Jim; Shim, Won-Bo, Texas A&M University
  Keller, Nancy; University of Wisconsin-Madison
  Meeley, Robert; Yalpani, Nasser, Pioneer Hi-Bred Intl., Inc.
  Nansen, Christian; Texas A&M University, Lubbock
  Tumlinson, Jim; Penn State University
  Engelberth, Jurgen; University of Texas-San Antonio

- Graduate Advisors and Postdoctoral Sponsors
  Graduate Co-Major Professors: D. Hannapel and R. Gladon, Iowa State University
  Post Doctoral Advisors: G. Johal, Purdue University; Yalpani, Nasser, Pioneer Hi-Bred

- Thesis Advisor and Postgraduate-Scholar Sponsor
  Current Ph.D. and M.S. graduate students:
  Christensen, Shawn (Ph.D., Genetics)
  Miller, Chestley (M.S. Plant Pathology),
  Park, Yong-Soon (Ph.D., Plant Pathology)
  Borrego, Elli (Ph.D., Plant Pathology)
  Past graduate students:
  Nemchenko, Andriy (Ph.D.), Postdoctoral Research Fellow at the University of Texas Southwestern Medical Center at Dallas, Dept. of Internal Medicine Cardiology
  Zhang, Jinglan, (M.S.), Ph. D. candidate at the Baylor College of Medicine, Dept. of Biochemistry and Molecular Biology
  Current postdoctoral fellows:
  Gao, Xiquan; Yan, Yuanxin
  Past postdoctoral fellows:
  Davletova, Sholpan; Research Associate at the Ohio State University
  Total number of graduate students supervised: 6
  Total number of postdoctoral fellows supervised: 3
  Total number of undergraduate students supervised since 2002: 31
  REU student supervised: Borrego, Eli; Summer 2008.
CLINT W. MAGILL

TITLE/ADDRESS: Professor of Genetics
Department of Plant Pathology & Microbiology
Texas A & M University
College Station, Texas  77843
(409) 845-8250    FAX: 845-6483
E-Mail: c-magill@tamu.edu

EDUCATION & HONORS:

UNIVERSITY: University of Illinois, 1959-1963.  B.S in Agricultural Science awarded June, 1963.  Advisor, Dr. D. E. Alexander, Agronomy Department.  Honors and Awards: Bronze Tablet, Borden Award, Outstanding Senior in Agriculture, Phi Kappa Phi, Phi Eta Sigma, Chicago Tribune Silver Medal (twice), and an NSF Undergraduate Fellowship for summer research to attempt to cross tetraploid corn and sorghum.

GRADUATE SCHOOL: Cornell University, 1963-1968.  Ph. D. in Genetics, 1968.  Chairman of Advisory Committee; Dr. Adrian Srb, Members; Dr. Joe Calvo, Biochemistry, and Dr. Walter Federer, Biometry.  Financial support included a NSF Cooperative Graduate Fellowship, The Andrew Dixson White Fellowship, and an NIH Traineeship.  Research involved complementation and reversion of morphological mutants of Neurospora crassa.

TAMU 1986: College Level Award for Excellence for Undergraduate Teaching 2008-2009 Speaker, TAMU Faculty Senate 2009: Named a Fellow of the American Association for the Advancement of Science

PROFESSIONAL EXPERIENCE:


EMPLOYMENT: 1969-1975 Assistant Professor, Texas A&M University, Texas Agricultural Experiment Station (50% Teaching, 50% research). 1975-1989 Associate Professor (75% Teaching, 25% research). 1989- Professor (50% Teaching, 50% Research)

DESCRIPTION OF POSITION

This position provides expertise in genetic manipulations of eukaryotic microorganisms, biochemical genetics and genes involved in plant host-pathogen interactions. Ideally, the holder will serve as a reference to others working on applied problems with organisms such as plant pathogens. To this end, research is conducted which will illuminate not only basic principles of cellular genetics, development and physiology, but which also has the prospect of significance in solving practical problems.
RESEARCH

MOST SIGNIFICANT ACHIEVEMENTS

- Identification of multiple amino acid transport systems in *Neurospora crassa*
- Demonstration of parasexual recombination in the rice blast fungus
- Development of Texmont Rice, a high yielding, early maturing variety via anther culture
- Demonstration of high levels of DNA methylation in DNA of resting spores *Phymatotrichum omnivorum*
- Contributions to development of an RFLP map for sorghum
- Identification of host defense pathways in cotton and sorghum inoculated with spores of fungal pathogens
- Development of antisense constructs of cadinene synthase to lower gossypol production in cottonseed
- Tagging of multiple genes for resistance to four different sorghum pathogens
- Use of AFLP and SSR technology to measure genetic variability in sorghum and populations of pathogens
- Development of PCR tools for identification of the oomycetes that cause downy mildew in cereal crops.

RECENT REFEREED JOURNAL ARTICLES


http://www.biomedcentral.com/1471-2156/9/77


Book Chapters


### T. ERIK MIRKOV

#### Education:
<table>
<thead>
<tr>
<th>Institution</th>
<th>Date</th>
<th>Degree/Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of California,</td>
<td>1981</td>
<td>B.S. Botany/Plant Science</td>
</tr>
<tr>
<td>Riverside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of California,</td>
<td>1984</td>
<td>M.Sc. Plant Pathology</td>
</tr>
<tr>
<td>Riverside</td>
<td></td>
<td>Lettuce viruses</td>
</tr>
<tr>
<td>University of California,</td>
<td>1988</td>
<td>Ph.D. Plant Pathology</td>
</tr>
<tr>
<td>Riverside</td>
<td></td>
<td>Satellite Tobacco Mosaic Virus</td>
</tr>
</tbody>
</table>

#### Research and Professional Experience:
- **Postdoctoral Fellow**
  - The Salk Institute Biotechnology/Industrial Associates, Inc. (SIBIA)
  - January 1988 - August 198
  - Plant Viral Vectors
- **Research Scientist and Project Leader**
  - SIBIA
  - August 1989 - March 1992
  - Plant Viral Vectors
  - Transgenic Plant Technologies
- **Research Biologist**
  - Department of Biology and Center for Molecular Genetics, University of California, San Diego.
  - Lectins and Aquaporins
- **Assistant Professor**
  - Department of Plant Pathology and Microbiology, Texas A&M University, TAES
  - August 1, 1994 - August 31, 1999
- **Associate Professor**
  - Department of Plant Pathology and Microbiology, Texas A&M University, TAES
  - Sept. 1, 1999 - August 31, 2004
- **Professor**
  - Department of Plant Pathology and Microbiology, Texas A&M University, TAES
  - As of September 1, 2004
- **Member**
  - Intercollegiate Faculty of Virology, Texas A&M University
  - As of September 1, 2000
- **Member**
  - Institute of Plant Genomics and Biotechnology, Texas A&M University
  - As of September 1, 2000

#### Professional Society Activities:
- American Society for Virology
- American Society of Plant Biologists
- American Phytopathological Society
- American Association for the Advancement of Science
- International Organization of Citrus Virologists
- International Society of Sugar Cane Technologists
- International Consortium for Sugarcane Biotechnology

#### Recent Awards:
- American Phytopathological Society Syngenta Award, 2002
- Texas A&M Vice-Chancellor’s Award in Technology Innovation, 2006
- Texas A&M Vice-Chancellor’s Award in Excellence: Individual Research-Off Campus, 2007
- Department of Plant Pathology and Microbiology Outstanding Professor Award, 2007
Peer Reviewed Journal Publications (last 5 years):


DOI: 10.1155/2009/765367


**Book Chapters (last 4 years):**


**Issued Patents (last 4 years):**

2010, 3 patents. Details available upon request.

2009, 4 patents.

2008, 1 patent

2007, 2 patents.

2006, 2 patents.

**Grants to my program last 5 years**

$1,860,000.00 or ~ $375,000.00 per year
GARY ODVODY

Associate Professor, Texas A&M AgriLife Research and Extension Center, 10345 State Highway 44, Corpus Christi, TX 78406-1412; 361/265-9201; FAX 361/265-9434; E-mail: g-odvody@tamu.edu

EDUCATION:

B.S. Botany, University of Nebraska, 1969
M.S. Plant Pathology, University of Nebraska, 1973
Ph.D. Plant Pathology, University of Nebraska, 1977

PROFESSIONAL AND ACADEMIC APPOINTMENTS:

Postdoctoral Research Associate, University of Nebraska, 1977-78
Assistant Professor, Texas A&M Expt. Stn., Corpus Christi, 1979-1989
Associate Professor, Texas A&M Expt. Stn., Corpus Christi, 1989-Present

TEACHING AND ACADEMIC ACTIVITIES: (Graduate Student Training)

Committee Member: 10 M.S., 7 Ph.D. (13 were foreign students)
Co-Major Professor: 4 Ph.D. (students from Tanzania, Swaziland, England, Mexico)
Associate Editor: Fitopatologia Brasileira

INTERNATIONAL EXPERIENCE:

International Sorghum and Millet Consortium (INTSORMIL) CRSP: U.S. AID
Activity primarily in Botswana, Zambia, Zimbabwe, and South Africa
Mexico INIFAP: Collaborative research projects(primarily ergot),visiting scientists, students-1997-2000

AREAS OF RESEARCH INTEREST AND EXPERTISE:

Research expertise on diseases of cereal crops with primary emphasis on fungal pathogens of maize (corn) and sorghum. Major diseases (pathogens) studied are charcoal rot (Macrophomina phaseolina), sorghum downy mildew (Peronosclerospora sorghi), head smut (Sporisorium reilianum), sorghum ergot (Claviceps africana), pre-harvest aflatoxin (Aspergillus flavus), grain mold and ear rots (Fusarium spp.), and foliar diseases occurring on both sorghum and corn. Research areas for pathogens include ecology, survival, initial inoculum, pathogen variability, and host:parasite interaction (especially under stress environments).

Research was initiated in 2009 for control of cotton root rot of cotton caused by the fungus Phymatotrichopsis omnivora. Primary focus is on use of remote and ground-based sensing to map initiation and seasonal progression of cotton root rot. Maps will be used as geo-reference imagery for development and application of spatially-indicated management control strategies including precision agriculture applications of fungicides.

Research goals are to provide sustainable control of all major pathogens principally through host plant resistance but integrated with other controls (including chemical) to provide either interim or adjunct control and to conserve host plant resistance. I am also part of the statewide sorghum and corn improvement programs and a diverse team of scientists investigating biology, epidemiology, and control of cotton root rot on cotton.

PROFESSIONAL MEMBERSHIPS:

American Phytopathological Society: 1972 – Current
Sorghum Improvement Conference of North America - Board Member 1985-89; 2005-2009, member 1979-current

PUBLICATIONS: 2006-Current


KEVIN L. ONG

Department of Plant Pathology & Microbiology
Texas AgriLife Extension Service, Texas A&M University System
Tel : 979-845-80332, Fax : 979-845-6499, Email : kevo@tamu.edu

EDUCATION
The Pennsylvania State University, PA  Biology  B.S. 1993
Temple University, Philadelphia, PA  Biology  M.A. 1996
Clemson University, Clemson, SC  Plant Pathology  Ph.D. 2001

APPOINTMENTS
Associate Professor and Extension Specialist, Director – Texas Plant Disease Diagnostic Lab,
Department of Plant Pathology & Microbiology, Texas AgriLife Extension Service (2008-present)
Assistant Professor and Extension Plant Pathologist, Department of Plant Pathology and Microbiology,
Graduate Research and Extension Assistant, Department of Plant Pathology and Physiology, Clemson
University, SC (1996-2001)

Graduate Teaching Assistant, Department of Biology, Temple University, PA (1993-1996)

SELECT INVITED PRESENTATIONS
Ong, K. 2009. The Texas Plant Disease Diagnostic Clinic, TX Plant Protection Conference, Bryan, TX
Ong, K. 2009  Tree disease problems in Texas, Northeast Texas Urban Forestry Conference, Grand
Prairie, TX.
Ong, K. 2006.  Doing research through Extension programming, Oklahoma State University, Department
of Entomology and Plant Pathology seminar.

AWARDS AND MERITS
2005 Superior Service Team Award 2005. Texas Cooperative Extension
2001 Graduate Student Award, 1st place, Student Research Paper, Southern Division American
Phytopathological Society.
2001 Student Travel Award, Southern Division American Phytopathological Society.
1996 Teaching Merit Award, Temple University, Philadelphia, PA.

PROFESSIONAL SOCIETY ACTIVITIES
American Phytopathological Society
- Office of Public Relation and Outreach board member (2009-2011)
- Ad Hoc Committee on Future Education of Plant Pathologist (2006- 2008)
- Extension Committee (2003-2012), Chair – 08/09
- Early Career Professionals Committee (2005-2007)
- Organizer- “Town Hall meeting” APS 2005 Annual meeting, Austin, TX.

GRANTS RECEIVED (during the past three years)
2010-2011  Plum Pox Survey. USDA/TDA CAPS program. (PI)
2010  Citrus disease awareness program. USDA Citrus Health Response Program. (cooperator)
2010 Citrus Greening Survey. USDA Citrus Health Response Program (co-investigator)
2010-2012 Improvement and deployment of rapid standardized PCR diagnostic tools to increase detection capacity for high-impact plant pathogens (multistate). USDA-AFRI Competitive Grants program. (co-investigator)
2010 Developing an Education and Outreach Program for Increased Awareness of Citrus Diseases in Texas: A Focus on Citrus Greening. Texas Citrus Producers Board. (co-investigator)
2009-2010 Southern Plant Diagnostic Network (TX subaward, multistate), National Plant Diagnostic Network USDA Agriculture Biosecurity. (co-investigator)
2009 USDA-NRI Integrated Program for Plant Biosecurity. Pathogen Detection Lab-on-a-Chip (PADLOC) system for real-time on-field plant disease diagnostics. FY09-11 (co-investigator)
2009 Texas Pierce’s Disease Research and Education Program. Pierce’s Disease investigations on the High Plains of Texas. FY09-10 (cooperator)

SERVICE ACTIVITIES
Committee member, North Central Texas College Horticulture Advisory Committee (2007-2008)
Board member, Crape Myrtle Trail of McKinney Board (2006 – 2008)
Education advisor, Organic Horticulture Professional Education Alliance (2006)
Board member, Trinity Blackland Urban Forestry Council (2005-2007)

Refereed manuscripts for Plant Disease Notes and Journal of Nematology.

RECENT PUBLICATIONS (refereed journals during the past three years)


LELAND S. (SANDY) PIERNER III

Head, Department of Plant Pathology & Microbiology
Texas A&M University

Professional Preparation
The University of California, Davis
Microbiology
B.A., 1979
Faculty mentor: Dr. John L. Ingraham

Washington State University
Microbiology
Ph.D., 1986
Major Advisor: Dr. Michael L. Kahn

USDA-ARS (post-doctoral research fellow)
Plant Pathology
1986-1990
Post-doctoral advisor: Dr. Linda S. Thomashow

Appointments
2009-present
Professor and Head, Department of Plant Pathology & Microbiology, Texas A&M University, College Station, TX.

2003-2009
Division Chair, Division of Plant Pathology & Microbiology, Department of Plant Sciences, University of Arizona.

2002-2009
Professor, Division of Plant Pathology & Microbiology, Department of Plant Sciences, University of Arizona.

2000-2009
Chair, University of Arizona Institutional Biosafety Committee.

1996-2002
Associate Professor, Department of Plant Pathology, University of Arizona.

1990-1996
Assistant Professor, Department of Plant Pathology, University of Arizona.

1986-1990
Post-doctoral Research Microbiologist, USDA-Agricultural Research Service, Root Disease and Biological Control Research Unit, Pullman, WA.

Thesis Advisor & Postdoctoral Sponsor
Served as advisor or co-advisor for four post-doctoral, five PhD and five M.S. students. Served on 58 Graduate Student Committees and supervised 40 Undergraduate Research Projects. College of Agriculture & Life Sciences Outstanding Faculty Teaching Award, 2007; Student’s Choice, The Microbiology Club Teaching Award, 1999; Creative Teaching Award. College of Agriculture, Arizona, 1995.

Current Research
1. Regulation and roles of phenazine (PZ) production. We study the function of PZs in the root-associated bacterium \textit{P. chlororaphis} 30-84 and the pathogen \textit{P. aeruginosa}. We hypothesize PZs play multiple roles in the lifestyle of the bacterium and are identifying and understanding these additional functions for strain 30-84 in microbial physiology, microbe-microbe and plant-microbe interactions. We showed PZs are essential for biofilm development by strain 30-84 and that altering the ratio of PZs produced by strain 30-84 has profound effects on cell adhesion, biofilm architecture, and bacterial release. We are studying the roles of phenazine structural derivatives on cell adhesion, biofilm architecture, root colonization and plant nutrient uptake. This work includes microarray and RNA-seq analyses of PZs as signals controlling the expression of additional genes involved in cell adhesion and biofilm formation.

2. Signaling among microbial populations \textit{in vitro and in situ}. PZ production is regulated via quorum sensing which is dependent on diffusible microbial pheromones. Mutants defective in the production of these signals were rescued for phenazine production \textit{in vitro and in situ} by signals produced by another subpopulation of the wheat rhizosphere community. Additionally, a second subpopulation was identified that inhibited phenazine production by the production of signals that interfere with normal quorum sensing activation of the phenazine biosynthetic operon. Thus, phenazine production is influenced directly by other members of the rhizosphere community. We study some of the negative signals produced by select rhizosphere strains both at the genetic and rhizosphere levels.
3. Microbial communities: involvement in speleothem formation. We are part of a joint Microbial Observatories project to analyze microbial communities and their contributions to speleothem formation in Kartchner Caverns, an oligotrophic cave in Arizona. We are characterizing both bacterial and fungal communities and are attempting to link metabolic capabilities to mineralization patterns via metagenomic analysis.

Selected Publications


CHARLES M. RUSH

Regents Fellow and Professor of Plant Pathology, Texas AgriLife Research, 6500 Amarillo Blvd. W., Amarillo, TX 79106; 806-354-5804; FAX 806-354-5829; e-mail; cm-rush@tamu.edu

EDUCATION:
B.S., 1974, University of Texas Permian Basin, Literature
M.Agric., 1976, Texas A&M University, Plant Protection
Ph.D., 1981, Texas A&M University, Plant Pathology

EMPLOYMENT HISTORY:
12/07 - Present  Regents Fellow, Texas AgriLife Research and Texas A&M University System
09/91 - Present  Professor, Plant Pathology, Texas Agricultural Experiment Station, Amarillo, Texas; adjunct Professor, West Texas A&M University, Canyon, TX and Texas Tech, Lubbock, TX.
06/86 - 8/91  Associate Professor, Plant Pathology, Texas Agricultural Experiment Station, Amarillo, Texas.

PROGRAM DESCRIPTION
The TAES plant pathology program in Amarillo/Bushland, lead by Dr. Charlie Rush, was initiated in 1986 to conduct research on economically damaging diseases of crops produced in the Texas Panhandle. The lab has achieved national recognition for its work on diseases of wheat, and international recognition for research on diseases caused by plant viruses with mite and fungal vectors. Major research projects, all funded by external competitive grants, include Ecology and Epidemiology of Mite-Vectored Virus Diseases of Wheat, Remote Sensing for Detection and Quantification of Plant Diseases, Zebra Chip of Potato, and Epidemiology and Genomic Variability of Benyviruses.

GRADUATE and POST GRADUATE TEACHING/EDUCATION – 2001- Present
• Six Post Doctoral students, currently directing four
• Nine graduate students

SELECTED PROFESSIONAL MEMBERSHIPS AND LEADERSHIP ACTIVITIES:
• American Phytopathological Society
• Southern and Pacific Divisions American Phytopathological Society
• American Society Sugar Beet Technologist
• Associate Editor – Plant Disease 1988 – 1990
• Associate Editor – Phytopathology 1991-1993
• Senior Editor – Plant Disease, 1998 - 2000
• NC227 – Regional committee on Sorghum ergot, Committee Chairman – 2002-2003
• NC1015 – Karnal Bunt Rapid Response Committee, Committee Chairman - 2001-2005
• Texas Precision Agriculture – Statewide Program Coordinator, 2000-2003
• Intern. Working Group on Plant Viruses with Fungal Vectors - Treasurer & Editor 1993 – Present

SELECTED AWARDS and HONORS
• Outstanding Achievement Award in Education. The Alumni Association of the University of Texas of the Permian Basin. May 30, 1998.
• Outstanding Faculty Award. Department of Plant Pathology and Microbiology. October, 1998.
• Meritorious Service Award, Beet Sugar Development Foundation, March, 2001.
• Distinguished Service Award. Sugar beet Research and Education Board of Minnesota. January, 2005.

Grants obtained from USDA-ARS, USDA-CSREES, USDA-NRI, USDA-SCRI, Texas Higher Education Coordinating Board, State and Federal Special Initiatives, Commodity Groups, Agri-Industry.

REFEREED PUBLICATIONS
KAREN-BETH GOLDBERG SCHOLTHOF

Dept. of Plant Pathology and Microbiology
Texas A&M University
College Station, TX 77843-2132

Office: (979) 845-8265
Fax: (979) 845-6483
Email: kbgs@tamu.edu

EDUCATION
1977-1979: Colorado College, Colorado Springs
1979-1982: B.S. (Botany; Minor - Philosophy), Montana State University, Bozeman
1983-1985: M.S. (Plant Pathology), University of Nebraska. Dr. Myron K. Brakke, advisor.

PROFESSIONAL EXPERIENCE
1990-1992: Postdoctoral Fellow, Plant Pathology, University of California, Berkeley.
1995-2000: Assistant Professor, Plant Pathology and Microbiology, Texas A&M University.
2000-2005: Associate Professor, Plant Pathology and Microbiology, Texas A&M University.
2005-present: Professor, Plant Pathology and Microbiology, Texas A&M University.

FACULTY DEVELOPMENT LEAVE

AWARDS and HONORS
2008: Center for Teaching Excellence and University Writing Center W-Course Award. Texas A&M.
2009: Association of Former Students Distinguished Teaching Award. Texas A&M.

PROFESSIONAL ACTIVITIES
Agricultural History Society (AHS)
Editorial Board, Agricultural History Journal, September 2010-August 2013
Rasmussen Book Award Committee, November 2010-October 2013

American Society for Microbiology
Center for the History of Microbiology/Archives Committee, July 2010-June 2013

American Phytopathological Society (APS)

International Committee for the Taxonomy of Viruses
Satellite Study Group, 7th and 8th Reports of the ICTV, Member. August 1997-2007.

TEACHING
BESC 314-900. Pathogens, the Environment and Society. (3 hr.) Every Fall semester. This is a University
Certified “W” (writing) course. (1996-present) [Also available as PLPA 614 and BESC314-Honors].
BESC 481-970. Seminar. (1 hr.) University Certified "C" (communications) course. (2011-present) [Also
available as BESC 481-Honors]
BESC 484-900. Research Experience. (3 hr.) University Certified “W” (writing) course. Spring, Fall, and
Summer, 10-week session. [Also available as BESC314-Honors.]

**RESEARCH**

The focus of my research is two-fold, laboratory research and the history of science. My laboratory research program is on the biochemical and biological functions of the capsid protein of SPMV. My history of science research focus is on plant virus workers in the US (early to mid-20th century) and, more generally, the history of plant pathology and its intersection with public health.

**SELECTED PEER-REVIEWED PUBLICATIONS (2001-present)** (Graduate Student co-authors are underlined)


HERMAN BERTUS SCHOLTHOF

Professor
Department of Plant Pathology and Microbiology
Texas A&M University
2132 TAMU
College Station, TX 77843

Phone: (979) 862-1495
Fax: (979) 845-6483
Email: herscho@tamu.edu

Education
1990 University of Kentucky, Lexington, Kentucky. Ph.D., Plant Pathology
1986 Wageningen University, The Netherlands. M.S., Plant Pathology
1984 Wageningen University, The Netherlands. B.S., Plant Pathology
1980 Van Hall College, Leeuwarden, The Netherlands. B.S., Plant Research

Professional Experience
2009 Visiting Scientist, Boyce Thompson Institute for Plant Research, Cornell University (February-August)
2005-current Professor, Plant Pathology and Microbiology, Texas A&M University
2003 Visiting Associate Professor, Biological Chemistry and Molecular Pharmacology, Harvard Medical School (May-August)
2002 Visiting Associate Professor, Biological Chemistry and Molecular Pharmacology, Harvard Medical School (June-December)
2000-2005 Associate Professor, Plant Pathology and Microbiology, Texas A&M University
1995-2000 Assistant Professor, Plant Pathology and Microbiology, Texas A&M University
1990-1994 Postdoctoral Associate/Fellow, Plant Biology, University of California at Berkeley

Awards and Honors
2009 Fellow, American Phytopathological Society
2009 TAMU Association of Former Students Distinguished Achievement Award for Research
2007 Ruth Allen Award, American Phytopathological Society
2006 Outstanding Professor, Plant Pathology and Microbiology, Texas A&M University
1988-1989 Graduate School Jeffrey Fellowship, University of Kentucky

Teaching
PLPA 616 METHODS IN MOLECULAR BIOLOGY OF PLANT-MICROBE INTERACTIONS
Graduate level course, required for all PLPA students, taught since 1997, 2 credit hours.
PLPA 620 PLANT VIROLOGY
Graduate level course, taught since 1995, 3 credit hours.
PLPA 690 THEORY OF RESEARCH
Graduate level course, taught 1999-2008, 1 credit hour.
PLPA 665 VIRUS GENE VECTORS AND GENE THERAPY
Newly developed course, 3 credit hours. Team taught since 2002

Selected Professional Service Activities
Editorial Responsibilities
Phytopathology (2003-2004)
Editorial Board Virology (2004-current)
Journal of Virology (2008-current)
Phytopathology (1998-2001)
Selected Federal Grant Proposal Panels
USDA-NRI-Competitive Grants Program Plant Pathology (2x)
NSF Molecular and Cellular Biosciences
NIH Topics in Virology (Council ZRG1 IDM-G) grants panel member (2x)
NIH Special Emphasis panel member [ZRG1 MBC-2(01)]

Recent Publications
*PI’s graduate students; **PI’s postdocs; ***PI’s research assistants (technicians); ugPI’s undergraduate students

LIBO SHAN  
Assistant Professor  
Plant Pathology and Microbiology, Institute for Plant Genomics and Biotechnology

**Education:**

1991-1995 Beijing Normal University, China  
1995-1998 Chinese Academy of Sciences, China  
1998-2003 Kansas State University, Manhattan, KS  
2003-2008 Harvard Medical School, Boston, MA

**Education:**

1991-1995 Beijing Normal University, China  
Biochemistry  
B.S.  
1995-1998 Chinese Academy of Sciences, China  
Genetics  
M.S.  
1998-2003 Kansas State University, Manhattan, KS  
Plant Pathology  
Ph.D.  
2003-2008 Harvard Medical School, Boston, MA  
Molecular Biology  
Postdoc

**Professional Positions and Appointment:**

2009-present: Assistant Professor  
Department of Plant Pathology and Microbiology,  
Institute for Plant Genomics and Biotechnology  
Faculty of Molecular & Environmental Plant Sciences (MEPS)  
Texas A&M University, College Station, TX

2003-2008: Research Fellow, Massachusetts General Hospital and Harvard Medical School

**Awards:**

American Society of Plant Science Women’s Young Investigator Travel Award, 2010  
Don C. Warren Genetic Scholarship, Kansas State University, 2002-2003  
Di-Ao Scholarship, Chinese Academy of Sciences, 1998

**Teaching:**

BESC 201 Introduction to Bioenvironmental Science (3 credits) with 98 undergraduate students enrolled  
PLPA616 Methods in Molecular Biology of Plant-Microbe Interactions (2 credits) with ~10 graduate students enrolled  
PLPM 690 Theory of Research for Molecular Plant-Microbe Interaction (2 credits) with ~12 graduate students enrolled.

**Publications**


BRIAN D. SHAW  
Associate Professor  
Department of Plant Pathology and Microbiology, Texas A&M University

Professional Preparation:
Michigan State University Multi-Disciplinary (Honors College B.A. 1992  
Cornell University Plant Pathology (Mycology emphasis) Ph. D. 2000  
University of Georgia Fungal Genetics and Development Post Doc 2000-2003

Appointments:
2009-present Associate Professor Texas A&M University. Dept. of Plant Pathology and Microbiology  
2003-2009 Assistant Professor Texas A&M University. Dept. of Plant Pathology and Microbiology  
2000-2003 Post Doctoral Researcher University of Georgia. Advisor: Dr. Michelle Momany  
2000 Visiting Scientist University of Edinburgh, Scotland. Advisor: Dr. Nick Read  
1995-2000 Graduate Research Asst. Cornell University. Advisor: Dr. Harvey Hoch

Publications:
Ten Recent Publications:  

Synergistic Activities:
1) Awarded the 2009 Alexopolous Prize from the Mycological Society of America. This prestigious award is based on research excellence in the field of fungal biology and is given to no more than one researcher per year. Also awarded 2009 and 2010 SLATE Awards (Student Led Award for
Teaching Excellence) for my undergraduate fungal biology course at Texas A&M. This award is student initiated and is based on end of course student evaluations.

2) Instructor for undergraduate course BESC 204 ‘Molds and Mushrooms’ that exposes beginning students to the impact that fungi have on society and the environment. *This course is designed to allow the inclusion of current research from the PI’s laboratory.*

Instructor for graduate course PLPA689 ‘Mycology: Cell Biology and Taxonomy’ that focuses on cutting edge concepts in cell and molecular biology and genomics examining pathogenesis and fungal development. *This course is designed to allow the inclusion of current research from the PI’s laboratory.* In the past five years I have mentored four PhD students as the major advisor and eight PhD students as a committee member.

3) Member Texas A&M Faculty Senate. 2010-2013.

4) Member of The Program for the Biology of Filamentous Fungi (PBoFF) a cross departmental group of 18 PI’s whose research focuses on basic biology of filamentous fungi. Participation in PBoFF allows for unique collaborative opportunities within the area of fungal development. The focus of PBoFF is to foster collaboration between programs and to enrich the educational opportunity of students and post doctoral trainees.

5) Actively participate in the Mycological Society of America (MSA), American Phytopathological Society (APS), American Society for Microbiology (ASM); Genetics Society of America (GSA). Elected Councilor of Cell Biology and Physiology for MSA 2004-2006.

**Collaborators and Other Affiliations:**

**Collaborators and Co-Editors:**

1. Tom Bianchi, Texas A&M University
2. Paul de Figueiredo, Texas A&M University
3. Marty Dickman, Texas A&M University
4. Dan Ebbole, Texas A&M University
5. Tom Ficht, Texas A&M University
6. Louise Glass, UC Berekley
7. Steven Harris, University of Nebraska
8. Takao Kasuga, UC Davis
9. Lei Li, Texas A&M University Eliezer Louzada, Texas A&M – Kingsville
10. Rosa Mourino-Perez, CICSE-Mexico
11. Zivko Nikolov, Texas A&M University
12. Meritxell Riquelme, CICSE-Mexico
13. Won-Bo Shim, Texas A&M University
14. Michael Thon, Univ. of Salamanca, Spain
15. Serenella Sukno, Univ. of Salamanca, Spain
16. Heather Wilkinson, Texas A&M University

**Thesis Advisor and Postgraduate-Scholar Sponsor:**

17. Julie Campbell, TAMU 28. Arlene Pacheco, TAMU
19. Yoon E. Choi, Purdue University
20. Shawn Christensen, TAMU
21. Dawoon Chung, TAMU
22. Diego L. Delgado, CICESE Mexico
23. Charles Greenwald, TAMU Laura Higgins, TAMU
24. Patrick Kennedy, US Navy
25. Hyo Jin Kim, TAMU
26. Melissa Long, TAMU
WON-BO SHIM
Associate Professor
Department of Plant Pathology and Microbiology
Undergraduate Program in Bioenvironmental Sciences
Texas A&M University, College Station, TX 77843-2132
Tel: 979-458-2190, Fax: 979-845-6483, Email: wbshim@tamu.edu

A. Professional Preparation
Seoul National University, Korea Agricultural Biology B.S., 1992
Seoul National University, Korea Plant Pathology M.S., 1995
Purdue University, Indiana Plant Pathology Ph.D., 2000

B. Appointments
Associate Professor with Tenure, Dept. Plant Pathology & Microbiology, Texas A&M Univ. (2009 – )
Assistant Professor, Dept. Plant Pathology & Microbiology, Texas A&M Univ. (2003 – 2009)

C. Teaching Activities at Texas A&M University
• BESC 403 Sampling and Environmental Monitoring (Undergraduate Course in Bioenvironmental Sciences Program, 2004 – Present)
• PLPA 623 Diseases of Field Crops (Graduate Course in Plant Pathology Program, 2003 – 2006)
• PLPA 616 Methods in Molecular Biology of Plant-Microbe Interactions (Graduate Course in Plant Pathology Program, 2007 – 2009)

D. Recent Peer-Reviewed Publications
(IN THE LAST 5 YEARS, *served as the Corresponding Author, † the PI’s Advisees)
• Chih-Li Wang, Won-Bo Shim, and Brian Shaw. 2010. Aspergillus nidulans striatin (StrA) mediates sexual development and localizes to the endoplasmic reticulum. Fungal Genetics and Biology 47: 789 – 799.
• Yoon-E Choi†, Jillian Brown†, Courtney Williams†, Lorena Canales†, and Won-Bo Shim*. 2008. GAC1, a gene encoding a putative GTPase-activating protein, regulates bikaverin biosynthesis in Fusarium verticillioides. Mycologia 100: 695-703.


E. PROFESSIONAL SYNERGISTIC ACTIVITIES

Panelist, 2010 USDA-NIFA Agriculture and Food Research Initiative Grants Program


Chair, Graduate Recruiting Committee, Department of Plant Pathology and Microbiology, Texas A&M University, College Station, Texas (2009-2011)


Panelist, 2008 USDA-CSREES National Research Initiative Grants Program

Reviewer, NSF, USDA-NRI, USDA-ARS, BARD, Austrian Science Foundation, South Africa NRF

Senior editor, Plant Health Instructor, American Phytopathological Society

Member, the American Phytopathological Society (1998 ~ Present)

Reviewer for Mycologia (Mycological Society of America), Crop Sciences (Crop Science Society of America), Fungal Genetics and Biology (Elsevier Press), European Journal of Plant Pathology (European Foundation for Plant Pathology), Journal of Agricultural and Food Chemistry (American Chemical Society), Mycological Research (British Mycological Society), Phytopathology (American Phytopathological Society), Microbiology (Society of General Microbiology, United Kingdom), Molecular Plant-Microbe Interactions (American Phytopathological Society), Physiological and Molecular Plant Pathology (Elsevier Press), Journal of Basic Microbiology (Wiley InterScience), FEMS Microbiology Letters (Federation of European Microbiological Societies), The Plant Pathology Journal (Korean Society of Plant Pathology), Journal of Applied Microbiology (The Society for Applied Microbiology)

Research Funding Support from USDA-NIFA Agriculture and Food Research Initiative Grants Programs, USAID-Linkage Program, and Texas AgriLife Research
JAMES L. STARR  
Department of Plant Pathology & Microbiology  
Texas A&M University  
College Station, TX 77843-2132  
979/845-8278  
j-starr@tamu.edu

EDUCATION:  
B. S. Plant Pathology, 1971, Ohio State University  
M. S. Plant Pathology, 1972, Ohio State University  
Ph. D. Plant Pathology, 1976, Cornell University

PROFESSIONAL POSITIONS:  
1981-Present: Associate Professor and Professor, Dept Plant Pathology and Microbiology, Texas A&M University, College Station, TX  
2007-Present: Executive Officer, American Peanut Research & Education Society  
2006: Visiting Scientist, AgResearch Ltd., Grasslands Research Centre, New Zealand (6 mo)  
1995: Visiting Professor, Dept Plant Pathology, University of Hawaii, Honolulu, HI (6 mo)  
1979-1981: Nematologist, Nematode Advisory Section, NC Dept. Agriculture, Raleigh, NC  
1976-1979: Research Associate, Dept Plant Pathology, North Carolina State University,  
1978-1979: Visiting Nematologist, Pulse Improvement Program, International Crops Research Institute for the Semi-Arid Tropics, Hyderabad, India (8 months)

PROFESSIONAL ACTIVITIES:  
American Phytopathological Society  
Senior Editor, APS Press (1992-1995)  
Senior Editor, Plant Health Progress (2000 - 2002)  
American Peanut Research and Education Society - Executive Officer (2007-present)  
European Society of Nematologists - Governing Board (2004-2008)  
Organization of Tropical American Nematologists  
Society of Nematologists  
President (1996-1997)  
Associate Editor, Journal of Nematology (1984-1985)  
Senior Editor, Journal of Nematology (2002)  
N. A. Cobb Foundation, Vice-Chair (2000-2002)  
Southern Region Pesticide Impact Assessment Committee (1986 and 1987 review panels)  
USDA-CREES IPM Alternatives Program - proposal review panel (1997)  
USDA-CREES Western Region IPM - proposal review panel (2000-2005)  
Associate Editor, Fundamental and Applied Nematology (1995-1999)  

HONORS AND AWARDS:  
Distinguished Alumni, College of Food, Agriculture and Environment, The Ohio State University, 2008  
Fellow, American Phytopathological Society, 2006  
Fellow, Society of Nematologists, 2003  
American Peanut Council Research and Teaching Award, 2001  
Bailey Research Award, American Peanut Research & Education Society, 1998 and 2000
RESEARCH SUMMARY:
The identification, characterization and development of resistance to nematodes, resulting in the release of several resistant breeding lines and the first ever peanut cultivar with nematode resistance. I have investigated some of the basic aspects of nematode-plant interactions especially the characterization of the multinucleate condition of nematode induced feeding sites in the host and the relationship between this multinucleate condition, development of the nematode parasite, and quantifying gene expression in these feeding sites.

Teaching:
- PLPA 301 Introduction to Plant Pathology, 3 credit hour, undergraduate
- PLPA 484 Professional Internship, 1 to 3 credit hours, undergraduate
- PLPA 603 Plant Disease Management, 3 credit hour, graduate, offered online
- PLPA 610 Host Plant Resistance, 3 credit hour, graduate, team taught course

PUBLICATION SUMMARY:
- Refereed Journals (Published, In Press, or Submitted) - 84
- Books - 3
- Book Chapters and Other Miscellaneous Publications - 31
- Published Abstracts - 101
- Germplasm Releases - 3 cotton breeding lines resistant to root-knot nematodes, 2 peanut breeding lines resistant to root-knot nematodes
- Cultivar Releases - nematode-resistant peanut cultivars COAN (1999) and NemaTAM (2002)

Key Publications:


KARL STEDDOM
Assistant Professor and Extension Specialist
Texas AgriLife Extension Service
P.O. Box 38
Overton, TX 75684
903-834-6191
k-steddom@tamu.edu

ACADEMIC PREPARATION:
Ph.D. Plant Pathology, University of California, Riverside, 2000
B.S. Botany, minor in Plant Pathology, California State Polytechnic University, Pomona, 1995

PROFESSIONAL EXPERIENCE:
Assistant Professor and Extension Specialist - Plant Pathology, Texas AgriLife Extension Service, Overton, Texas, 2005 to present.
Associate Research Scientist, Texas Agricultural Experiment Station, Amarillo, 2004 to 2005.
Assistant Research Scientist, Texas Agricultural Experiment Station, Amarillo, 2000 to 2004.
Adjunct Faculty, West Texas A&M University, Canyon, 2001 to 2005

PEER-REVIEWED JOURNAL ARTICLES:


ABSTRACTS AND TECHNICAL ARTICLES (SINCE 2006)


Steddom, K., K. Ong, and J. Starr, 2010. Incorporation of edible brassicaceous greens did not control nematode populations. Phytopathology 100:S123


POPULAR PRESS (SINCE 2006)
Karl Steddom. Phytophthora: Plant Destroyer. TNLA Green, April 2010 p. 27.
XIAOFENG WANG
Assistant Professor
Texas AgriLife Research
Department of Plant Pathology and Microbiology
Texas A&M University System
2415 East Highway 83, Weslaco, TX
(956) 969-5633 (office), (956) 969-5620 (fax)
xiwang@ag.tamu.edu

Education:

China Agriculture University
Plant Genetics and Breeding BS 1992

Chinese Academy of Agricultural Sciences
Plant Genetics and Breeding MS 1995

Michigan State University
Genetics PhD 2002

University of Wisconsin
Molecular Virology Post-doc 2002-07

Professional appointments:

Aug. 2009 – present: Assistant Professor, Texas AgriLife Research and Department of Plant Pathology & Microbiology, Texas A&M University System.


Research interest:

Viral RNA replication mechanisms & virus-host interactions of positive-strand RNA viruses

• Interactions between host membrane composition and Bromovirus (BMV) replication complex assembly and functions in yeast and plants
• Host genes involved in BMV replication complex assembly: acyl-coA binding protein (ACBP) & multivesicular body (MVB) sorting pathway
• Mechanism-based antiviral strategies in plants: Manipulating synthesis of unsaturated fatty acids to control viral replication

Publications:


TERRY WHEELER
Professor
Texas Agrilife Research
1102 E. FM 1294, Lubbock, TX 79403
Phone (806) 746-4014, Fax (806) 746-6528, email: ta-wheeler@tamu.edu

Educational background
Ph.D, North Carolina State University, 1990
M.S., Texas A&M University, 1987
B. S., Worcester Polytechnic Institute, 1982

Employment history:
2007 to current: Professor in Plant Pathology with Texas AgriLife Research, Lubbock
2000 to 2007: Associate Professor in Plant Pathology with the Texas Agricultural Experiment Station,
located in Lubbock
1994–2000: Assistant Professor in Plant Pathology with the Texas Agricultural Experiment Station,
located in Lubbock
1994–1996: 75% Assistant Professor with Texas Agricultural Experiment Station, Lubbock, and
25% time as an Assistant Professor with Texas Tech University.
1990–1994: Research Associate with Ohio Agricultural Research and Development Center.

Scientific Memberships:
American Phytopathological Society (subscriber to Phytopathology, Plant Disease, and Plant
Management Network); Society of Nematologists (subscriber to Journal of Nematology); American
Peanut Education Society (subscriber to Peanut Science). Yearly attendee at the Beltwide Cotton
Conference.

Area of Expertise:
Cotton diseases: bacterial blight, Fusarium wilt, Verticillium wilt, root-knot and reniform nematodes,
seedling diseases.
Peanut diseases: Pod rot caused by *Rhizoctonia solani* and *Pythium* spp., Sclerotinia blight.

Publications:
Verticillium wilt incidence, yield, and value for three cotton cultivars. Journal of Cotton Science 14:173-
180.

imagery to assess variability of height and yield in cotton (*Gossypium hirsutum* L.) fields. Texas Journal
of Agriculture and Natural Resources 23:26-41.


and T. A. Wheeler. 2010. First report of “*Candidatus liberibacter solanacearum*” on field tomatoes in the

Gao, X., T. Wheeler, Z. Li, C. M. Kenerley, P. He, and L. Shan. 2011. Silencing *GhNDR1* and
*GhMKK2* compromised cotton resistance to Verticillium wilt. The Plant Journal (accepted doi:


HEATHER H. WILKINSON
Associate Professor
Department of Plant Pathology and Microbiology, Texas A&M University
College Station, Texas 77843-2132
Office Phone: 979-845-1491, Fax: 979-845-6483
e-mail: h-wilkinson@tamu.edu

Education
1992-1996 Ph.D., Biology, State University of New York - Binghamton
1989-1990 M.A.T., Science Education-Biology, Boston University
1985-1989 B.A., Biology, Boston University

Professional Experience
2005 – present  Associate Professor, Plant Pathology and Microbiology, Texas A&M University
1999 – 2005  Assistant Professor, Plant Pathology and Microbiology, Texas A&M University
1997 – 1999  Assistant Research Professor, Plant Pathology, University of Kentucky
1995 – 1997  Postdoctoral Scholar, Plant Pathology, University of Kentucky

Publications
Peer Reviewed Articles (my students underline, my postdoc double underline)


**Kutil, B., C. Greenwald, G. Liu, M. Spiering, C. Sbardl, and H. Wilkinson. 2007.** Comparison of loline alkaloid gene clusters across fungal endophytes: Predicting the co-regulatory sequence motifs and the evolutionary history. Fungal Genetics and Biology **44**:1002-1010.


Invited Articles, Proceedings, and Book Chapters


JASON E. WOODWARD
Assistant Professor and Extension Plant Pathologist
Plant Pathology & Microbiology (Texas A&M System) 75% Extension
Plant & Soil Science (Texas Tech University) 25% Teaching

Education:
B.S. (Biology) Southwestern Oklahoma State University (1999)
M.S. (Plant Pathology) Oklahoma State University (2002)
Ph.D. (Plant Pathology) University of Georgia (2006)

Extension Program: Service clientele in the area of disease diagnosis. Assist county faculty (CEAs and EA-IPMs) in planning and implementation of educational meetings, crop tours and demonstration plots as it relates to disease management for row crops (primarily cotton and peanuts). Develop educational materials for increasing clientele awareness/understanding of disease issues on the Southern High Plains. Collaborate with other Extension Specialists, AgriLIFE Research personnel, colleagues at Texas Tech University, USDA-ARS, Texas Department of Agriculture, and producer organizations Plains Cotton Growers, Lamesa Cotton Growers, National Cotton Council, Cotton Incorporated, Texas peanut Producers Board, National Peanut Board and West Texas Peanut Producers in identifying important issues.

Research Activities: Conduct applied research trials addressing major and emerging disease issues that negatively impact production on the High Plains. Research efforts are concentrated in the area of integrated disease management through the use of innovative, cost effective strategies comprised of new fungicides or fungicide combinations, and cultural practices. Additional aspects include plant disease epidemiology, management of fungicide resistance, and plant disease diagnosis.

Teaching Activities: Responsibilities at Texas Tech University, Department of Plant and Soil Science (PSS) include teaching Agricultural Plant Pathology, and Advanced Agricultural Plant Pathology, a Graduate level course in Plant Disease Management, provide guest lecturers in several courses within PSS, as well as training graduate students and serving on student committees.

Service: Serve as an ad-hoc reviewer for six journals (Plant Disease Phytopathology, Plant Health Progress, Cotton Science, Peanut Science, and Crop Protection), and Associate Editor for Plant Health Progress. Actively participate in several professional societies such as the American Phytopathological Society (APS), Southern Division APS, American Peanut Research and Education Society, National Cotton Council Seedling Disease and Nematode Committees and the International Sclerotinia Working Group. Actively participate in numerous Departmental (Plant Pathology & Microbiology, as well as Plant and Soil Science) and Station committees.

Grants and Contracts Awarded: As principal investigator or co-investigator, from 2006-2010, approximately $661,000 in funding or gifts were obtained to support Extension programs and applied research, of which approximately $649,000 were I was the principal investigator. Nine proposals were submitted, but not funded for a total of $1,150,854.

Publications and Professional Output: A total of 16 refereed journal articles have been published over my career (with 1 in press). Four non-peer (Editor) reviewed articles have been published as well as numerous proceedings (56), abstracts (16), Extension publications (14), and Extension materials (49).

Refereed Journal Articles:


QINGYI YU
Assistant Professor
Plant Molecular Biologist

Texas A&M University System
Department of Plant Pathology & Microbiology
Texas AgriLife Research Center
2415 E Hwy 83
Weslaco, TX 78596

Phone: (956) 969-5636
E-mail: qyu@ag.tamu.edu

Educational Background:
Ph.D. 2003, Molecular Biosciences and Bioengineering, University of Hawaii at Manoa
M.Sc. 2000, Horticulture, China Agriculture University, P. R. China
B.Sc. 1993, Cell Biology, Wuhan University, P. R. China

Professional Appointments:
2009 – present: Assistant Professor, Texas AgriLife Research Center, Department of Plant Pathology & Microbiology, Texas A&M University System
2005 – present: Affiliate graduate faculty, Department of Molecular Biosciences and Bioengineering, University of Hawaii at Manoa
2004 – 2009: Plant Molecular Biologist, Hawaii Agriculture Research Center
2003 – 2004: Post-doctoral Research Associate, Hawaii Agriculture Research Center

Selected Publications:


JOSHUA SHUHUA YUAN  
Assistant Professor  
Department of Plant Pathology & Microbiology, Institute for Plant Genomics and Biotechnology

**Professional Experience**
2008 – Assistant Professor, Institute for Plant Genomics and Biotechnology  
Department of Plant Pathology and Microbiology, Professional Program in Biotechnology  
Program in Molecular Environmental Plant Sciences, Texas A&M University, College Station, TX  
2004 – 2008: Genomics Scientist, Department of Plant Sciences,  
Director, UTIA Genomics Hub, University of Tennessee, Knoxville, TN  
2001 – 2004: Microarray Core Manager, Ernest Gallo Clinic & Research Center, University of California, San Francisco, CA  
2000 – 2001: Senior Research Associate, BASF Plant Sciences LLC, RTP, NC

**Education**
Ph.D. Major: Plants, Soils, Insects University of Tennessee Dec. 2007  
Focus: Functional Genomics  
Minor: Statistics  
M.S. Plant Sciences University of Arizona Aug. 2001  
B.S. Major: Biology Fudan University Jul. 1997  
Minor: International Economics

**Teaching**
BESC489/PLPA689: Cyberinfrastructure for Biological and Biomedical Research, Fall, 2009, TAMU, Course Evaluation: 4.67/5.00  
BESC489/PLPA689: Biotechnology for Biofuels and Bioproducts, Spring, 2008 and 2009, TAMU, Course Evaluation: 4.91/5.00

**Honor**
Sigma Delta Gamma Outstanding Graduate Student, 2007

**Credential Summary**
H-index: 12  
Total Publication: 32  
Total Citation: >500  
BMC Bioinformatics Second on All Time Most Viewed Articles:  
http://www.biomedcentral.com/bmcbioinformatics/mostviewedalltime/  
Research Areas: Plant Biology, Bioenergy, and Bioinformatics

**Editorial Positions and Other Synergistic Activity**
2008 – now  
BMC Research Notes Associate Editor  
2009  
US-China Bioenergy Forum Co-Chair  
2010  
Biofuels Guest Editor for Special Issue

**Publications (Selected out of 32)**
6. Zhanyou Xu, Dandan Zhang, Jun Hu, Xin Zhou, Xia Ye, Kristen Reichel, Nathan R. Stewart, Ryan D. Syrenne, Xiaohan Yang, Peng Gao, Weibing Shi, Crissa Doeppke, Rob Sykes, Jason Burris, Joe Bozell, Max Z. Cheng,


**Talks in National and International Symposia and Workshops (out of 19)**

1. From Systems Biology to Bioenergy Feedstock Improvement, Green Revolution 2.0: Food + Energy and Environmental Security, Long Beach, CA, October, 2010


XIN-GEN (SHANE) ZHOU
Texas A&M University System AgriLife Research and Extension Center
at Beaumont, 1509 Aggie Drive, Beaumont, TX 77713
409 752 2741 (phone), 409 752 5560 (fax)
xzhou@aesrg.tamu.edu

Education:
2000 Ph.D. Plant Pathology, Oklahoma State University.
1988 M.S. Plant Pathology, Zhejiang University, China.
1985 B.S. Plant Protection, Zhejiang University, China.

Professional Experience:
2009-Present Assistant Professor, Research Plant Pathologist, Texas A & M University System, AgriLife Research and Extension Center, Beaumont, TX. Epidemiology and management of fungal and bacterial diseases in rice.
2000-2009 Postdoctoral Research Associate, University of Maryland College Park, Lower Eastern Shore Research and Education Center, Salisbury, MD. Epidemiology and integrated management of Fusarium wilt and foliar diseases of watermelon and other cucurbit vegetables.
1996-2000 Graduate Research Assistant (Ph.D.), Oklahoma State University, Wes Watkins Agriculture Research and Extension Center, Lane, OK. Quantitative epidemiology and fungicidal control of anthracnose on watermelon.
1995-1996 Associate Professor and Associate Director, Shanghai Academy of Agriculture Sciences, Plant Protection Research Institute, Shanghai, China. Epidemiology and integrated management of vegetable diseases.
1990-1995 Research Assistant Professor, Shanghai Academy of Agriculture Sciences, Plant Protection Research Institute, Shanghai, China.
1989-1990 Research Associate, Shanghai Academy of Agriculture Sciences, Plant Protection Research Institute, Shanghai, China.

Professional Affiliations:
American Phytopathological Society (APS)
APS Southern Division
Chinese Society for Plant Pathogen
Texas Plant Protection Association

Publications:
Refereed journal articles and book chapters: 25
Conference proceedings articles: 10
Non-refereed, peer-reviewed technical articles: 75
Outreach publications and service: 29

Presentations:
Contributed Papers/Posters: 29
Invited Seminars: 44
Invited Public Presentations: 29

Grantsmanship:
Grants and agreements with Zhou as investigator: 27
Awards and Honors:
2010                Agricultural Proposals Review Panelist for the USAID Middle East Regional Cooperation (MERC) Program.
1995                Peer Review Panelist for the Young Scientists Competitive Grants Program of National Natural Sciences Foundation of China.
1995                Outstanding Scientific Research Award, Shanghai Society of Science and Technology, China.

Selected Recent Articles in Refereed Journals:

Plant Pathology and Microbiology
Support Staff

Staff members of the Department of Plant Pathology and Microbiology provide a wide range of services and support to the faculty and students in our department. Administrative staff members provide clerical, accounting and student service functions while technical staff members assist in various aspects of laboratory and field research. Additionally, the department has staff members whose responsibilities encompass maintaining the computer network, common-use equipment and the six departmental greenhouses and environmental growth chambers available for teaching, research, and extension activities. Departmental resources are used for staff salaries, central services and infrastructure critical to the mission of the department.

Staff members are encouraged to continue their professional and personal development through courses, meetings and training sessions offered by the university. Some training focuses on specific tasks or responsibilities while other continuing education deals with topics such as interpersonal communication skills, management techniques and computer software training. Staff members are also encouraged to pursue degrees through Texas A&M University and are allowed flexible work schedules to accommodate coursework.

Following is a list of each departmental staff position, a brief synopsis of the duties and responsibilities, and the staff member’s length of tenure with the department.

**Administrative Assistant** - Karen Hodges (4.5 years) Coordinates meetings and appointments for Department Head; coordinates travel itinerary for Department Head and visitors to the department; handles graduate admissions and maintains graduate academic records; handles business activities of main departmental office.

**Business Coordinator I** – Victoria Hughes (16 years) Processes all new and terminating employees, including international processing for employees, prospective employees and visiting scientists; generates all payroll and human resource documents; responsible for monthly and bi-weekly payroll; administers on-line human resource programs such as LeaveTraq, TimeTraq, TrainTraq and Laserfische.

**Business Associate III** – Yvonne Redmon (3.5 years) Responsible for teaching and extension accounting including preparing purchase orders, written bids and payment of invoices; reconciles all teaching and extension accounts; handles travel for teaching and extension.
Business Associate II – Tracy Hurych (1 year) Responsible for research accounting including preparing purchase orders, written bids and payment of invoices; reconciles research accounts; handles travel for research.

Technical Secretary – Bobbie Dupuis (8.5 years) Maintains log of plant specimens received for analysis in the Texas Plant Disease Diagnostic Laboratory; responsible for accounts receivable including preparation of deposits, invoicing and billing records; prepares reports and correspondence.

Extension Program Specialist – Sheila McBride (3.5 years, service to dept., 15 years) Assists in the management of the Texas Plant Disease Diagnostic Lab including processing and diagnosing samples; assists in activities related to the Southern Regional Plant Diagnostic Network by training “first responders”, develops educational products and presents diagnostic information at appropriate meetings.

Sr. Academic Advisor – Sam Murdock (3 years) Serves as the undergraduate advisor for Bioenvironmental Sciences and Environmental Studies programs; advises students regarding their academic progress and handles administrative processes such as Q-drops, curriculum changes, and academic probation; serves on various departmental and college committees and assists with faculty load reporting.

Lab Demonstration Supervisor – Suzanne Segner (32 years) Assists faculty in the development, preparation and implementation of lab material and experiments; organizes lab equipment and facilities and maintains teaching culture and plant collections; responsible for departmental inventory and records.
Research Assistant – Robert Kwiatkowski (4.5 years) Maintains six greenhouses including repairs, ongoing maintenance, pesticide application, and scheduling usage; orders supplies and maintains inventory for greenhouses; prepares soil and soil mixes as needed for greenhouse experiments; schedules and maintains environmental growth chambers; assists with field research including soil preparation, planting and harvesting, as needed.

Research Assistant – Betty Morgan (3.5 years, service to dept., 20 years) Responsible for maintenance, safety issues, and renovations of departmental facilities working with Physical Plant; maintains common use equipment through minor repairs or service contract calls; orders and inventories necessary supplies for common use equipment; trains users on equipment; responsible for records retention and disposal; assists with accounts payable functions in business office.

Microcomputer Specialist – Chris Court (3 years) Maintains departmental website; provides software and hardware assistance as needed to faculty, staff and students; determines needs for software and hardware upgrades for departmental computer resources and classrooms; serves as network administrator handling server upgrades, patches, creating and managing user accounts.

Business Administrator II – Linda Brochu (17 years) Manages all business functions including budgets, purchasing, facilities and payroll for research, teaching, and extension components of the department; supervises departmental staff members and oversees all personnel issues in the department; assists faculty members with grant management; serves as a member of the Executive Committee.
Comparison of Faculty & Staff Numbers Among Departments

- PLPM ranks 10th of 14 in terms of Faculty FTEs*.
- PLPM ranks 11th of 14 in terms of Staff/Faculty Ratio*.

*According to the FY10 Goldplate.
Research and Scholarly Activities

Definition and Scope of Research

Plant pathology and microbiology are multidisciplinary fields requiring a broad range of faculty expertise. Faculty members in the department collectively possess expertise in genetics, genomics, bioinformatics, molecular biology, biochemistry, bioremediation, epidemiology, ecology, microbiology, microbial communities, plant-microbe interactions and traditional expertise in understanding plant and animal pathogen biology and field-applied plant pathology. The breadth of research in the Department reflects an impressive array of approaches and technologies, particularly given the small size of the faculty. Department faculty research focus areas include:

- Host-pathogen interactions
- Disease resistance
- Plant innate immunity
- Gene silencing
- Vector-pathogen interactions
- Pathogenic fungi
- Plant biology
- Virology/Bacteriophage biology
- Bacteriology
- Nematology
- Bioenergy and Biotechnology
- Ecology & Evolutionary Biology
- Waterborne pathogens

Faculty are pursuing new knowledge in each of these areas using the latest tools available, including genomics, DNA microarrays, RNA-seq transcriptomic analysis, RNAi, plant mutagenesis, and proteomics. Faculty are working on basic and applied research that dramatically affects Texas growers and citizens plus the rest of the U.S. and the world.

Examples of recent PLPM Research Impacts

- **Mycotoxin contamination** of corn, peanut, sorghum, etc. by *Aspergillus flavus*, *A. parasiticus* and *Fusarium verticilloides*.
  Aflatoxin (AF) alone costs Texas corn growers tens of millions of dollars/yr, including reduced prices for producers at elevators, reduced value of corn as a biofuel due to AF contamination of Dried Distiller Grains (DDGs), and economic losses due to reduced growth of animals and poultry, and negative impacts on wildlife due to feeding on residual contaminated grain. Screening for AF resistant lines and mutants reducing AF contamination 5 fold.
• **Verticillium wilt** on cotton.
  Estimated $12.5 million/yr. cost to Texas growers. Expect gains of $20-40/acre with improved planting and crop rotations being developed. (3.2 million acres harvested last yr = ~$60 million in savings).

• **Nematode damage** on cotton.
  Estimated losses of $25 million/yr without chemical nematicide controls and variety selections that have been performed and are ongoing. Estimated current savings to state: $12.5 million/yr.

• **Karnal Bunt** on wheat.
  Recently, 18,000 acres de-quarantined for Karnal Bunt due to research. Disease cost growers more than $27 million/1st yr during of the quarantine alone.

• **Citrus Greening Disease**.
  Citrus production is $74 million and total statewide economic impact is $121 million. Citrus greening pathogen (*Candidatus Liberibacter asiaticus*) could decimate the Texas citrus industry when it arrives. Currently in Florida and reported in several other southern states. Development of greening resistant varieties saving state $24 million/yr. Additional work is aimed at improved methods of pathogen detection and following the epidemiology of the pathogen and its psyllid vector.

• **Sugarcane Disease**.
  Sugarcane production is $77.8 million at the mill while the total statewide economic impact is $150.1 million. Recently, showed that manipulating unsaturated fatty acid synthesis substantially inhibits viral RNA replication of several plant viruses. Development of virus resistant sugarcane saving the state up to $75 million/yr. We expect to extend the strategy to other major species as well.

• **Pierce’s Disease** on grapes.
  *Xyella fastidiosa* is the number one limit to increased grape acreage in Texas and has the potential to devastate the $1 billion/yr. Texas wine industry. We are identifying resistant lines of grapes. We have developed methods for the isolation and propagation of the first *Xylella* phage that may be a potentially effective biological control approach against the disease. Field studies are ongoing to identify more resistant rootstocks and to evaluate potential new biological agents against the PD pathogen.

• **Water Quality**.
  Texas State *E. coli* Bacterial Source Tracking (BST) Library contains over 12,000 *E. coli* from several thousand fecal and water samples. We are helping the Texas Soil and Water Conservation Board and Texas Commission on Environmental Quality identify sources of fecal contamination for the development of effective watershed protection plans. Currently, over 200 Texas water bodies are impacted by *E. coli* contamination. EPA-mandated cleanup is being reduced by $500,000/project using source tracking system. Estimated 2 projects/yr.
- **Zebra Chip on potatoes.**
  Is a relatively new disease of potatoes in Texas, having been first diagnosed in the early 1990s. It is transmitted primarily by the potato psyllid *Bactericera cockerelli*. The pathogen, *Candidatus Liberibacter* spp. can kill the plant, but more importantly it alters the transport of starch to the developing tubers. The symptoms are not readily visible until the tubers are sliced and fried. Efforts will save ~$2,000,000/yr.

- **Turfgrass diseases.**
  Research and extension supports over 900 golf course superintendents and 156 sod producers in Texas. This industry contributes $7.4 billion annually to the Texas economy. The annual chemical budget by golf courses in Texas is $10,533,000. Our turfgrass disease management program will save 10%, or $1,053,300 with a proper fungicide program, reducing application of chemicals in the season.

- **Bioenergy.**
  The Global Biodiesel market is estimated to reach 37 billion gallons by 2016. Its average annual growth is 42% and could result in a potential market of $10 billion/yr in Texas. Potential $100 million/yr savings to Texas due to reduced environmental cleanup and carbon credits. We are also generating novel cold tolerant transgenic sugarcane germplasm to be deployed for biofuels and sugar production. Work is also focused on efficient oil production by yeast.

- **Bioterrorism.**
  A major bioterrorism attack in a city (e.g., an aerosolized variant of *Brucella*) likely would disrupt economic activity for ~30 days (the time to inactivate and decontaminate the agent), and have long-term (30 days +) implications for the cities growth and productivity. Hence, such an attack would engender an estimated $30B in acute losses, and more than ~$100B in longer term losses to the city. We are developing safe, inexpensive, and effective countermeasures against bioterrorism.
Plant Pathology and Microbiology Productivity

Productivity in the Department has increased several-fold over the past decade in all aspects of departmental operations, teaching, research and extension. Departmental faculty actively seek extramural funding. As is shown in the graph below along with the accompanying table, PLPM is very successful in attracting funding.

Grant Support of PLPM Compared to Other COALS Departments
(FY06-FY10)

Summary of Grant Support by Department (past 5 years)

<table>
<thead>
<tr>
<th>Year</th>
<th>BCBP</th>
<th>SCSC</th>
<th>ANSC</th>
<th>BIAG</th>
<th>AGEC</th>
<th>NUFS</th>
<th>ENTO</th>
<th>PLPM</th>
<th>POSC</th>
<th>RECP</th>
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<td>6.7</td>
<td>3.4</td>
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<td>1.6</td>
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<td>2.5</td>
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<td>0.9</td>
<td>1.3</td>
<td>0.9</td>
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</tr>
</tbody>
</table>

- Competitive grant support by Plant Pathology and Microbiology faculty has averaged $2.44 million/yr. over the past 5 years.
### Grant Productivity by Department Per FTE (FY10)

<table>
<thead>
<tr>
<th>Department</th>
<th>Grant Productivity FY2010 (in Millions)</th>
<th>Faculty FTE</th>
<th>Adj. FTE</th>
<th>Grants/FTE</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
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<td>Biochemistry</td>
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<td>Soil &amp; Crop</td>
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<td>Animal Science</td>
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<tr>
<td>Biological &amp; Ag Eng.</td>
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<td>Ag Economics</td>
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<td>Wildlife Fisheries</td>
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<tr>
<td>Plant Pathology &amp; Microbiology</td>
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<tr>
<td>Poultry Science</td>
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- Note that FY10 support ($1.9 mill) was lower than FY09 ($3.1 mill) or FY08 ($3.6 mill). This in part reflects uncertainty in federal funding availability. For FY10, PLPM ranks 9th of 14 departments in terms of Grant dollars garnered per FTE. Lecturers in other departments were excluded since they are not expected to generate revenue.
## Distribution of Faculty FTEs, FY11

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**TOTAL FTES**  
11.08  
7.12  
7.56  
25.76

Ad-loc’d to AgriLife Research Centers

- Charlie Rush (Amarillo)  
- Gary Odvody (Corpus)  
- George Di Giovanni (El Paso)  
- Terri Wheeler (Lubbock)  
- Qingyi Yu (Weslaco)  
- Shane Zhou (Beaumont)  
- Xiaofeng Wang (Weslaco)  
- Eric Mirkov (Weslaco)
# Current Grant Support: Research Faculty

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## Research and Scholarly Activities

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<td>7/1/2007 - 6/30/2011</td>
<td>$156,000.00</td>
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<tr>
<td>Code</td>
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<td>Start Date</td>
<td>End Date</td>
<td>Amount</td>
</tr>
<tr>
<td>--------</td>
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<tr>
<td>440140</td>
<td>TDA</td>
<td>Identification of Plant Nemato</td>
<td>9/1/2010</td>
<td>8/31/2011</td>
<td>$15,000.00</td>
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<tr>
<td>440890</td>
<td>USDA-APHIS</td>
<td>Citrus Health Diagnostics</td>
<td>9/1/2010</td>
<td>9/30/2011</td>
<td>$68,470.00</td>
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<td>440980</td>
<td>TDA</td>
<td>Plum Pos Virus Survey</td>
<td>9/1/2010</td>
<td>8/31/2011</td>
<td>$19,500.00</td>
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<th>Start Date</th>
<th>End Date</th>
<th>Amount</th>
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<tr>
<td>Steddom</td>
<td>UC Davis</td>
<td>Legume IPM Pipe 2009</td>
<td>9/1/2009</td>
<td>12/31/2011</td>
<td>$11,055.00</td>
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<td>440150</td>
<td>Colorado St</td>
<td>Legume Pipe Subc 2010</td>
<td>11/1/2010</td>
<td>2/29/2012</td>
<td>$10,725.00</td>
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<tr>
<td>440920</td>
<td>Univ of Florida</td>
<td>IR-4 Ornamental</td>
<td>5/1/2010</td>
<td>4/30/2011</td>
<td>$10,000.00</td>
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<tr>
<td>440940</td>
<td>Virginia Polytech Inst</td>
<td>Oomyceticide Resistance</td>
<td>7/1/2010</td>
<td>6/30/2012</td>
<td>$5,000.00</td>
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<table>
<thead>
<tr>
<th>Code</th>
<th>Sponsor</th>
<th>Project Title</th>
<th>Start Date</th>
<th>End Date</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodward</td>
<td>NEW Cotton Inc.</td>
<td>Screening of Cotton Varieties</td>
<td>1/1/2011</td>
<td>12/31/2011</td>
<td>$12,500.00</td>
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<tr>
<td>440930</td>
<td>TPPB</td>
<td>Improving the Mgmt of Peanut</td>
<td>1/1/2010</td>
<td>3/31/2010</td>
<td>$23,000.00</td>
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<td>440190</td>
<td>TPPB</td>
<td>Improving the Mgmt of Peanut</td>
<td>1/1/2011</td>
<td>12/31/2011</td>
<td>$23,000.00</td>
</tr>
</tbody>
</table>

- All PLPM faculty have extramural support.
- Total support has averaged ~$12.2 million over the past 5 years, or ~$343,662 on average per faculty FTE (35.5).
Publications (2006-Feb. 2011)

- Faculty in PLPM published 309 peer-reviewed manuscripts during 2008-Feb. 2010.

2011 Publications (*15 to date*)


Christensen S, **Kolomiets M** (2011) The lipid language of plant-fungal interactions. Fungal Genetics and Biology. 48:4-14


2010 Publications (79 total)


Research and Scholarly Activities


Chih-Li Wang, **Won-Bo Shim**, and Brian D. Shaw. 2010. *Aspergillus nidulans* striatin (StrA) mediates sexual development and localizes to the endoplasmic reticulum. Fungal Genetics and Biology 47: 789-799.


2009 Publications (35 total)


2008 Publications (67 total)


2007 Publications (55 total)

T. Isakeit, A. M. Idris, G. Sunter, M. C. Black, and J. K. Brown, Tomato yellow leaf curl virus in tomato in Texas, originating from transplant facilities. 2007. Plant Dis. 91:466. doi:10.1094/PDIS-91-4-0466A. Accepted for publication 4Dec06.


in natural waters determined by PFGE and ERIC-PCR. Water Research 41:3643-3648.


2006 Publications (58 total)


protects *Saccharomyces cerevisiae* cells against oxidative stress by regulating intracellular proline levels. Appl. Environ. Microbiol. 72: 4001-4006.


Batten, J. S., Turina, M., and Scholthof, K.-B. G. 2006. Two membrane-associated proteins are essential


Instruction and Teaching

Undergraduate: Bioenvironmental Sciences (BESC)

The Department of Plant Pathology and Microbiology, similar to most departments across the country, has no undergraduate Plant Pathology major. The department instead satisfies its undergraduate teaching responsibilities by offering a B.S. degree in Bioenvironmental Sciences.

Background

The increasing importance of environmental issues is being recognized locally, regionally and globally. Environmental hazards take many forms, including microbial threats, toxic waste and the indirect impact of man’s activities on a fragile ecosystem. As a result, there is a growing recognition that the solutions to environmental problems require innovative multi-disciplinary perspectives and technologically-intensive approaches. The Bioenvironmental Sciences curriculum (BESC) was designed in consultation with numerous industry representatives in order to comply with the most current thinking on the talents needed for tomorrow’s environmental fields. Students will be prepared for a number of environmental sciences career choices in such areas as research and development, environmental consulting, remediation of wastes, site assessment and environmental sampling, and environmental law. Graduates from BESC find employment in federal, state and municipal environmental agencies; in industries concerned with the generation and clean-up of hazardous wastes; with environmental advocacy and educational groups. In addition, the strong science base in BESC prepares students for professional and graduate schools in a variety of disciplines.

The BESC curriculum combines a foundation of required courses, technical electives and free electives to allow the student the maximum flexibility to design a personalized course of study. Students are advised to focus on an area of emphasis with those electives that come from such categories as conservation/ecology, policy/ethics/regulations, the physical environment, engineering, plant studies, genetics/biotechnology and general environmental. The Department of Plant Pathology and Microbiology also supports the extracurricular activities needed to support a successful environmental professional.

The program was first offered in 1990 and has undergone minor revisions. Since 2003, BESC student numbers have increased fairly consistently with 160 majors in 2003 and 229 majors in Fall 2010. Since 1990, the program has graduated 817 students.

• In 2009 the BESC major at Texas A&M was ranked the second most popular environmental sciences program in the country by StateUniversity.com.
### Teaching: Undergraduate

<table>
<thead>
<tr>
<th>Year</th>
<th># of BESC Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
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</tr>
<tr>
<td>1991</td>
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</tr>
<tr>
<td>2009</td>
<td>61</td>
</tr>
<tr>
<td>2010</td>
<td>30</td>
</tr>
</tbody>
</table>

**GRAND TOTAL** 817

---

### BESC Enrollment (student numbers)

![BESC Enrollment Graph](image)
Bioenvironmental Sciences (BESC) Major Requirements

The BESC degree is designed with a limited number of set requirements to allow maximum flexibility for students to focus on the areas that will most directly impact their career goals.

**Major Field Requirements (14 hours)**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BESC 201</td>
<td>Introduction to Bioenvironmental Science</td>
<td>3.0</td>
</tr>
<tr>
<td>PLPA 301/303</td>
<td>Introductory Plant Pathology/Plant Pathology Lab</td>
<td>4.0</td>
</tr>
<tr>
<td>GENE 310 or</td>
<td>Principles of Heredity</td>
<td>3.0</td>
</tr>
<tr>
<td>GENE 315</td>
<td>Genetics of Plants</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 481-900</td>
<td>Seminar</td>
<td>1.0</td>
</tr>
<tr>
<td>BESC 484-900</td>
<td>Field Experience (Internship)</td>
<td>3.0</td>
</tr>
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</table>

**Bioenvironmental Group (Choose any 18 hours)**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BESC 204</td>
<td>Molds and Mushrooms</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 314</td>
<td>Pathogens, the Environment, and Society</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 320</td>
<td>Water and the Bioenvironmental Sciences</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 357</td>
<td>Biotechnology for Biofuels and Bioproducts</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 367</td>
<td>U.S. Environmental Regulations</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 401</td>
<td>Bioenvironmental Microbiology</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 402</td>
<td>Microbial Processes in Bioremediation</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 403</td>
<td>Sampling and Environmental Monitoring</td>
<td>3.0</td>
</tr>
<tr>
<td>BESC 489</td>
<td>Special Topics*</td>
<td>1.0</td>
</tr>
<tr>
<td>SCSC 405</td>
<td>Soil Microbiology</td>
<td>3.0</td>
</tr>
</tbody>
</table>

*During spring 2010 the course was ‘Carbon Trading, Mediation and the Environment’ taught by Jim Heath, a 2002 BESC B.S. major and Dr. Karen-Beth Scholthof.*

**Science Requirements (28 hours)**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>Introductory Biology I</td>
<td>3.0</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>Introductory Biology II</td>
<td>3.0</td>
</tr>
<tr>
<td>CHEM 101/111</td>
<td>Fundamentals in Chemistry I</td>
<td>3.0</td>
</tr>
<tr>
<td>CHEM 102/112</td>
<td>Fundamentals in Chemistry II</td>
<td>3.0</td>
</tr>
<tr>
<td>CHEM 222/242</td>
<td>Organic chemistry, applic to biology &amp; agriculture</td>
<td>3.0</td>
</tr>
<tr>
<td>RENR 205/215</td>
<td>Fundamentals of Ecology</td>
<td>3.0</td>
</tr>
<tr>
<td>SCSC 301</td>
<td>Soil Science</td>
<td>3.0</td>
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</table>

**Math & Logical Reasoning (9 hours)**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>Business Mathematics</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 131</td>
<td>Mathematical Concepts- Calculus</td>
<td>3.0</td>
</tr>
<tr>
<td>STAT 302</td>
<td>Statistical Methods</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Plus: 3 h Social Science, 6 h Humanities, 6 h English & Speech, 12 h Citizenship, 2 h Physical Education, 8 h General Electives and 14 h Technical Electives.
Environmental Studies (ENST)

Since the program’s inception in the fall 2005 semester, Environmental Studies (ENST) has been administratively coordinated by the College of Agriculture and Life Sciences (COALS) and the College of Geosciences (GEOS). The major resides administratively within the Dean’s Office in COALS, but students always have been directed by the PLPM Advising Office. In order to consolidate some of the separate environmental sciences majors across campus, PLPM obtained approval in November 2010 from the Dean’s office to assume administrative control of the ENST degree and become the degree granting department. This arrangement was accepted by COALS and the transition is occurring for currently enrolled students.

A remaining challenge for the program in PLPM is the difficulty of recruiting majors while a similar program counter-part exists in GEOS (a similar major with the exact same title (Environmental Studies) and major heading, but featuring different coursework focusing solely on geosciences). If a clearer and separate bioenvironmental sciences major can be advertised, PLPM can more effectively recruit students earlier in their degree cycle. Therefore, this transition of ENST into PLPM may help the department improve the visibility of the BESC program across campus.
Bioenvironmental Sciences Honors at Texas A&M

The Undergraduate Honors Program at Texas A&M University offers an opportunity for highly motivated, curious, and scholarly students to participate in challenging classroom and laboratory experiences in university-wide programs. Bioenvironmental Sciences (BESC) Honors allows undergraduates majoring in BESC to participate in an optional curriculum and access to University Honors and an undergraduate thesis. Students who completed the requirements for BESC Honors will satisfy the majority of the requirements for University Honors.

Departmental Requirements to Graduate with BESC Honors
To achieve BESC Honors, a student must complete the following 18 hours of Honors coursework:
1. Six (6) hours of honors in courses offered outside of the BESC and PLPA program, which may include Core Curriculum courses.
2. Nine (9) hours of honors-level BESC coursework.
   a. At least six (6) hours of BESC courses must be at the 300/400 level.
   b. Upper level may include 6 hours of Independent Study/Directed Research, leading to a senior thesis, preferably through the University Undergraduate Research Fellows Program.
3. Three (3) additional hours of honors-level courses in the BESC degree plan.
4. To be certified for Honors Distinction in Bioenvironmental Sciences no grade of D* or F* in any course on the transcript and no grade on the transcript of 'D' or 'F' in an honors class can be recorded. (An asterisk [*] on the transcript of a graduating student indicates that the student was given a grade penalty for academic dishonesty and the student did not complete the remediation program that is required in order to have the asterisk removed from such a student's transcript.)

Note: If approved by the University Honors Program Office a maximum of six (6) credits based on high AP/IB examination scores or from honors transfer credit can be used towards the requirements of the BESC Honors Plan. For details, please see the TAMU Undergraduate Honors Handbook <http://honors/tamu.edu/honors/general/Handbk.pdf>.

Honors Recognition and Graduation with Honors
All completed Honors coursework taken at Texas A&M University is designated as such on a student’s official transcript, showing that the student has taken part in this enhanced curriculum. After graduation, the transcript will designate that the student has achieved the distinction of “Bioenvironmental Sciences Honors”, as well as any University-wide Honors distinctions.

Admission to the Honors Program in Bioenvironmental Sciences
Admission to the BESC Honors Program is the same as for the University Undergraduate Honors Program. Current and potential BESC majors who have an overall GPA of ≥ 3.5 are encouraged to consult with the Faculty Advisor in charge of coordinating BESC Honors as early as possible in their academic career to plan their course sequence. To graduate with BESC Honors, a student must graduate with a cumulative 3.5 GPA and a 3.25 GPA in Honors courses.
Bioenvironmental Sciences (BESC) Honors Course Options

BESC 204-200: Molds and Mushrooms (3 hr)
BESC 314-200: Pathogens, the Environment and Society (3 hr)
BESC 402-200: Microbial Processes in Bioremediation (3 hr)
BESC 481-980: Seminar (1 hr)
BESC 484-970: Field Experience/Internship (3 hr)
BESC 489-200: Special Topics (1 to 3 hr)
BESC 491-200: Research (1 to 3 hr)

Note: Honors-level courses are indicated by the section number “200”. Honors-level writing-intensive courses are indicated by the section number “970”. Honors-level communication-intensive courses are indicated by section number "980". Some Honors courses might be taught as part of regular BESC sections; if so, there will be additional time scheduled for Honors group-discussion with the instructor.

For further information about BESC Honors, please contact:

Mr. Sam Murdock
Advisor, BESC Program
101 LF Peterson Bldg.
Texas A&M University
College Station, TX 77843-2132
Telephone: 979-845-2388
E-mail: murdock@tamu.edu

Professor Karen-Beth G. Scholthof
Faculty Coordinator, BESC Honors
Plant Pathology and Microbiology Dept.
Texas A&M University
College Station, TX 77843-2132
Telephone: 979-845-8265
E-mail: kbgs@tamu.edu

Undergraduate Internship/Research Experiences

BESC Senior Internships
All BESC majors are required to have at least one internship experience prior to graduation. These internships can last from one to several semesters. Seventy three and seventy two students completed internships in 2010 and 2009, respectively. This information was not collected prior to 2009 when Mr. Sam Murdock was hired as Academic Advisor. The hiring of Sam Murdock as our Academic Advisor has been a great move forward for the department.

Examples of internship experiences during 2009 – 2010 include:
Carr Environmental Group, Spring TX
United States Geological Survey (USGS), TX
Texas Commission on Environmental Quality (TCEQ), Austin, TX
United States Department of Agriculture (USDA)
Aqua-Tech Laboratories, Austin, TX
Monsanto Corporation, St. Louis, MO
EcoServe Corporation, Houston, TX
Lynntech Incorporated, College Station, TX
Messina Hof Texas Vineyards, Bryan, TX
City of Bryan – Sustainability Programs and Environmental Services, TX
City of College Station, TX
Thomas Analytical Services, College Station, TX
Terracon Consultants, Incorporated, College Station, TX
Texas A&M University Recycling Center, College Station, TX
Texas Plant Disease Diagnostic Laboratory (TPDDL), College Station, TX
Total Port Arthur Refinery, Port Arthur, TX
San Antonio Audubon Society, San Antonio, TX
Garland Power & Light Company, Garland, TX
Carter Creek Waste Water Treatment Facility, College Station, TX
Koke’e Resource Conservation Program, Koke’s State Park, Kaua’i, HI
Palouse-Clearwater Environmental Institute, Moscow, ID
Miramont Country Club Golf Course, Bryan, TX
Environmental Protection Agency (EPA) - Dallas, TX
City of Brenham Public Utilities, TX
Ophthalmology, Palestine, TX
Naturalist, Fripp Island, SC
Nacogdoches Memorial Hospital, Nacogdoches, TX
MD Anderson Health Clinic, Houston, TX
Jones-Heroy Associates, Pflugerville, TX
Amigos de las Americas, Costa Rica
Houston Zoo, Houston, TX
Andarko Petroleum Corporation Environmental Health Division, Woodlands, TX
Garland Health Department-West Nile Virus, Garland, TX
Sawmill Hollow Organic Farm, IA
Sitka Rangers, Tonggrass National Forest, AK
University of Texas at Tyler, Freshwater turtles, Tyler, TX
EcoServe Environmental Consulting, Houston, TX
TAMU Systems, Ingleside Naval Base, TX
Pharmacy, Hallettsville, TX
RK Hall Construction, Paris, TX
USAF Center for Engineering and Environment, San Antonio, TX
Dr. Joiners Dental and Orthodontics Group
College Station Water Treatment Plant
Rio Grande Resources Corporation, Houston, TX
Tarrant County Regional Water District
North Louisiana Crime Laboratory, Shreveport, LA
Holtzapple Research Group, TX
Texas Master Naturalist program
VSS Animal Hospital, TX
Texas Health Resources, Arlington, TX
St. Joseph Hospital, Sterile Processing Unit
# Undergraduate Student Awards

<table>
<thead>
<tr>
<th>Name</th>
<th>Award</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chavez, Christa</td>
<td>Dean’s Honor Roll</td>
<td>2003</td>
</tr>
<tr>
<td>Chavez, Christa</td>
<td>President’s Endowed Scholarship</td>
<td>2003 - 2007</td>
</tr>
<tr>
<td>Chavez, Christa</td>
<td>Washington Tru Solutions Scholarship</td>
<td>2003 - 2004</td>
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<tr>
<td>Smith, Frances</td>
<td>Intern DC</td>
<td>Spring 2003</td>
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<tr>
<td>Chavez, Christa</td>
<td>Dean’s Honor Roll</td>
<td>2004</td>
</tr>
<tr>
<td>Chavez, Christa</td>
<td>Louis Stokes Alliance Mentor Program Scholar, NSF</td>
<td>2004 - 2005</td>
</tr>
<tr>
<td>Denham, Ivey</td>
<td>Outstanding Undergraduate Student - PLPA</td>
<td>2004</td>
</tr>
<tr>
<td>Chavez, Christa</td>
<td>A. L. Darnell Agricultural Scholarship</td>
<td>2004 - 2005</td>
</tr>
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<td>Chavez, Christa</td>
<td>AFS Academic Achievement Scholarship</td>
<td>2004 - 2005</td>
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<td>McMurry, Erin</td>
<td>Intern DC</td>
<td>Spring 2004</td>
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<tr>
<td>Twigg, Kristina</td>
<td>Dean’s Honor Roll</td>
<td>Fall 2004</td>
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<tr>
<td>Chavez, Christa</td>
<td>Dean’s Honor Roll</td>
<td>2005</td>
</tr>
<tr>
<td>Haynes, Abria</td>
<td>Century Scholar Scholarship</td>
<td>2005 - 2008</td>
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<tr>
<td>Morales, Jay</td>
<td>Intern DC</td>
<td>Spring 2005</td>
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<tr>
<td>Simmons, Toni</td>
<td>Intern DC</td>
<td>Spring 2005</td>
</tr>
<tr>
<td>Snider, Jennifer</td>
<td>Udall Scholar</td>
<td>2005</td>
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<tr>
<td>Ireland-Stoddard,</td>
<td>Senior Merit Award, COALS</td>
<td>2005</td>
</tr>
<tr>
<td>Kati</td>
<td></td>
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<tr>
<td>Trampe, Erin</td>
<td>Senior Merit Award, COALS</td>
<td>2005</td>
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<tr>
<td>Twigg, Kristina</td>
<td>Dean’s Honor Roll</td>
<td>Spring 2005</td>
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<tr>
<td>Williams, Courtney</td>
<td>Frank L. Howard Undergraduate Research Fellowship, APS</td>
<td>2005</td>
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<tr>
<td>Chavez, Christa</td>
<td>Dean’s Honor Roll</td>
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<td>Kalicec, Cassie</td>
<td>Senior Merit Award, COALS</td>
<td>2006</td>
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<tr>
<td>Snider, Jennifer</td>
<td>Senior Merit Award, COALS</td>
<td>2006</td>
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<tr>
<td>Snider, Jennifer</td>
<td>Earl Rudder Memorial Outstanding Student Award, Brown Foundation</td>
<td>2006</td>
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<tr>
<td>Twigg, Kristina</td>
<td>Dean’s Honor Roll</td>
<td>Spring 2006</td>
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<tr>
<td>Twigg, Kristina</td>
<td>Student Government Association Chair of the Year Award</td>
<td>2006 - 2007</td>
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<tr>
<td>Twigg, Kristina</td>
<td>Houston Livestock Show and Rodeo Endowed Scholarship</td>
<td>2006 - 2008</td>
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<td>Chavez, Christa</td>
<td>Dean’s Honor Roll</td>
<td>2007</td>
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<tr>
<td>Garfield, Brenden</td>
<td>Intern Austin</td>
<td>Spring 2007</td>
</tr>
<tr>
<td>Haynes, Abria</td>
<td>Dean’s List</td>
<td>2007</td>
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<tr>
<td>McGehee, Jacqueline</td>
<td>Intern Austin</td>
<td>Spring 2007</td>
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Recent BESC Graduates

Spring 2010: (21)
BOOK, MICHAEL JOHN
BURNS, STEPHANIE LYNN
CHERRY, LAURA CAMPBELL
DE LA GARZA, LAURA ANDREA
FLORENCE, JADE ASHLEY
GUENTHER, LACIE LYNN
HOLTON, STEPHANIE DOMINIQUE
HUMPHREY, MELISSA JORDAN
JONES, MATTHEW EVANS
KUBIC, TAYLOR JOSEPH
LINDLEY, LAUREN NICOLE
NGUYEN, HONG-HANH THI
PURNELL, ELIZABETH LEE
RAMSEY, STANLEY WAYNE
REA, JORDAN BLAKE
ROLAND, STEVEN KANE
SKEELS, AMANDA GAYLE
SMALL, JESSIKA LEE
TAYLOR, KYLE BENJAMIN
WRIGHT, MEGAN TANUNYEAKE
ZAVALA, SILVIA EUGENIA

Summer 2010: (8)
BALLOU, JOHN ROLLIN
ENGLISH, ERIC HARRY
MAKI, ARTEMIS ALEXANDER
NAUMANN, BRANDON WILLIAM
NORMAN, WHITNEY DANIELLE
REGMI, SHAMA
RHODES, STEPHEN MARSHALL
TESSEM, CHAD RICHARD

Fall 2010: (30)
BARGE, JONATHAN THOMAS
BLUDEAU, CHRISTA JAE
ESPONDA, CISCERON JORDANO
FLORES, JENNIFER RENEE
GARCIA, KAMRYN ALYSE
GONZALEZ, MANUEL ESTEVAN
GREENIDGE, CHRISTOPHER DAVID
HOLT, CALEB
KANOJIA, SUNAINA HARICHAH
LAWSON, VALERIE ALEXANDRA
LIGHTNER, JESSICA CAREY
LYNDERSAY, MEGAN CLARE
MANCINI, MATTHEW
MILLIGAN, SPENCER
NEBGEN, WESLEY
NORTHUP, ASHLEY
ONEILL, KIMBERLY
PUNTES, CARLOS ALBERTO
QUINTERO, KORD
RAFIQUE, UMMER
RODRIGUEZ, KRISTY MARIE
SMITH, ALTRICIA BREANNA
TERRELL, MINDY LAUREN
THIBODEAUX, ZAMARA CHAKELIA
THORNTON, OMESHA LYNNETTE
TORRES, RICHARD
TREVINO, ALEJANDRA
TURNER, LUKE
VALADEZ, CARLOS
WITHERS, CODY
International Education Programs (Study Abroad Programs)

The Department of Plant Pathology & Microbiology is exploring ways to increase its participation in Distance Education. Currently, many A&M departments use pre-existing facilities established by A&M for their international education programs. These programs benefit from initial investments made by A&M. In most cases, due to the focus of plant pathology our programs do not ideally fit the current locations of these branch campuses. Hence, we are trying to establish the connections that will lead to the development of excellent distance education programs. However, investment and support in many of these cases will be necessary to move to the next step.

Currently, 14 undergraduate BESC students were involved in Study Abroad experiences:

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<td>Price Almon</td>
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<td>Taiwan*</td>
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<tr>
<td>Rosa Alvarado</td>
<td>Taiwan*</td>
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A new distance education course currently being offered:
*1. **Dr. Dan Ebbole** developed a new BESC 484W course in 2010 that involves a four-week field experience in Taiwan. Three students spent a month in Taiwan, working with Dr. Wei-Chang Shen at the National Taiwan University. This university teaches a course (in English) on ‘Biodiversity, Agriculture and Culture in Taiwan.’ The National Taiwan University is interested in establishing a “3+1” program with Texas A&M University in the future.

Potential new distance education opportunities being pursued:
*2. **Dr. Won-Bo Shim** is working to establish an international consortium of scientists to study the pathogenic fungus *Fusarium. Fusarium* spp. represent the most important agricultural
plant pathogenic fungi due to the wide range of agricultural crops they attack and their ability to produce mycotoxins that pose critical health concerns for human and animal consumption. It is estimated that ~25% of crops world-wide are mycotoxin contaminated. He has traveled to China and is interacting with the laboratory of Dr. Zonghua Ma at Zhejiang University in China. This collaboration would result in students from A&M traveling to China to work in laboratories at Zhejiang University and interact with Chinese counterparts. An aspect that makes this experience even more beneficial for A&M students is that China pays all living, boarding and food expenses for the visit. This could be a model for further improving US-China relations.

3. **Dr. Young-Ki Jo** is hosting one Chinese internship student in his lab each fall, which supports the Michigan State University - China Turfgrass Management Program. The student has completed most course requirements for a 4-year turfgrass management degree (B.S.) in China. The internship experience in the U.S. is a requirement for completing the degree program. During the internship in his lab, the student is involved in multiple field and lab research projects focused on turfgrass pathology.

4. **Dr. Joshua Yuan, Dr. Won-Bo Shim and Dr. Dan Ebbole** traveled to China for the Beijing Conference held October, 2009. Dr. Yuan was an organizer and host for the first US-China Bioenergy Forum as part of the US-China Relationship Conference. In addition, he co-hosted the International Symposium of Biotechnology and Biofuels in Peking University, he was a keynote speaker in a symposium for the dedication of Bioenergy Research Center in Jiangsu University and accepted an Adjunct Professorship at Jiangsu University. The US-China Bioenergy Forum is one of the first high level bioenergy specific forum with leading scientists from both nations in attendance. A TAMU graduate student, Aaron Smith from Chemical Engineering, went with him and gave a talk at the meeting on behalf of Mark Holtzapple.

5. **Dr. Chuck Kenerley, Heather Wilkinson, Herman Scholthof and Jim Starr** hosted four Borlaug Fellows last fall. Our faculty have participated in these international programs for years (this is run through Mike McWhorter's shop on campus). These are programs, but do involve faculty going abroad as well. David Reed should have this information as Chuck Kenerley sent it to him previously.

6. **Dr. Jim Starr** travels extensively to West Africa to collaborate on research to develop nematode resistant crops. He has also hosted scientists from West Africa in his laboratory.

### Invisible Jungle Radio Program

The Invisible Jungle is a two minute radio broadcast about microorganisms (http://www.invisiblejungle.com/). In fall 2009, four Texas A&M students who were part of the University Scholars Program created their own project with the oversight of Dr. Paul de Figueiredo in PLPM. Aaron Gray, Kristen Carter, Alicia Israel, and Grant Atkinson decided to create a radio program to bring the interesting and relevant news of microorganisms to the public. This interdisciplinary team would research the latest stories and translate the scientific articles into everyday language. It took a semester to work out the logistics of the program,
including finalizing the concept, creating a name and logo, and talking to radio stations. Spring 2010 brought along more members and writers to the team, a final selection of music, and the first recordings. The Invisible Jungle first aired on the NPR affiliate KAMU-FM (College Station, TX) in March 2010. The program is now broadcast by National Public Radio stations across the U.S. Topics range from microbes that thrive on hand sanitizer to curing brain diseases with herpes. This program is organized and run by University Scholars students and overseen by Dr. Paul de Figueiredo. The students meet, decide on topics, research, organize and produce the broadcasts. It is a great hands-on experience and exposes the public to microorganisms, both good and bad.

Members:
Grant Atkinson, Kyle Bolton, Kristen Carter, Marissa Doshi, Amanda Flores, Aaron Gray, Alicia Israel, Rika Mallepally, Alex Mijalis, Katy Ralston, Sarah Roberts, Morgan Scott, Maggie Shaughnessy, Kristina Twigg. Faculty supervisor: Dr. Paul de Figueiredo.

Examples of topics:
- Bacteria Powered-
- Sleeping Beauty and the Beast-
- Malnutrition and Tuberculosis-
- Antibiotics in Cockroach Brains-
- Q Fever-
- Protecting Bananas with Gene Transfers-
- Picture Perfect Virus-
- Underwater Under Scrutiny-
- Allergy Relief Found in the Stomach-
- Life without Light-
- H1N1 Immune Response-
- Pick up that Poo-
- The Froggy prince Fights Bacteria-
- Deadly Invisibles-
Undergraduate Research Opportunities

A major emphasis of the Texas A&M University Action 2015 strategic plan is “Education First,” the integration of Teaching, Research and Service. The PLPM department has been operating its undergraduate program this way for many years. The internship experience all BESC majors participate in are a great service opportunity for companies and organizations within Texas and across the country. In addition, many BESC majors (and non majors) have been involved in undergraduate research experiences working with PLPM faculty on laboratory research projects.

- Since 2003, faculty in PLPM have mentored over 200 undergraduate research students in their laboratories

(REUs since 2003)

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<td>Abhiram</td>
<td>2010</td>
<td>Yuan</td>
<td>TAMU UG</td>
</tr>
<tr>
<td>Thomas</td>
<td>Ambrose</td>
<td>2008</td>
<td>Magill</td>
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<tr>
<td>Thompson</td>
<td>Heather</td>
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<td>Wilkinson</td>
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<tr>
<td>Thorkelson</td>
<td>John</td>
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<td>Jo</td>
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</tr>
<tr>
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<tr>
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<td>Starr</td>
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<td>Torres</td>
<td>Jessica</td>
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<td>Turner</td>
<td>Luke</td>
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</tr>
<tr>
<td>Twigg</td>
<td>Christina</td>
<td>2004-2007</td>
<td>K.B. Scholthof</td>
<td>Water</td>
</tr>
<tr>
<td>Environment Federation, Washington D.C.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
The Department has long been a proponent of hands-on practical training for our students.

Since 2003, over 200 undergraduates have received hands-on research training in the laboratories of PLPM faculty.
Under-Represented Student Recruitment Efforts

1. Undergraduate Minority REU Program

During the summers of 2007-2010 the Plant Pathology and Microbiology Department, with support from the College of Agriculture and Life Sciences and the TAMU Office of Undergraduate Research hosted 21 undergraduate students for a 10-week Research Experiences for Undergraduates (REU) in collaboration with four Hispanic-Serving Institutions (HSIs) in South Texas [(Texas A&M University-Kingsville (TAMUK), Texas A&M University-Corpus Christi (TAMU-CC), The University of Texas Pan American (UTPA), and The University of Texas-Brownsville (UTB)]. The goal of the REU is to provide research opportunities for talented undergraduates and to provide a recruitment opportunity for talented students interested in graduate school.

- Over the past five years, the 10 PLPM faculty associated with this REU program have instructed 2,140 undergraduates in formal classrooms settings, guided more than 90 independent research projects in their laboratories, and co-authored 37 peer reviewed publications with undergraduate students.
- Four of the students that participated in the Summer REU program are now enrolled in the Plant Pathology and Microbiology Ph.D. program at Texas A&M.
- Other former participants are now enrolled in graduate program at institutions such as MIT, Harvard, The University of Texas and Michigan.
- We have a pending NSF-REU the will support a total of 30 students during a 3-year period. The PIs of the program are Drs. Carlos Gonzalez and Paul de Figueiredo. This proposal is more fully described below.
- Additionally, over the last 4 years, as Co-PIs of an NSF-funded program, Drs. Ry Young (BICH) and Carlos Gonzalez (PLPM) have engaged 59 students in a genomic sequencing program of Burkholderia phages. This project was refunded by NSF through November of 2012. We normally have 12-15 students per semester and minority students are an important part of the program.

Future:
- A new NSF-funded REU grant was just awarded to Dr. Carlos Gonzalez and Dr. Paul de Figueiredo.

REU Proposal funded by NSF: The Plant-Microbe Interface: A Summer Undergraduate Research Program

- Principal Investigators: Carlos F. Gonzalez and Paul de Figueiredo
- Research Main field: Biology; Sub-fields: Plant Pathology and Microbiology
- Number of undergraduate students per year: 10
- Summer and academic year REU Site: Texas A&M University
- Weeks per year students will participate: 10 (with long term tracking plan)
- The project includes an ethics component
- Web site address for REU Site: http://plantpathology.tamu.edu/
Project Summary: Ten junior or senior level undergraduates from minority- and non-minority-serving institutions will learn and practice the elements of hypothesis-driven scientific research based on a theme of “The Plant-Microbe Interface;” total of 30 students over a 3-year period. REU students will conduct hypothesis-driven research in a laboratory of the Department of Plant Pathology and Microbiology at Texas A&M University during a 10-week summer experience. We have three pedagogically sequenced, overlapping, and measurable objectives. Students will learn and demonstrate their knowledge of:

1. The scientific method, by designing and conducting hypothesis-driven microbiological and molecular biological research projects with proper controls;
2. Scientific communication, by reporting status of experiments in laboratory group meetings and preparing Power Point and poster presentations of findings; and
3. Interests of the university research community, by attending seminars on campus, understanding the elements of managing hypothesis-driven research, and interacting scientifically and socially with research faculty and REU students in other departments and colleges.

Students to be recruited will be highly motivated entering junior and senior undergraduate students from minority- and non-minority-serving universities from across the country. We will develop and distribute flyers describing the REU to biology, chemistry, and biochemistry departments. We will also distribute pamphlets at the Annual meetings of Minorities in Agriculture Natural Resources and Related Sciences, Society for the Advancement of Chicanos & Native Americans in Science, and the Annual Biomedical Research Conference for Minority Students. A distinguishing feature of our recruiting effort will be our existing close working relationships with four Hispanic-Serving Institutions in South Texas which we will visit to recruit. Intended impact is to (a) reinforce student interest in scientific research, (b) encourage student interest in graduate studies, and (c) develop student interest in joining the professoriate.

Intellectual merit, using the platform of the plant-microbe interface, we will provide students with opportunities to learn fundamental biological research methods and critical thinking by performing independent research projects in laboratories that have active efforts in this area. The proposed projects will be structured so that students can transition from directed to independent research activities.

Broader impacts, the program will have long-lasting impacts related to (a) establishing novel collaborations and interaction between a Land Grant University, Hispanic-Serving Institutions, Historically Black Colleges, and other institutions outside of Texas; (b) institutionalizing undergraduate research; (c) training of a new generation of scientific leaders from diverse populations; and (d) advancing the fundamental body of knowledge in plant-microbe interface research.

2. Minorities in Agriculture Natural Resources and Related Sciences (MANRRS)
The Department of Plant Pathology and Microbiology has been the host department for the Texas A&M Chapter of the Society for Minorities in Agriculture Natural Resources and Related Sciences (MANRRS) for the last six years. MANRRS is a national society that promotes the involvement of minorities in agriculture and related sciences, and is made up of a national office with chapters established at colleges and universities throughout the United States. Membership is open to people of all racial and ethnic backgrounds who support the objective of full ethnic group participation and achievement in agricultural and related science careers. Current
membership is made up of over 1,800 undergraduate students, graduate students, and professionals and includes men and women of African American, Hispanic, Asian American, Native American, and European American backgrounds. There are 59 active chapter located at 1852, 1890 and 1990 universities.

Currently the TAMU chapter membership includes 22 undergraduate and graduate students. Dr. Carlos Gonzalez is the faculty advisor for the MANRRS chapter.

- In 2010, the Texas A&M Chapter won the “National MANRRS Chapter of the Year Award.”

3. Efforts to Increase Visibility of the BESC Program (Mr. Sam Murdock).
- Wrote several advising articles for the Regent's Scholars newsletter (Regent's Scholars are first-generation students and typically under-represented students).
- Serves as an Aggie Access Learning Community Namesake (under-represented Learning Community) which involves working with groups of students through a variety of activities. This program was recently discontinued.
- Serves on the COALS Marketing and Recruiting Council (which coordinates and creates almost all of the College's recruitment activities throughout the year).
- Visits the TAMU-Galveston campus with General Academic Programs for recruitment.
- Serves on the Executive Board of the ATMentors (http://atmentors.tamu.edu/) a mentoring organization that does a lot of recruitment and "Aggie Moms Club" events and informational as well as serving current students.
- Distributes to Regional Prospective Student Centers marketing information about the BESC major for use in their high school visits and other school programs (and works with some of the Houston area inner-city schools as a Scholarships Recruiter in Honors Programs).
- Works with Mike Spies and David DeSousa in Admissions on advertising the BESC major to the Community Colleges across the state.
- Participates in the Transfer Articulation Pilot Program (TAPP) which guarantees transfer admission into specific TAMU majors as long as students take specified classes and get a specific GPA on those courses.
- Participates in Aggieland Saturday, Transfer Information Day, Freshman Information Day, and other major recruiting events held on campus.
- Visits Blinn Community College (Bryan and Brenham campuses) regularly with COALS recruiters.
- Volunteers for the Blinn TEAM program (co-enrollment program with Blinn/TAMU) every summer to register students and advertise the major.
- Attends cross-training events with Financial Aid/Admissions and COALS Recruiters every year to make sure they know what's new/changing with our majors and have up-to-date materials.
Undergraduate Teaching: Student Recruitment

- Participates in the Visitor's Center online scheduling program so that visiting students and families can easily schedule visits to our Department when they visit campus.
- Presents a program annually to the Gateway program (provisional TAMU admission program in the summer that has hundreds of students, largely under-represented, without a major).
- Works closely with Admissions and COALS recruiters on campus visit programs and summer camps that target metro schools (typically Juniors in the Spring), gives presentations to those students.
- Works with Phi Kappa Phi and Honors Programs to represent our College and Department in their recruiting activities.
- Serves on a variety of scholarship and award committees to advertise our Department to high achieving students, and serves each semester on the Ag & Natural Resource Policy Internship Program in Washington, DC as well.
- Occasionally presents at various Houston area events (like the Houston Hispanic Forum, Admitted Student Receptions, and targeted student receptions) with the COALS recruiters and Assoc. Dean Danielle Harris (These efforts by the college have been pared back due to budget issues).
<table>
<thead>
<tr>
<th>Account</th>
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<th>Balance</th>
<th>Restrictions/Purpose</th>
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<tr>
<td>650545</td>
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<td>To be used for outstanding plant pathology graduate students with research interest in seed pathology and improvement</td>
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<tr>
<td>651938</td>
<td>Bruce A. Mauder/DeKalb</td>
<td>$381</td>
<td>To be used for currently enrolled undergraduate students in plant pathology or bioenvironmental sciences based on either need or scholarship as recognized by the faculty</td>
</tr>
<tr>
<td>653947</td>
<td>Plant Pathology &amp; Microbiology</td>
<td>$1,000</td>
<td>To be used for scholarships, tuition &amp; fees for PLPM graduate students &amp; BESC undergraduates</td>
</tr>
<tr>
<td>652814</td>
<td>Department of Plant Pathology and Microbiology</td>
<td>0</td>
<td>Demonstrated need by either undergraduate or graduate student in our department</td>
</tr>
<tr>
<td>65219</td>
<td>Biology of Filamentous Fungi</td>
<td>$0</td>
<td>To be awarded to students in the Program for Biology of Filamentous Fungi</td>
</tr>
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<td>33396</td>
<td>C.R. Butler and B.J. Butler Endowed Scholarship</td>
<td>$17,227</td>
<td>To be used for an outstanding undergraduate in Plant Pathology or Bioenvironmental Sciences with research interest in ornamental crops</td>
</tr>
<tr>
<td>57406</td>
<td>Luther Bird Endowed Scholarship</td>
<td>$2,456</td>
<td>To be used for an outstanding graduate student in Plant Pathology &amp; Microbiology with interest in host plant resistance</td>
</tr>
</tbody>
</table>
Challenges to the BESC Program

The Bioenvironmental Sciences major is enjoying continuing success and is rapidly growing. In spite of this success, the BESC major faces several challenges.

(1) Currently at Texas A&M there are multiple programs that carry the name environmental sciences. For example, Geosciences has a B.S. in Environmental Geosciences that focuses on the interdisciplinary relationships between geology, geophysics, meteorology, oceanography and physical geography. It also had a B.S. in Environmental Sciences (ENST) which recently was given to PLPM. However, the presence of multiple environmental majors across campus is confusing to students. A means of strengthening the BESC major would be to make it known as THE environmental major. At Texas A&M, all Freshmen enter with a declared major. As freshmen recruitment is largely a college and university-admissions driven process, we have not been sufficiently visible, although our academic advisor works hard to keep Texas A&M’s Prospective Student Centers across the State supplied with our one-pagers and brochures. Therefore, students are usually in their 2nd or 3rd year before they learn about BESC.

Breakdown of Undergraduates (as of March 24, 2010):

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Students</td>
<td>189</td>
<td>220</td>
</tr>
<tr>
<td>Freshmen</td>
<td>8 (4%)</td>
<td>33 (15%)</td>
</tr>
<tr>
<td>Sophomores</td>
<td>22 (12%)</td>
<td>44 (20%)</td>
</tr>
<tr>
<td>Juniors</td>
<td>56 (30%)</td>
<td>66 (30%)</td>
</tr>
<tr>
<td>Seniors</td>
<td>103 (54%)</td>
<td>77 (35%)</td>
</tr>
</tbody>
</table>

As shown under the ‘Actual’ heading, the BESC major is weighted too heavily towards upperclassmen. This reflects the current issue of most of our majors being transfer students and that many freshmen are coming in with a significant amount of credit hours from Dual Credit courses and AP courses.

Under the ‘Target’ heading is the percentage splits we would like to see for the BESC student distribution. This distribution would still take into account our appeal to change of majors and transfer students.

(2) Student quality and scholastic timeline. Most BESC majors transfer into BESC during their second or third years at A&M. Many of these students initially majored in other fields who decided to take a different career track. In many cases, this reflects the requirement for students to select a major area prior to arriving on campus. Many students apply to A&M for specific majors such as engineering without knowing what is involved. Once at A&M, they realize that their career goals are not served by their initial major choice. In some cases, students switch due to scholastic issues. These marginal students require extra counseling and encouragement, and occasionally some “tough love.” We are fortunate to have Mr. Sam Murdock as our academic advisor. Mr. Murdock does an excellent job of keeping our BESC majors on track. Sam recently was awarded the 2010 President’s Advisor Award at A&M. In both cases, often by the time student’s transfer into the BESC program they have already used
a significant proportion of their allotted 120 student credit hours. Getting them through the required BESC curriculum within the remaining time period can be difficult.

(3) Due to perceived weaknesses in the ability of A&M graduates to write and speak effectively, the Texas legislature required the university to institute ‘W’ writing-intensive courses in all undergraduate majors in Fall 2004. A second such ‘W’ course was added in Fall 2007. In Spring 2008 a ‘C’ course emphasizing communications could be substituted for one of the ‘W’ courses. Therefore, all undergraduates must take at least one ‘W’ and one ‘C’ course. The ‘W’ courses are designed to re-enforce writing skills while the ‘C’ courses are designed to re-enforce speaking skills. ‘W’ and ‘C’ courses have a maximum permitted enrollment of 25 students. This requires that each BESC faculty member involved in a ‘W’ or ‘C’ course had to hold multiple sections. Faculty involved in these courses were suffering burnout due to the demands of reviewing each assignment and returning it to the students with comments followed by re-reading, etc. For example, BESC 320 Water and the Bioenvironmental Sciences has no instructor currently due to this issue. To overcome this issue, several faculty have agreed to run sections of BESC484W in which they interact with a group of BESC majors during their internships. Each week the students submit written updates on their projects and additional reading which are reviewed, edited and returned by the instructors. We have implemented a similar approach to try to deal with the sheer number of majors for the ‘C’ course requirement, as BESC 481, a capstone seminar course.

(4) The faculty who teach BESC courses are in most situations teaching far outside their areas of expertise. In order to maintain excellence in teaching, this requires additional preparation time by the instructors for each lecture as the instructors learn the latest in their respective subject areas. These faculty have arguably larger teaching assignments than other faculty that teach plant pathology courses alone.

Future Goal:
One area that the Department is working jointly with the Development Office is to establish a chair in Bioenvironmental Science. The establishment of such a chair would increase the visibility of the program and serve as a solid base for the major. More information on this position is included under the Future Plans section.
Instruction and Teaching

Graduate: Plant Pathology and Microbiology

Plant Pathology is the science of plant health management that encompasses plant diseases, their nature, causal agents, host resistance, community ecology and interrelated phenomena. Plant Pathology is a broad program with emphasis on both basic molecular biology and field application. Graduate study in Plant Pathology involves the scientific training of professional psychopathologists. Emphasis is placed on the fundamental and practical concepts associated with pathology and the conceptual schemes of fungal, bacterial, viral, nematological, mycoplasmal and physiogenic diseases, host plant resistance, and the role of environmental cues in plant health. In addition, department faculty research most aspects of plant pathology, including physiology of parasitism, plant-microbe interactions, genetics of PAMP-triggered immunity (PTI) and Effector-triggered immunity (ETI), RNA silencing, genetics of pathogen variation and variability, genetics of host-pathogen-hyperparasite populations, ecology of soil-borne pathogens, etiology and epidemiology of plant disease, nematology, virology, biotechnology, phytotherapeutics and clinical phytopathology.

As a faculty we are committed to providing our students with the best training possible. Graduate study is different from undergraduate studies. Our goal is not so much to provide masses of information, but to help the student learn “how to learn”. Science changes continuously and it is critically important that scientists are able to grow and adapt to new technologies while incorporating the latest scientific “facts.” Our success is measured by how well our students develop the discipline, the self-confidence, and the ethical standards that are primarily responsible for their future success. Much of what we teach is by apprenticeship methods. There is considerable "art" in scientific research, teaching and extension. The best way to teach this is by laboratory rotations, laboratory classes, seminar courses, field trips, and research experiences that we provide to our students. Most of our student’s learning comes from primary literature and from personal interactions with professors, technical staff, and fellow students. Our primary purpose as University faculty is to share our knowledge and skills with our students. The best way we know to do this is to include our students in all aspects of our current research, teaching, and extension activities. PLPM is large enough to allow students to become exposed to all aspects of plant pathology and plant-microbiology while small enough to promote close interaction between students and faculty.

The design of the graduate curriculum in Plant Pathology is challenging from a number of viewpoints. Many variations have been tried, including mini-courses that provided students exposure to many pathogen systems in a relatively short time frame. However, these courses were discontinued in part due to scheduling difficulties. All curricula revisions and changes are submitted to the Graduate Program Committee (GPC) which discusses the proposed changes and forwards possible changes to the full faculty for discussion, vote, and implementation.

Graduate Program Coursework
The Department of Plant Pathology and Microbiology offers a M.S. and Ph.D. degree in Plant Pathology. The PLPM Ph.D. program requires a minimum of 96 hours while the M.S. program requires 32 hours. The current plant pathology curriculum reflects a compromise among multiple
factors, including the need to justify and maximize student credit hours (SCH), accommodating faculty expertise in current courses and planning for new expertise and curricula. Also, each course must attract a minimum of 5 students to be offered. If a course goes three consecutive years without being offered, it is automatically dropped. Therefore, it is imperative that courses are offered on a regular basis and have a sufficient enrollment base.

**Major Field Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA 611</td>
<td>Advanced Plant Pathology</td>
<td>3.0</td>
</tr>
<tr>
<td>PLPA 616</td>
<td>Methods in Molecular Biology of Plant-Microbe Interactions</td>
<td>2.0</td>
</tr>
<tr>
<td>PLPA 613</td>
<td>Advanced Plant Pathology</td>
<td>3.0</td>
</tr>
<tr>
<td>PLPA 626</td>
<td>Diagnosis of Plant Diseases</td>
<td>2.0</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLPA 623</td>
<td>Diseases of Field Crops</td>
<td>2.0</td>
</tr>
<tr>
<td>PLPA 681</td>
<td>Seminar</td>
<td>2.0</td>
</tr>
<tr>
<td>PLPA 690</td>
<td>Theory of Research</td>
<td>1.0</td>
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**Elective PLPA Course Options**

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<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA 601</td>
<td>Introduction to Plant Pathology</td>
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**Organismal Courses:**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA 618</td>
<td>Bacterial Plant Diseases</td>
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<tr>
<td>PLPA 620</td>
<td>Plant Virology</td>
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<tr>
<td>PLPA 630</td>
<td>Fungi: Cell Biology and Taxonomy</td>
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<tr>
<td>PLPA 631</td>
<td>Fungi: Genetics and Physiology</td>
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<tr>
<td>PLPA 632</td>
<td>Fungi: Laboratory</td>
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**Principles Courses:**

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<th>Title</th>
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<tbody>
<tr>
<td>PLPA 610</td>
<td>Host Plant Resistance</td>
<td>3.0</td>
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<td>PLPA 623</td>
<td>Diseases of Field Crops</td>
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</tr>
<tr>
<td>PLPA 626</td>
<td>Diagnosis of Plant Diseases</td>
<td>2.0</td>
</tr>
<tr>
<td>PLPA 617</td>
<td>Molecular Plant Pathogen Interactions</td>
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<tr>
<td>PLPA 689</td>
<td>Bioinformatics</td>
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<tr>
<td>PLPA 665</td>
<td>Viral Vectors and Gene Therapy</td>
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<tr>
<td>PLPA 614</td>
<td>Pathogens, the Environment and Society</td>
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**Online Courses:**

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<th>Hours</th>
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<tbody>
<tr>
<td>PLPA 603</td>
<td>Online: Disease Management</td>
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Minimum Required Credit Hours for Graduate Students

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<tr>
<th>Course</th>
<th>M.S.</th>
<th>Ph.D.</th>
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<tbody>
<tr>
<td>PLPA 616</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PLPA 611 and lab (PLPA 613)</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>PLPA 626 or 623</td>
<td>2/3</td>
<td>2/3</td>
</tr>
<tr>
<td>PLPA 681</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PLPA 690</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>PLPA Electives</td>
<td>9/10</td>
<td>19/20</td>
</tr>
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</table>

Subtotal                                      | 22   | 33    |
Other Electives                               | 10   | 63    |
Minimum Total Credit Hours                     | 32   | 96    |

Deadlines for Completion of Degree Requirements

<table>
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</tr>
<tr>
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<tr>
<td>M.S.</td>
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<tr>
<td>Ph.D.</td>
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<td>Committee Formation</td>
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<td>Ph.D.</td>
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<td>Degree Plan Submission</td>
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<td>M. Ag.</td>
<td>2nd</td>
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<tr>
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<td>Research Proposal Submission</td>
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<tr>
<td>Final Seminar</td>
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<tr>
<td>M.S.</td>
<td>End of Program</td>
</tr>
<tr>
<td>Final Exam</td>
<td>End of Program</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>End of Program</td>
</tr>
</tbody>
</table>

*Semesters after 1st enrollment.
In addition, each year graduate students must submit an annual report for the Department Head’s review.
The total numbers of graduate students in the department remained fairly constant from 2006 to 2007, but we have seen a slight increase since 2008 to present. Currently, the department has 35 graduate students enrolled as M.S. or Ph.D. students.

The graph shows the relative diversity of graduate students in the department since 2006.

<table>
<thead>
<tr>
<th></th>
<th>Fall 2010</th>
<th>Fall 2009</th>
<th>Fall 2008</th>
<th>Fall 2007</th>
<th>Fall 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int - Male</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Int - Female</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Domestic Hisp - Male</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Domestic Hisp - Female</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Domestic Afr American - Male</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Domestic Afr American - Female</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Domestic White - Male</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Domestic White - Female</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>

The majority of our graduate students are female, and are evenly split between domestic and foreign. The next largest group is international male students.
Post-doctoral Students

The department hosts a sizable group of post-doctoral students. We consider post-doctoral student training as extremely important as described in the Teaching section. Currently the majority of post-doctoral students are foreign males and females. It has been difficult traditionally to attract as many domestic post-doctoral students into the department.

<table>
<thead>
<tr>
<th></th>
<th>Fall 2010</th>
<th>Fall 2009</th>
<th>Fall 2008</th>
<th>Fall 2007</th>
<th>Fall 2006</th>
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</thead>
<tbody>
<tr>
<td>Int - Male</td>
<td>12</td>
<td>10</td>
<td>9</td>
<td>13</td>
<td>5</td>
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<tr>
<td>Int - Female</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>4</td>
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<tr>
<td>US - Male</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>US - Female</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Total</td>
<td>18</td>
<td>19</td>
<td>15</td>
<td>18</td>
<td>8</td>
</tr>
</tbody>
</table>

Current & Recent Post-doctoral Students

<table>
<thead>
<tr>
<th>Name</th>
<th>Nationality</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cho, Jae-Min</td>
<td>US</td>
<td>Shim</td>
</tr>
<tr>
<td>Christensen, Shawn A</td>
<td>US</td>
<td>Kolomiets</td>
</tr>
<tr>
<td>Das, Mayukh</td>
<td>India</td>
<td>Gonzalez</td>
</tr>
<tr>
<td>Ding, Shengli</td>
<td>China</td>
<td>Kenerley</td>
</tr>
<tr>
<td>Ek Ramos, Maria J</td>
<td>Mexico</td>
<td>Dickman</td>
</tr>
<tr>
<td>Kim, Jung E</td>
<td>Korea</td>
<td>Shim</td>
</tr>
<tr>
<td>Liu, Wen D</td>
<td>US</td>
<td>Dickman</td>
</tr>
<tr>
<td>Mandadi, Kranthi K</td>
<td>US</td>
<td>Kenerley</td>
</tr>
<tr>
<td>Moran Diez, Maria E</td>
<td>Spain</td>
<td>Kenerley</td>
</tr>
<tr>
<td>Ravidran, Aravind</td>
<td>India</td>
<td>Gross</td>
</tr>
<tr>
<td>Shi, Weibing</td>
<td>China</td>
<td>Yuan</td>
</tr>
<tr>
<td>Shin, Su Young</td>
<td>China</td>
<td>Yuan</td>
</tr>
<tr>
<td>Song, Yaling</td>
<td>China</td>
<td>Yuan</td>
</tr>
<tr>
<td>Veluchamy, Selvakumar</td>
<td>India</td>
<td>Dickman</td>
</tr>
<tr>
<td>Yan, Yuanxin</td>
<td>China</td>
<td>Kolomiets</td>
</tr>
<tr>
<td>Vacant, Wu, Shujing</td>
<td>China</td>
<td>Shan</td>
</tr>
<tr>
<td>Vacant, Manebayeva, Shuga</td>
<td>Kazakhstan</td>
<td>Scholthof</td>
</tr>
<tr>
<td>Vacant, Luo, Jijing</td>
<td>China</td>
<td>deFig</td>
</tr>
</tbody>
</table>
Graduate Student Support

Graduate students are funded via one of three categories:

- Graduate Assistant - Teaching (GAT).
- Graduate Assistant - Non-Teaching (GANT.)
- Graduate Assistant - Research (GAR).

These are the definitions of these categories.

1. GAT (Graduate Assistant - Teaching)
   "any employee with a primary duty of teaching, tutoring, instructing or lecturing in the activity of imparting knowledge and who is employed and engaged in this activity as a teacher in an educational establishment by which the employee is employed."

2. GANT (Graduate Assistant - Non-Teaching)
   assists with teaching (class/lab preparation, grade papers, maintain facilities, etc.), but does not have any of the primary duties listed under GAT; e.g. does not teach, instruct, lecture, impart knowledge, etc.

3. GAR (Graduate Assistant - Research)
   "assists in research in the course of obtaining advanced degrees and where the research is performed under the supervision of a member of the faculty in a research environment."

The PLPM Department currently funds graduate students at the following rates regardless of title:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Monthly stipend</th>
<th>Approx. Annual Amt</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S.</td>
<td>$1,583.00</td>
<td>$18,996.00</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>$1,633.00</td>
<td>$19,596.00</td>
</tr>
</tbody>
</table>
The Department has a number of additional activities to enrich the graduate experience at Texas A&M.

**Program for the Biology of Filamentous Fungi (PBoFF)**

The Program for the Biology of Filamentous Fungi (PBoFF) at Texas A&M was established in 1991 through a grant from the Texas Agricultural Experiment Station to support two graduate students per year for a period of two years. The Program was expanded by a Graduate Research Traineeship Program grant from the National Science Foundation that was active from 1994 through 2000 for $566,500 to provide 25 student-years of support. Currently, 17 faculty in the Departments of Plant Pathology and Microbiology, Biochemistry and Biophysics, and Biology participate in the training program. A more recent National Needs Fellowship award supported two students from 2007 to 2010. The group web site ([http://pboff.tamu.edu](http://pboff.tamu.edu)) provides an introduction to the faculty group and research programs.

**Graduate Student Club**

The Graduate Student Club is composed of the graduate students attached to any Principal Investigator in the Plant Pathology and Microbiology department. Each year the students elect a President, a Vice President, and a Treasurer. The students meet monthly to discuss news in the department and plan social events. Rotating selections of graduate students attend regular and emergency faculty meetings and update the other graduate students on departmental affairs. The graduate student club officers plan parties and socials for the entire department, as well as events exclusively for the graduate students. The officers act as liaisons between the students and faculty and keep the club organized.

Current Officers:  
*President* – David Laughlin  
*Vice President* – Jessica Williams  
*Treasurer* - Julia Cope  
*GSC Liaisons* – Ismael Pesquera and Christopher Lyons

**Robigalia**

The Graduate Student Club helps sponsor the Robigalia, a celebration following the annual PBoFF symposium. Robigalia was an ancient Greek festival to pay homage to the gods in a plea to prevent wheat rust epidemics that year. The grad students dress up in “traditional” clothing and act out the Robigalia ceremony at the event.
Graduate Minority Programs

The Department of Plant Pathology and Microbiology is involved in two graduate minority programs, the Alfred P. Sloan Foundation's Minority Ph.D. Program and the USDA-funded Hispanic Leaders in Agriculture and the Environment Program (HLAE). Dr. Carlos Gonzalez is the Sloan Project Director for the program that currently funds six minority graduate students in the department. The HLAE program has sponsored 104 students at the M.S. or Ph.D. level in the past 8 years in the College of Agriculture and Life Sciences. Currently seven students in PLPM are part of the HLAE program.

Minorities in Agriculture Natural Resources and Related Sciences (MANRRS)

The Department of Plant Pathology and Microbiology has been the host department for the Texas A&M Chapter of the Society for Minorities in Agriculture Natural Resources and Related Sciences (MANRRS) for the last six years. MANRRS is a national society that promotes the involvement of minorities in agriculture and related sciences, and is made up of a national office with chapters established at colleges and universities throughout the United States. Membership is open to people of all racial and ethnic backgrounds who support the objective of full ethnic group participation and achievement in agricultural and related science careers. Current membership is made up of over 1,800 undergraduate students, graduate students, and professionals and includes men and women of African American, Hispanic, Asian American, Native American, and European American backgrounds. There are 59 active chapter located at 1852, 1890 and 1990 universities. Currently the TAMU chapter membership includes 22 undergraduate and graduate students. In 2010 the Texas A&M Chapter won the “Chapter of the Year Award”. Dr. Carlos Gonzalez is the faculty advisor for the MANRRS chapter.
Challenges to the PLPM Graduate Program

The PLPM department faces similar graduate student issues as other Plant Pathology departments across the U.S. While the importance of plant pathology to worldwide agriculture continues to increase, there are fewer highly qualified students applying to plant pathology departments in general. To generalize, our challenges include:

- Recruitment
- Funding
- Space availability in faculty laboratories

The number of faculty in the department has only increased by three since the department was created in 1985. As our students are dependent primarily on competitive grant support, there is a limit to the number of students a faculty member can successfully manage. In addition, the support available through the college or university is limited and extremely competitive, making increases in the numbers of graduate students a slow process. One area that is always problematic is financial support. PLPM ranks third from the bottom in graduate student stipends.
### Graduate Student Awards

<table>
<thead>
<tr>
<th>Name</th>
<th>Award</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crutcher, Frankie</td>
<td>USDA National Needs Fellowship</td>
<td>2005 - 2008</td>
</tr>
<tr>
<td>Djonovic, Slavica</td>
<td>Graduate Fellowship, Storkan-Hanes-McCaslin Foundation</td>
<td>2005</td>
</tr>
<tr>
<td>Djonovic, Slavica</td>
<td>Nicholson Fellowship, PLPM, TAMU</td>
<td>2005</td>
</tr>
<tr>
<td>Lee, Soo Chan</td>
<td>Student Mentor Travel Award, Mycological Society of America</td>
<td>2005</td>
</tr>
<tr>
<td>Li, Dan</td>
<td>Nicholson Fellowship, PLPM, TAMU</td>
<td>2005</td>
</tr>
<tr>
<td>Park, Yong-Soon</td>
<td>Overseas Student Scholarship, South Korea</td>
<td>2005 - 2006</td>
</tr>
<tr>
<td>Records, Angela</td>
<td>Gamma Sigma Delta Honor Society</td>
<td>2005 - 2009</td>
</tr>
<tr>
<td>Ancona, Veronica</td>
<td>Pathways to the Doctorate Program Fellowship</td>
<td>2006</td>
</tr>
<tr>
<td>Records, Angela</td>
<td>I.E. Melhus Award, APS</td>
<td>2006</td>
</tr>
<tr>
<td>Sagaram, Uma</td>
<td>Outstanding Achievement Award, PLPM, TAMU</td>
<td>2006</td>
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<td>Sagaram, Uma</td>
<td>Academic Excellence Award, TAMU</td>
<td>2006 - 2007</td>
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<tr>
<td>Torres, Cruz</td>
<td>Certificate of Appreciation, Minorities in Agriculture, Natural</td>
<td>2006</td>
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<tr>
<td></td>
<td>Resource and Related Sciences</td>
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<tr>
<td>Hammett, Amy Jo</td>
<td>Regent’s Fellowship, TAMU</td>
<td>2007</td>
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<tr>
<td>Lee, Soo Chan</td>
<td>American Society for Microbiology Poster Award, Fungal Genetics Meeting</td>
<td>2007</td>
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<tr>
<td>Lee, Soo Chan</td>
<td>Nicholson Fellowship, PLPM, TAMU</td>
<td>2007</td>
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<tr>
<td>Lee, Soo Chan</td>
<td>Graduate Student Excellence Award, PLPM, TAMU</td>
<td>2007</td>
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<tr>
<td>Records, Angela</td>
<td>Council Award, APS</td>
<td>2007</td>
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<tr>
<td>Sagaram, Uma</td>
<td>13th George W Kunze Prize, OGS, TAMU</td>
<td>2007</td>
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<tr>
<td>Torres, Cruz</td>
<td>Certificate of Appreciation, Minorities in Agriculture, Natural</td>
<td>2007</td>
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<td>Resource and Related Sciences</td>
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<tr>
<td>Ciomperlik, Jessica</td>
<td>Competitive Graduate Student Travel Award, APS</td>
<td>2008</td>
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<tr>
<td>Ciomperlik, Jessica</td>
<td>Willy May Harris Charitable Trust Graduate Fellow, COALS, TAMU</td>
<td>2008</td>
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<tr>
<td>Hsieh, John</td>
<td>Competitive Graduate Student Travel Award, ASV</td>
<td>2008</td>
</tr>
<tr>
<td>Malapi-Nelson, Martha</td>
<td>Gamma Sigma Delta Honor Society</td>
<td>2008 - 2010</td>
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<td>Malapi-Nelson, Martha</td>
<td>Dick Stuckey Public Policy Award, APS</td>
<td>2008</td>
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<tr>
<td>Park, Yong-Soon</td>
<td>Travel Award, APS</td>
<td>2008</td>
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<tr>
<td>Park, Yong-Soon</td>
<td>Travel Award, PLPM, TAMU</td>
<td>2008</td>
</tr>
<tr>
<td>Park, Yong-Soon</td>
<td>Travel Award, American Society of Plant Biologists</td>
<td>2008</td>
</tr>
<tr>
<td>Torres, Cruz</td>
<td>Travel Award, APS</td>
<td>2008</td>
</tr>
<tr>
<td>Torres, Cruz</td>
<td>3rd Place, Graduate Student Oral Presentation Competition, APS</td>
<td>2008</td>
</tr>
<tr>
<td>Torres, Cruz</td>
<td>Honorary Mention, Graduate Student Research Poster, AgriLife Conference</td>
<td>2008</td>
</tr>
<tr>
<td>Ortiz, Carlos</td>
<td>Regional Vice President Service Award, MANRRS</td>
<td>2008 - 2009</td>
</tr>
<tr>
<td>Name</td>
<td>Award Description</td>
<td>Year</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Ancona, Veronica</td>
<td>Graduate Student Travel Award, COALS</td>
<td>2009</td>
</tr>
<tr>
<td>Ancona, Veronica</td>
<td>Graduate Student Travel Award, PLPM, TAMU</td>
<td>2009</td>
</tr>
<tr>
<td>Chung, Dawoon</td>
<td>Outstanding Presentation, International Aspergillus Community Meeting</td>
<td>2009</td>
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<tr>
<td>Laughlin, David</td>
<td>Hispanic Leadership Fellowship</td>
<td>2009 - 2011</td>
</tr>
<tr>
<td>Lundy, Donna</td>
<td>Graduate Program Enhancement</td>
<td>Fall 2009</td>
</tr>
<tr>
<td>Malapi-Nelson, Martha</td>
<td>Monsanto Conference Scholarship</td>
<td>2009</td>
</tr>
<tr>
<td>Malapi-Nelson, Martha</td>
<td>International Education Fee Scholarship, TAMU</td>
<td>2009</td>
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<tr>
<td>Ortiz, Carlos</td>
<td>SLOAN Fellowship</td>
<td>2009</td>
</tr>
<tr>
<td>Ortiz, Carlos</td>
<td>National Graduate Student President Service Award, MANRRS</td>
<td>2009 - 2010</td>
</tr>
<tr>
<td>Pesquera, Pedro Ismael</td>
<td>Regents Fellowship, TAMU</td>
<td>2009</td>
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<tr>
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<td>SLOAN Foundation Fellowship</td>
<td>2009</td>
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<td>de la Garza, Laura</td>
<td>Diversity Fellowship</td>
<td>2010</td>
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<td>COALS Scholarship, TAMU</td>
<td>2010</td>
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<td>Malapi-Nelson, Martha</td>
<td>Academic Excellence Award, TAMU</td>
<td>2010</td>
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<td>Malapi-Nelson, Martha</td>
<td>Shibata International Memorial Scholarship, TAMU</td>
<td>2010</td>
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<tr>
<td>Malapi-Nelson, Martha</td>
<td>Tina Watkins Scholarship, TAMU</td>
<td>2010</td>
</tr>
<tr>
<td>Park, Yong-Soon</td>
<td>Travel Award, PLPM, TAMU</td>
<td>2010</td>
</tr>
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</table>
Recent M.S. and Ph.D. Graduates: Thesis Abstracts

<table>
<thead>
<tr>
<th>Student</th>
<th>Major Advisor</th>
<th>Thesis Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec '10:</td>
<td></td>
<td>Role of Programmed Cell Death in Disease</td>
</tr>
<tr>
<td>Hyo-Jin Kim</td>
<td>M. Dickman</td>
<td>Development of <em>Sclerotinia sclerotiorum</em></td>
</tr>
</tbody>
</table>

Plant programmed cell death (PCD) is an essential process in the outcome plant-pathogen interactions. PCD can have contrasting effects following pathogen challenge depending on context of the interaction and the lifestyle of the pathogen. For example, plant PCD in plant-biotroph interactions is clearly beneficial to plants, whereas it could be detrimental to plants in plant-necrotroph interactions. *Sclerotinia sclerotiorum* is studied in the Dickman lab and is an agriculturally and economically important necrotrophic pathogen. Previous studies have shown that *S. sclerotiorum* secretes oxalic acid (OA) to enhance *Sclerotinia* virulence by various mechanisms including induction of host PCD. Recently we have shown that reactive oxygen species (ROS) generation correlates with induction of PCD during disease development. Therefore, my studies focus on links between ROS, oxalate, and PCD, and how they impact *S. sclerotiorum* disease development. In Chapter II, I examined the involvement of reactive oxygen species (ROS) in pathogenic development of *S. sclerotiorum*. I identified and functionally characterized two predicted *S. sclerotiorum* NADPH oxidases (Nox1 and Nox2) by RNAi. Both nox genes appear to have roles in sclerotal development, while only Nox1-silenced mutants showed reduced virulence. Interestingly, the reduced virulence of the Nox1-silenced mutant correlated with decreased production of OA in the mutant. This observation suggests that regulation of ROS by *S. sclerotiorum* Nox1 may be linked to OA. In Chapter III, I detail the phenotype of plants inoculated with an *S. sclerotiorum* oxalate deficient mutant (A2), which showed restricted growth at the infected site. This response resembles the hypersensitive response (HR), and is associated with plant resistance responses including cell wall strengthening, plant oxidative burst, and induction of defensin genes. Conversely, leaves infected with wild type showed unrestricted spreading of cell death and were not associated with these resistant responses. Furthermore, a *Caenorhabditis elegans* anti-apoptotic gene (ced-9) conferred resistance to wild type *S. sclerotiorum* as reported by Dickman, while this gene had negligible effects on the phenotype of plant leaves inoculated with A2 mutants. These findings suggest that HR-like cell death by A2 and PCD by wild type *S. sclerotiorum* may be regulated by different pathways.

As a whole, these results reveal the importance of ROS, oxalate, and PCD in *Sclerotinia* disease development as well as the significance of interplay between them. These studies contribute to the understanding of underlying mechanisms of *Sclerotinia* disease.

Dec ‘10

Yulan Zhang L. Shan *Salmonella Infection and Death of Arabidopsis Seedlings in Liquid Medium*

Human enteric pathogen *Salmonella* contaminates raw produce and triggers significant economic loss and illness. Under a natural environment, *Salmonella* resides in soil and enters the interior of plants without causing disease or eliciting symbiotic growth. Upon being consumed by humans, complex virulence mechanisms are elicited by the specific intestine conditions, such as high temperature and humidity and lead to profound infection. The lack of effective prevention and drug treatment are largely attributed to the unclear mechanistic understanding on *Salmonella* association with environmental media, and in vivo host and pathogen factors required for persistent infection. We have explored the potential of deploying the model plant organism Arabidopsis thaliana to tackle this fundamental yet clinically challenging question, as Arabidopsis possesses many advantages as a model system, including enriched genomic resources, powerful genetic tools, low maintenance cost and a large collection of individual gene deletion mutants. Our preliminary data demonstrated Arabidopsis seedlings under liquid culture conditions mimicking the intestine environment were infected and killed by salmonella within 2 days upon inoculation. The Arabidopsis system possesses well-developed genetic information and the resources to study host factors required for infection on very short time scales, thus complementing traditional animal genetic studies. We aim to define the pathogen factors required for this infection. By merging the fields of extremely powerful Arabidopsis genetics and bacterial genetics/genomics, we hope to provide insight into possible new paradigms for addressing salmonella-mediated food born infection.
Recent M.S. and Ph.D. Graduates

Aug '10:
Chestley Miller  J. Starr  Non-thesis MS

Aug '10:
Charles Greenwald  H. Wilkinson  Evolution of Genes and Gene Networks in Filamentous Fungi

The Pezizomycotina, commonly known as the filamentous fungi, are a diverse group of organisms that have a major impact on human life. The filamentous fungi diverged from a common ancestor approximately 200 – 700 million years ago. Because of the diversity and the wealth of biological and genomic tools for the filamentous fungi it is possible to track the evolutionary history of genes and gene networks in these organisms. In this dissertation I focus on the evolution of two genes (lolC and lolD) in the LOL secondary metabolite gene cluster in Epichloë and Neotyphodium genera, the evolution of the MAP kinase-signaling cascade in the filamentous fungi, the regulation of the gene networks involved in asexual development in Neurospora crassa, and the identification of two genes in the N. crassa asexual development gene network, acon-2 and acon-3. I find that lolC and lolD originated as an ancient duplication in the ancestor of the filamentous fungi, which were later recruited in the LOL gene cluster in the fungal endophyte lineage. In the MAP kinase-signaling cascade, I find that the MAPK component is the most central gene in the gene network. I also find that the MAPK signaling cascade originated as three copies in the ancestor to eukaryotes, an arrangement that is maintained in filamentous fungi. My observations of gene expression profiling during N. crassa asexual development show tissue specific expression of genes. Both the vegetative mycelium and the aerial hyphae contribute to the formation of macroconidiophores. Also, with the help of genomic tools recently developed by researchers in the filamentous fungal community, I identified NCU00478 and NCU07617 as the genes with mutations responsible for two aconidial strains of N. crassa, acon-2 and acon-3 respectively.

May '10:
Joon-Hee Shin  W. Shim  Characterization of PP2A Regulatory B Subunits in Fusarium verticillioides

Fusarium verticillioides is a pathogen of maize causing ear rot and stalk rot. The fungus also produces fumonisins, a group of mycotoxins linked to disorders in animals and humans. A cluster of genes, designated FUM genes, plays a key role in the synthesis of fumonisins. However, our understanding of the regulatory mechanism of fumonisin biosynthesis is limited. It was previously demonstrated that Cpp1, a protein phosphatase type 2A (PP2A) catalytic subunit, negatively regulates fumonisin production and is involved in cell shape maintenance. Typically, a structural A subunit, a catalytic C subunit, and a regulatory B subunit form PP2A heterotrimer complex. Significantly, there are two PP2A regulatory subunits in F. verticillioides genome, Ppr1 and Ppr2, which are homologous to Saccharomyces cerevisiae Cdc55 and Rts1, respectively. Based on preliminary data, I hypothesized that Ppr1 and Ppr2 are independently involved in the regulation of fumonisin biosynthesis and/or cell development, and to test this hypothesis I generated gene-deletion mutants of PPR1 and PPR2. The ppr1 deletion strain (Δppr1) resulted in drastic growth defect, but with increased microconidia production. The ppr2 deletion mutant strain (Δppr2) showed elevated fumonisin production similar to the Δcpp1 strain. Germinating Δppr1 conidia formed abnormally swollen cell with central septation. Δppr2 showed early hyphal branching during conidia germination. Results from this study suggest that two PP2A regulatory subunits in F. verticillioides carry out unique roles in regulating fumonisin biosynthesis and fungal development.
Post-doctoral Student Mentoring and Professional Development

The oversight and career enhancement of post-doctoral students currently is not recognized at Texas A & M University as formal teaching as compared to undergraduate and graduate teaching. Post-doctoral students historically are viewed as research-intensive workers with no additional interests other than generating sufficient publications for funding and to obtain an academic or industry position.

However, we believe this view is no longer valid as most post-doctoral students face increased competition for professional positions and many become non-tenured lecturers. Additionally, most post-doctoral students have only recently completed their graduate degrees and still have much to learn in regards to becoming a successful scientist.

Discussion between the department’s post-doctoral students and the Department Head over the past year has led to the implementation of a post-doctoral assessment program that includes:

- Annual Post-doctoral report submitted to the Department Head for review.
- Assignment of a seminar speaker selection to the post-doctoral student committee. The post-doctoral students are charged to identify and invite a seminar speaker, and arrange the schedule for the visiting speaker. This will provide experience in arranging visits.
- Continuation of the meeting slot specifically between the post-doctoral students and the visiting speaker. This enables good rapport and allows post-doctoral students the chance to discuss a wide range of topics with each speaker.
- Continuation of guest lectures. Post-doctoral students are encouraged to request lecture slots in departmental faculty courses so they can practice their teaching organization and presentation. Since many post-doctoral students will be working in academia and will be expected to teach, this is a great opportunity.
- Continuation of the post-doctoral student monthly meetings.

This is the first year of this new approach and they will be re-visited this year in order to make further refinements. We are very good at training our post-doctoral students how to perform, analyze and publish research. However, these are only a few of the skills needed by new faculty members.

Future:
One addition the DH would like to see is the instigation of training for our post-doctoral students on the following topics:

- Budget management
- Personnel management
- Balancing work and home life

During these 1-2 lectures per topic discussions, post-doctoral students would listen to presentations by faculty and staff on each of these topics. Outside presenters from Human Resources and the Office of Grants and Contracts would be invited, as would experts in pre-award and post-award management to present ways for post-doctoral students to be better prepared for their professional careers.
Assessment of Undergraduate and Graduate Student Learning

General Overview: Assessment of Student Learning

Texas A&M University recently implemented a more formal approach to evaluating student learning performance. The key terminology in this approach is assessment, defined as the systematic collection, review, and use of information about educational programs and other support programs undertaken for the purpose of program improvement, student learning, and development.

In 2008, the Department of Plant Pathology and Microbiology implemented the beginnings of its student assessment process. The department instituted a new Graduate and Undergraduate Assessment Committee. The committee is responsible for the development and implementation of appropriate assessment criteria to evaluate the effectiveness of faculty instruction and student learning outcomes. The committee spear-headed the development of a Departmental Assessment Plan, which identifies expected outcomes for our undergraduate and graduate programs. The Assessment Plan also determines when the identified outcomes will be assessed. As stated on the University Office of Institutional Assessment (OIA) website (http://assessment.tamu.edu/asmt/methods.htm), direct methods require students to produce work so that reviewers can assess how well students meet expectations, while indirect methods of assessment provide opportunities for students to reflect on their learning experiences and provide feedback to instructors regarding their learning experience.

Assessment of student learning uses multiple methods to gather information about student learning, including direct and indirect and qualitative and quantitative assessment methods. The basic principle of assessment for improving student learning is shown graphically below.

During 2008 the Graduate and Undergraduate Assessment Committee developed the department’s first assessment plan. This plan was revised during 2009 and is being revised again during the current year. The Graduate and Undergraduate Assessment Committee described an update of the process during a faculty-wide meeting in November, 2010. The university is currently writing the narratives for evaluation of assessment which after review by an off-site committee will become the method of evaluation of individual department assessment plans.

Since the overall objectives of undergraduate and graduate student learning are related, we have included the assessment plans for each in this one section of the APR document. The sections below describe the principles and goals of the assessment plans for both the undergraduate BESC degree and the graduate PLPM degree.
Assessment of Undergraduate Student Learning: The BESC major

Plant Pathology and Microbiology does not offer a B.S. degree in Plant Pathology. The department offers a B.S. degree in Bioenvironmental Sciences (BESC) with approximately 229 majors this year. The department formed the Undergraduate Program Committee (UPC) which periodically reviews BESC course content. This committee determines:

- Are the appropriate subject areas being covered?
- Are there additional areas that need to be added to the curriculum?
- Are there areas that are no longer of relevance to the field and which should be discontinued?

In designing the BESC major curriculum, several of the BESC-specific courses cover topics that directly integrate plant-microbe and plant pathology concepts. These courses serve two purposes, to expose students to major bioenvironmental concepts and to expose them to the importance of microorganisms in everyday life.

However, in addition to consideration of course focus and content, it is also important to measure how well students are mastering the subject matter. This is the basis for assessment of student learning outcomes. In 2009 the department formed the Graduate and Undergraduate Assessment Committee. This relatively new committee is charged with interacting with the Office of Institutional Assessment at Texas A&M (http://assessment.tamu.edu/) to develop the methodologies and matrices to assess undergraduate learning.

Mission/Purpose of Bioenvironmental Science

Promote a creative, challenging, and relevant educational environment in bioenvironmental sciences that emphasizes student inquiry, scholarship, and integrity in preparation for leadership roles in a knowledge-oriented society. To meet this purpose, the curriculum has several goals.

Goals of the BESC Program:

G1: Communicate effectively. BESC students will learn to communicate effectively using the language of environmental professionals.

G2: Critical thinking. BESC students will develop the ability to take robust positions on complex environmental issues by developing their critical thinking and argument developmental skills.

G3: Obtain core competency. BESC students will obtain a vigorous level of competency in core skills necessary for environmental professionals.

G4: Become professionally engaged. BESC students will become engaged in professional societies in the field of environmental sciences and will remain engaged throughout their careers.

These goals have specific student learning outcomes. These outcomes are associated with specific courses and measurements.

O1: Present effective oral presentations.

O2: Improve argument development and critical thinking skills.

O3: Develop technical competency.

O4: Take an active interest in professional engagement and outreach.

O5: Graduates will be satisfied with the education they received.
Each of these outcomes is associated with specific courses and course objectives, environmental society membership in the National Association of Environmental Professionals (NAEP), and internship experiences. The success of each of these outcomes is measured by specific achievement targets, such as improved writing scores and oral presentation scores, core competencies, membership in professional societies, and an exit survey (see end of this section).

Two examples of how these outcomes are measured include:
Oral presentations are embedded in two BESC courses (BESC 204; and BESC 403). A standardized assessment metric is applied to a statistically significant number of student presentations by each instructor concomitant to the course grading structure. This metric is used to monitor students as they move through the curriculum as well as to monitor effective teaching strategies within each course from year to year. Data is compiled and analyzed by the Departmental Assessment Committee.

Assessment of technical competency is embedded into four BESC/PLPA courses (PLPA 301, BESC 401, BESC 402, and BESC 367). In cooperation with course instructors, a simple course-specific questionnaire is given to students within the first two weeks of class. Identical questions are embedded in the course final exam or administered as a quiz near the end of the semester. A comparison between student performance upon entering and upon leaving the course assesses if students have grasped central concepts of the course. A statistically appropriate number of student outcomes are recorded by the Assessment Committee.

Use of Assessment Outcome for Curricular Improvement

Based on the degree by which the learning goals are met, changes in the BESC program are being implemented. For example, for 2010-2011 a Capstone course has been prepared and is being implemented for the first time in Spring 2011. In the capstone course, students further refine the communication skills and technical competency in environmental sciences.

**Capstone course: BESC 481 Seminar**

**Course Objectives.** This is a capstone course for BESC majors. The intent of the course is to work individually and in small groups to analyze a single theme related to the major and to study the problem through readings, presentations, and writing. A theme will be introduced to the group, followed by students working individually and in small groups to define and understand the complexities within the theme by preparing presentations and a research paper on a subtheme. The course will meet weekly for direction by the instructor, but it is expected that the most of your research and preparation will take place outside of the classroom, either individually or in small groups. In using this course format, the intended outcome is to allow the student to draw from course material, the internship experience (BESC 484) and current events to analyze and understand a discrete aspect within the broad area of bioenvironmental sciences. The emphasis will be on problem solving and bringing theory (classroom) and practice (internship) to bear on the semester theme.
Assessment of Graduate Student Learning

General Overview: Graduate Plant Pathology major

Plant Pathology as a field has always had a sense of invisibility. Most people have heard of the Irish potato famine in the 1840s, but few really know much about the cause of the famine and why it led to the emigration of so many to the United States. Today plant diseases affect every aspect of agricultural production, and new and exotic diseases such as citrus greening, Zebra Chip, sweet orange scab, and others continue to appear and threaten the food security of the U.S. and the world.

Mission/purpose of Graduate Studies in Plant Pathology and Microbiology

- Promote a creative, challenging, and relevant educational environment in plant pathology that emphasizes student inquiry, scholarship, and integrity in preparation for leadership roles in a knowledge-oriented society.

To meet this purpose, the curriculum has several goals.

Goals of the Graduate PLPM Program:

G1: Communicate effectively. Students will learn to communicate effectively as scientists using field-specific language of the fields of Plant Pathology, Microbiology and Plant Health.

G2: Develop hypotheses. Students will develop the ability to take robust positions on complex environmental issues by developing their critical thinking and argument developmental skills.

G3: Obtain core competency. Students will obtain a vigorous level of competency in core skills necessary of Plant Pathologists and Microbiologists.

These goals have specific student learning outcomes. These outcomes are associated with specific courses and measurements.

O1: Enhance communication skills.
O2: Develop and implement a research project.
O3: Exhibit comprehensive knowledge.
O4: Demonstrate research findings.
O5: Discuss research proficiently.

Each of these outcomes is associated with specific courses and course objectives, research laboratory training and skill development, and experiences in presenting research results both orally and in writing. The success of each of these outcomes is measured by specific achievement targets or benchmarks. Two specific examples of these measures include:

- Within the first year of enrolling in the graduate program in the Department of Plant Pathology Microbiology, each graduate student is expected to have formed a graduate committee (these targets are monitored by the Department).
- Each student is required to hold a yearly committee meeting (including the first year) during which the student’s committee provides feedback on the student’s progress towards obtaining the sought degree. Doctoral students submit a dissertation research proposal by the 4th semester of enrollment. Student advisory committees and research advisors work with the students in developing this research proposal. Benefits to the
students include development of: critical thinking skills, communication skills, and comprehensive knowledge in their field.

Graduate students prepare and defend a dissertation (Ph.D.) or thesis (M.S.) to present their research outcomes, and must be able to discuss and defend their hypotheses and conclusions to their official committee.

Benchmarks for Graduate Program Success:

The department employs multiple benchmarks to assist our students to reach their potential, including:

- Achievement of adequate scores in PLPA 611 Advanced Plant Pathology, PLPA 613 Advanced Plant Pathology Laboratory, and PLPA 616 Methods in Molecular Biology of Plant-Microbe Interactions
- Submission of approved degree plan
- Submission of approved research proposal
- Successful completion of preliminary exam for entrance to doctoral candidacy
- Approval of thesis or dissertation by the student’s committee
- Successful passage of final departmental seminar
- Successful passage of final exam

Based on the degree by which the learning goals are met, changes in the Graduate Ph.D./M.S. programs can be implemented. For example, after 2009 several changes were implemented to improve the program:

1. Seminar evaluation form. This form allows graduate committee members to make specific recommendations to the student after they have presented a seminar. This form exists but has not been utilized effectively.
2. The curriculum was restructured to include more required courses and to integrate the principles of epidemiology into multiple courses.
3. The new Department Head instituted a requirement for an Annual Graduate Student Report. The goal of the reports is to allow each student to reflect on their progress over the past year and to help identify milestones that they need to reach during the upcoming year. Areas covered include:

Part A: Formal coursework and benchmarks:
- Courses taken during the report period (or submit copy of degree plan).
- Formation of an advisory committee.
- Degree plan submission.
- Research proposal submission.
- Preliminary exam scheduling (for Ph.D. students).
- Anticipated date of degree completion.

Part B: Activities:
- Teaching or mentoring activities.
- Student supervision.
- Outreach activities.
• Description of research progress during reporting period and results that furthered the student’s research hypotheses.
• Problems or unanticipated events.
• Meetings attended.
• Publications, abstracts, posters, talks or seminars presented.
• Awards and recognition received.

Part C: Milestones to be achieved over the next year.
• Scholastic.
• Research.

The reports are reviewed by the Department Head.
Assessment of Faculty Teaching Proficiency

Department of Plant Pathology and Microbiology faculty are expected to be exceptional instructors. Faculty take their role in training students at both the undergraduate and graduate levels seriously. In fact, every course (except one summer course) is taught by tenured or tenure-track faculty. The department operates under the philosophy that faculty teaching is evaluated for purposes of:

- Enhancing teaching proficiency
- Promoting and rewarding teaching excellence

Faculty are encouraged to evaluate/review their teaching methodologies throughout their careers. Initial assessment of teaching ability occurs during the recruitment process in the form of the job seminar and through meetings with faculty and students during which the candidate is asked to explain his/her teaching philosophy. Teaching quality is evaluated and discussed at each annual performance review meeting held by the Department Head. A faculty member’s teaching proficiency is evaluated at each step in the promotion process, especially during the pre-tenure period. New faculty members are encouraged to attend seminars and workshops on teaching, paid for by the department. The new Department Head is ‘sitting in’ on random lectures by junior faculty in order to observe and possibly make recommendations to the instructor.

Specific course content is periodically reviewed by the Undergraduate Program Committee (UPC) and the Graduate Program Committee (GPC). As a part of these reviews, results of student assessment are discussed and used where appropriate to make changes in the curriculum or to make suggestions to faculty on ways to improve their teaching quality. For example, the BESC curriculum has undergone several modifications and changes. Additionally, the college and the university offer resources to assist faculty in assessing their own teaching competency.

In order to improve teaching, a number of indicators and testing instruments are available. There are a number of circumstances where teaching evaluation is necessary, such as during the annual performance review and during the promotion process at the departmental, college and university level. Faculty teaching performance is currently measured primarily by student evaluations. These evaluations are administered by the Academic Advisor and are submitted anonymously.

The results at the end of each semester are provided to the Department Head and Associate Department Head for Academic Programs who review them. Meetings can be arranged with any faculty member to discuss the scores in greater depth. The faculty member can use the results of the evaluations to make changes in their courses. The scores are discussed during the annual performance review with the Department Head.

The current methods for evaluating faculty teaching proficiency are being reviewed and proposed changes are being considered by the Interim Provost and the Executive Vice President at Texas A&M University (http://provost.tamu.edu/councils-task-forces/faculty-performance-evaluation/faculty-performance-evaluation).

Additionally, other criteria used to evaluate teaching success include:

- Appropriate use of technology in the classroom.
- Incorporation of web-based instructional materials.
Assessment of Faculty Teaching Proficiency

- Generation of web-based instructional materials.
- Generation of course specific instructional materials.
- Incorporation of distance learning opportunities where appropriate.
- Relevance of course content to major.
- Generation of Student Credit Hours (SCH).
- Comments from student exit interviews.
PLPM Faculty Teaching Assignments

Bioenvironmental Sciences Courses

BESC 201 Introduction to Bioenvironmental Sciences
T. DeWitt, L. Shan, H. Wilkinson, P. de Figueiredo
BESC 204 Molds and Mushrooms: The Impact of Fungi on Society and the Environment
B. Shaw
BESC 314-900/PLPA 614 Pathogens, the Environment, and Society
K-B. Scholthof
BESC 320 Water and the Bioenvironmental Sciences
Currently being revamped
BESC 357 Biotechnology for Biofuels and Bioproducts
J. Yuan
BESC 367 U.S. Environmental Regulations
H. Wilkinson
BESC 401 Bioenvironmental Microbiology
C. Gonzalez
BESC 402 Microbial Processes in Bioremediation
C. Kenerley
BESC 403 Environmental Sampling and Monitoring
W-B. Shim
BESC 484W Internship Experiences (a writing emphasis course)
Multiple instructors
BESC 484-900 Biodiversity, Agriculture and Culture in Taiwan
D. Ebbole
BESC 689/689-200 (Honors) Carbon Trading, Mediation and the Environment
K-B. Scholthof, J. Heath
GENE 310 Heredity
C. Magill
GENE 482 Seminar
C. Magill
Plant Pathology Courses

PLPA 301/601 Fundamentals of Plant Pathology
M. Kolomiets, J. Starr

PLPA 489 Turfgrass Pathology
Y-K. Jo

PLPA 603 Plant Disease Management
J. Starr

PLPA 610 Host Plant Resistance
J. Starr

PLPA 611 Advanced Plant Pathology
D. Ebbole

PLPA 613 Advanced Plant Pathology Laboratory
D. Gross, J. Starr

PLPA 616 Methods in Molecular Biology of Plant-Microbe Interactions
H. Scholthof

PLPA 617 Molecular Plant Pathogen Interactions
M. Kolomiets

PLPA 618 Phytobacteriology
D. Gross

PLPA 620 Plant Virology and Laboratory
H. Scholthof, K-B. Scholthof

PLPA 623 Diseases of Field Crops
Y-K. Jo

PLPA 625 Plant Pathogenic Fungi
D. Ebbole, B. Shaw

PLPA 626 Diagnosis of Plant Diseases
D. Appel

PLPA 630 Mycology, Physiology and Genetics
D. Ebbole

PLPA 631 Mycology Laboratory
D. Ebbole, B. Shaw

PLPA 632 Mycology: Cell Biology and Taxonomy
B. Shaw

PLPA 657 Biotechnology for Biofuels and Bioproducts
J. Yuan

PLPA 665 Special Topics in Virology: Viral Vectors and Gene Therapy
J. Leibowitz, H. Scholthof, B. Lupiani

PLPA 681 Seminar
Y-K. Jo

PLPA 689 Turfgrass Pathology
Y-K. Jo

PLPA 690 Theory of Research
M. Dickman, LS. Pierson

GENE 603 Genetics
C. Magill
1. Budget
This past year, the college and our department have been hit by severe budget reductions. PLPM is especially vulnerable to these reductions as it lacks many of the resources that exist in other departments in the college. For example, being a relatively new department, it was not assigned any large service courses to guarantee weighted student credit hours (WSCH). Thus, any changes to its core curriculum has large effects on its WSCH.

In order to understand the impacts of state budget recissions and reductions on the department, it is important to note how state funds are used. The figure below indicates that of the total state funds that the department is provided by the college, AgriLife research or AgriLife Extension, 96% are used for salary and 4% for operating. With so little operating funds, any budgetary reductions/recissions immediately affects departmental personnel. PLPM already ranks 11th of 14 departments in terms of support personnel.

![Plant Pathology & Microbiology State Appropriated Funds FY2011](image)

**Timetable of Recent Budget Reductions**

**A. FY10 February 5% State Budget Reduction**
In February 2010, the college and AgriLife Research and AgriLife Extension requested plans for a 5% budget reduction. This resulted in reductions across the 3 funding sources shown below, implemented with the budget cycle on Sept. 1, 2010.

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount Cut</th>
<th>Actual Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching (02)</td>
<td>$24,731.00</td>
<td>1.99%</td>
</tr>
<tr>
<td>Research (06)</td>
<td>$53,690.00</td>
<td>4.49%</td>
</tr>
<tr>
<td>Extension (07)</td>
<td>$59,191.00</td>
<td>7.76%</td>
</tr>
<tr>
<td><strong>Total reduction</strong></td>
<td><strong>$137,612</strong></td>
<td></td>
</tr>
</tbody>
</table>
The department was cut less than the anticipated 5% in teaching and research but was hit hardest in the extension budget possibly due to a presently unfilled position in Dallas. To make up the deficit in teaching salary, we shifted new faculty commitments to (06) research money. The extension (07) cut meant losing an important but currently vacant urban extension specialist position in Dallas. The department suspended assistance to faculty for defraying publication costs and support for the annual PBoFF conference, among other issues.

B. FY11 2.5% Budget Rescission
We were told to return 2.5% of the FY 11 AgriLife Research and AgriLife Extension Service budgets, equivalent to $26,112.95 and $17,896.00, respectively. As these returns must be in state dollars that would normally cover fringe benefits, shifting salaries to non-fringe bearing designated funds costs more and makes it more difficult to cover these budget cuts.

C. FY12-13 10-20% State Budget Reductions
The university is planning for even more severe budget reductions for the FY12-13 biennium. This is described as the worst budget situation faced by Texas education in over 70 years. Initial planning focused on a 10% decrease in funding across all categories (02, 06, and 07). The actual reduction will be at least 13.5% for the college (02), 18% for AgriLife Research (06), and 15% for AgriLife Extension (07). Part of these percentages (3.5%) are to cover current commitments. Therefore, the estimated total reduction is $475,011 when costs for two faculty promotions plus Accrued Compensation Absences Payout (ACAP) costs are factored in. This reduction will require drastic responses by the department, including:

- A reduction in faculty positions from 12 to 10 month appointments.
- A Reduction in Force (RIF) of 3-4 staff positions (1/3 of our total support staff).
- Use of IDC to run all departmental operations, travel, office, greenhouse and field costs.
- No 15-20K salary support funding available to augment CPT junior faculty position.

Whereas other departments are able to absorb some of the projected cuts by non-reappointing non-tenured lecturers, no longer funding full-time technicians for single faculty, and/or had eligible senior faculty take the Voluntary Separation Plan (VSP), Plant Pathology and Microbiology have no options in this regard. In reality, these reductions are even larger as fringe-bearing monies must be returned and our only means to cover the cuts is to use larger amounts of non fringe-bearing funds. The Department Head is currently weighing strategies for handling these budget cuts for FY12-13. Currently, the total funding lost from the department over 1 ½ years may be $612,623 not including the hopefully one-time 2.5% recession for FY11. No matter what size the cuts will ultimately be, they are having drastic effects on the department and its ability to train future students, or even to function!

Future Projections
- For the foreseeable future there will be few opportunities for departmental growth and badly needed facility and infrastructure improvements due to the budget situation.
- Scenarios for adding or replacing faculty positions in the department is poor.
- Recently, the Office for Graduate Studies Graduate Program Council announced plans to only fund in-state tuition for Ph.D. GATS or GANTS students but not GAR research students. This will also affect our abilities to fund graduate students.
2. **Infrastructure Limitations:**
The age and limitations of the Peterson Building (inadequate power, lack of backup power, facility antiquity) are also handicaps to departmental success.

**A. Space.**
The 2008 personnel snapshot by Texas A&M showed PLPM was composed of 117 people. The calculated space available in the department was 60,657 sq ft. The amount of actual space that should be available for a department of this size was 84,196 sq ft. Therefore, the department currently has only 72% of the total space it needs (a 28% deficit). The 2008 snapshot failed to account for the hiring of a new Department Head in Sept, 2009 with the concomitant return of the previous Department Head to the faculty ranks, adding 1 more faculty member. Additionally, another new faculty member is to be hired in 2011 for the Center for Phage Technology (CPT). This means two additional faculty members will be present plus their students and post-docs. The department often hosts visiting scientists and faculty. Last year PLPM hosted 8 visiting Borlaug Fellows which required providing office space and laboratory space.

**B. Facilities.**
The Peterson Building was constructed in the 1960’s. PLPM has made full use of its facilities but many aspects urgently need upgrading and renovation. Although the department is down 28% on space, much of the space available is divided into sub-optimal configurations, with small awkward rooms and even cases in which non-functional cold-rooms can only be used for storage. Therefore, the actual amounts of quality useable space is even less. It is difficult to be competitive in attracting top level scientists and even graduate students when they visit the department and see the facilities. The Borlaug Center is a major attraction due to its more recent design and facilities, but its space is mostly committed. Without renovation, the department will continue to have a competitive handicap compared to other departmental facilities across campus, such as the new research tower in Veterinary Medicine and more modern space located in Biochemistry and Biophysics. In order to attract the best candidate for the new CPT position, which offers an exciting and critical opportunity for the department to move into better alignment with recent changes in AFRI funding priorities, especially food safety and control of STEC issues and other bacterial food borne pathogens affecting animals, plants and humans, space for this position plus one of our faculty (C. Gonzalez) has been made available in the new NMR building next to Biochemistry and Biophysics. However, this building is on west campus, again physically separating the department across the campus.

**C. Separation from other COALS departments.**
PLPM is currently split into three locations. The main department is located in the Peterson Building on main campus. However, the Borlaug Center housing the Institute for Plant Genomics and Biotechnology (IPGB) and most of our junior faculty is located on west campus. The Texas Plant Disease Diagnostic Laboratory (TPDDL) is located further west in the Centeq Building. This physical separation hampers the informal interactions required for normal departmental functioning. Additionally, the other departments that faculty collaborate with on campus (Biochemistry and Biophysics, Horticulture, Entomology, Soil and Crop Sciences, etc) are all located on the west campus, further hindering collaborative efforts.
D. Greenhouses.
The department has 5 greenhouses. These are in need of continual work to even keep functional. Demand for greenhouse space varies over the year, but during peak seasons faculty are often forced to reduce their experiments to fit the available space. None of the greenhouses on main campus or the farm are BSL-2P compliant. The only BSL-2P compliant greenhouses are located in the Borlaug Center. There are currently no BSL-3P greenhouses on campus or elsewhere in Texas, severely limiting faculty’s abilities to compete for grants to study many current and emerging plant pathogens of importance to Texas, the U.S. or the world.

E. Seminar space.
One of the core functions of a department is to host a weekly seminar series, often including outside speakers. This seminar series is attended currently by 45-60 people. Recently, the only seminar room available in Peterson (Rm 113) was assigned to central room scheduling. We have lost access to this room, despite repeated efforts to negotiate its usage. Part of this issue is that while departmental seminars are well attended, only 5-6 students sign up each semester, which does not reflect the number of faculty, post-docs, graduate and undergraduate students and other visitors who regularly attend.

F. Power issues.
The need for power throughout the building is an ongoing issue. As research becomes more equipment intensive, some laboratories face occasional brownouts that often destroy experimental procedures (qPCR, etc). Additionally, several groups have large-scale culture collections that are used for bioenergy conversion studies, etc. The lack of a back-up power system for freezers is a major concern, as these collections are irreplaceable.

Summary:
The Peterson Building has served the department for many years. PLPM faculty have been very successful at obtaining extramural funding for their research programs. However, without major renovations and expanded space it is now hampering the ability of the department to expand its research and teaching missions for the college and the university. Without improvements in funding and infrastructure, the department will lose our competitiveness over time.

Possible short-term patches:
The Department Head is trying methods to shrink the distance across campus. Driving takes a substantial amount of time due to traffic, pedestrians and parking issues. A 6-passenger golf cart was purchased recently to facilitate movement of seminar speakers, visitors, faculty and students across campus. We are currently locating a suitable secure parking space for the cart to promote its usage. The possibility of linking video monitors at multiple sites to stimulate informational exchanges is being considered, but current budget limitations make this problematic.

3. Extramural Funding:
The department relies on extramural grants to support the majority of its research, extension and personnel activities. Over the past 5 years, departmental grant support has averaged $2.44 million/yr. There have not been large increases in the level of support partially due to space and facility limitations and the lack of new faculty members to the department. Grant sources
Impediments to Excellence

include national scientific agencies, foundations, commodity groups, and various commercial industries. Additional support for educational activities is also sought through training grants, fellowships and internships. The decreasing success rate in securing extramural support for programs due to reduced federal agricultural funding is generating faculty stress, as are the recent changes in national funding priority areas (e.g. NIFA). Faculty in plant pathology continue to walk a fine line maintaining programs of national and international interest while simultaneously remaining relevant to specific regional Texas crop issues. Commodity support in Texas is essential to our abilities to support Texas agriculture, but award sizes and length of funding limits how we can respond to pressing current and emerging pathogen issues. Another complicating factor is the slow turn-around of funding through the AgriLife Grants and Contracts office. This time constraint means that often faculty do not have the funds necessary to perform the work released until at least half the time period is over.
There are several areas which the department is currently discussing in order to improve its undergraduate and graduate programs.

1. Bioenvironmental Sciences Chair

Several years ago, the Department of Plant Pathology & Microbiology recognized the need for an undergraduate major focused on developing and implementing solutions to environmental problems. The Bioenvironmental Sciences (BESC) curriculum examines the interface between living components of the ecosystem and the physical environment, with an emphasis on plants and microorganisms. In some instances, technological advances that have increased our standard of living have contributed to air and water pollution, global warming (greenhouse effect), and the loss of biodiversity within ecosystems. Future technologies may lead to solutions of many of these problems. For example, genetically engineered microorganisms have been developed which may be used to detoxify hazardous wastes and to manage plant pests and pathogens through biological control. The Bioenvironmental Sciences curriculum is designed to train students in the development and/or application of these new technologies with a maximum of program flexibility. Students may choose to be technically trained in research and development or to study regulatory and ethical issues related to environmental stewardship. BESC students have the unique opportunity to build their networking skills prior to graduation by participating in our student chapter of the National Association of Environmental Professionals. Our graduates understand the concepts and the technology essential for prevention, assessment, and abatement of environmental problems.

Now is the opportune time for the establishment of an Endowed Chair in Bioenvironmental Sciences! The BESC major has grown rapidly, with 229 majors (Fall 2010) enrolled, and this number is projected to increase. Current and future environmental issues include climate change, carbon trading, water and food availability and safety, microbial threats, toxic wastes, and other damage to fragile ecosystems. The BESC major at Texas A&M ranked the 2nd most popular environmental sciences program in the country (www.stateuniversity.com/program/03-0104/environmental-science). The department has an outstanding Academic Advisor and a group of dedicated faculty that teach all aspects of the major. Opportunities for international experience in BESC have never been greater at Texas A&M. However, limits in space, teaching resources and faculty, plus limitation in current internship/mentoring opportunities, are hampering the full potential of the BESC program to be realized. Additionally, a large percentage of BESC majors transfer to the BESC program from other majors at Texas A&M and other universities and schools, putting them at a curriculum disadvantage. The Endowed Chair in Bioenvironmental Sciences would direct and guide the tremendous energy of the BESC program into the future and play a major role in enabling the major to reach its full potential.
2. New Undergraduate Courses
Described on the accompanying pages are two potential new courses: ‘Plants, Pathogens and People’ and ‘Regulatory Issues in Laboratory Management.’

*Plants, Pathogens and People*

**Rationale:**
The majority of students at Texas A&M University are non-science, non-agriculture majors and therefore lack an understanding of science and agriculture. And yet, these non-science, non-agriculture oriented students will become the future members of the legislature, BOR, and Congress that will decide budgets and priorities for agricultural science. Most of these non-science, non-agriculture students take basic biology as a science breadth requirement. However, none of these students are exposed to the importance of plants and their pathogens and how this has and continues to have major influences on human society. The fact that only 1.8% of the U.S. population still lives on farms, as compared to 33% of the world’s population, only adds to the importance of the topic. The department teaches two well-received courses (BESC 204) focused on the impact of fungi on society and (BESC 314/614) Pathogens, Environment and Society. However, these course are geared for science majors.

- **The major goal of the new course is to increase the average non-science student’s understanding of the importance of plant pathogens in the context of agricultural production across the world.**

**Course organization:**
The course will teach non-science non-agriculture students about major crop plants, their most important diseases, and the effects of pathogens on these crops and hence on society and civilization. Additionally, it will expose and educate them in regards to controversial issues in agriculture. The course will consist of two major sections.

**Section 1:**
This section will focus on historical accounts of how plant pathogens have influenced human society over time, including how pathogens have caused civilizations to move, changed societal perspectives, changed food staples, provided the basis for crop rotation, etc.

**Section 2:**
This section will introduce students to issues in agriculture, such as monoculture and genetic diversity, mycotoxins and food safety, pesticides and environmental quality, and genetic engineering and regulation of food production.

**Writing component:**
1. During the semester, four controversial agriculture issues will be presented. The students will write a position statement about each issue, including a justification for this position based on facts they have researched. This will require them to learn sufficient factual material to support their position and how to correctly cite sources. These position statements will be reviewed and returned to the students with suggestions for improvement. Only the final version of each document will be assigned a grade.
2. Additionally, students will be required to identify 2 press articles on aspects of plant pathogens and write a 1-2 page commentary on each.
The course will enable students who enroll to fulfill general education requirements in both natural science and composition.

In analogous courses at other institutions, students who are firmly convinced in regards to issues such as the use of pesticides or genetic engineering are forced to re-examine their initial positions as they become better informed about the science behind these issues.

**Grading:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 position statements</td>
<td>400 pts</td>
</tr>
<tr>
<td>2 popular press commentaries</td>
<td>200 pts</td>
</tr>
<tr>
<td>Midterm exam</td>
<td>100 pts</td>
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<tr>
<td>Final exam</td>
<td>100 pts</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>800 pts</strong></td>
</tr>
</tbody>
</table>

**Potential Lecture Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Irish potato famine</td>
</tr>
<tr>
<td>2</td>
<td>Introduction to the fungi, the major plant pathogens</td>
</tr>
<tr>
<td>3</td>
<td>Pathogens and quarantines</td>
</tr>
<tr>
<td>4</td>
<td>Bacterial pathogens and beneficial</td>
</tr>
<tr>
<td>5</td>
<td>Coliform contamination of produce</td>
</tr>
<tr>
<td>6</td>
<td>Plant disease epidemics, Robigalia</td>
</tr>
<tr>
<td>7</td>
<td>Pesticides, Plant Pathogens as herbicides</td>
</tr>
<tr>
<td>8</td>
<td>Soil borne pathogens</td>
</tr>
<tr>
<td>9</td>
<td>Fungi in foods, mycotoxins</td>
</tr>
<tr>
<td>10</td>
<td>Rusts requiring more than one host</td>
</tr>
<tr>
<td>11</td>
<td>Viruses, phytoplasmas</td>
</tr>
<tr>
<td>12</td>
<td>Plant disease management</td>
</tr>
<tr>
<td>13</td>
<td>Effects of global warming on plant pathogens</td>
</tr>
<tr>
<td>14</td>
<td>Summary and Integration</td>
</tr>
</tbody>
</table>

**Recommended Reading:**

Regulatory Issues in Laboratory Management
BESC 4XX (3 units)
Fall Semester 2011
Scheduled Meeting times/Locations
Lecture: Tuesdays/Thursdays, 2:00 – 3:15 PM

Instructor and Coordinator: Leland S. Pierson III
Office: Peterson 120A
E-mail: plpm-head@ag.tamu.edu

Course Objectives:
To expose students to the concepts and procedures used by regulatory oversight committees to ensure the safety and compliance of university research involving human subjects, animals, plants and microorganisms. This course is intended for students interested in lab management as a career, current lab managers and researchers, and students who plan on academic, government, or industry careers in the sciences.

The course will discuss the use of risk assessment and experts in regulatory compliance will provide background and information on current rules and regulations and approaches they use to ensure compliance in a large, complex university setting. Discussions on current regulatory oversight issues will be included to enable students to explore complex issues. This course will allow students to improve their written communication skills as well as team building and oral presentation.

<table>
<thead>
<tr>
<th>Instructors</th>
<th>Affiliation</th>
<th>email address</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXXXXXXXX</td>
<td>Quality Assurance Officer</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Director, Vet Diagnostic Laboratory</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Director, TPDDL</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Research Integrity Officer</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Research Professor, Cancer Center</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Director, Human Subjects Program</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Director, Research Compliance Privacy officer</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Director, University Animal Care</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Director, Radiation Safety</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Director, Risk Management</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Biosafety officer, IBC</td>
<td></td>
</tr>
<tr>
<td>XXXXXXXXXX</td>
<td>Director, Human Resources</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Invited Private Company Manager</td>
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<tr>
<td>XXXXXXXXXX</td>
<td>Invited Private Company Manager</td>
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</tbody>
</table>

Schedule of Lectures:
See end of syllabus.

Point Distribution:
The course has a total of 1,200 points distributed as follows:
Possible Opportunities

<table>
<thead>
<tr>
<th>Course</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term Exam</td>
<td>300</td>
</tr>
<tr>
<td>3 Homework Assignments</td>
<td>300</td>
</tr>
<tr>
<td>Written Final Exam</td>
<td>300</td>
</tr>
<tr>
<td>Group Oral Presentation</td>
<td>300</td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td>1,200</td>
</tr>
</tbody>
</table>

**Exams:**
One Mid-term (30 points) and one Final Examination (40 points). The exams will be based on concepts covered in the lectures plus outside reading assignments. Class notes will be sent via eLearning. Additional materials will be presented during class lectures or sent as a class email. These additional materials may be incorporated into the exams. You are responsible for any material presented in the lectures that go beyond the class notes. Therefore, attendance at lectures will be extremely beneficial to you.

**Homework:**
There will be three homework assignments (10 points each). In each of these, a scenario will be presented. It may be a real life situation, or may be hypothetical. You will need to think about the various viewpoints and render a decision with a succinct justification for your decision.

**Team Building:**
For the last part of the course, student teams (assigned by the Instructor) will research a topic and present the topic and an analysis of the relevant issues to the class using a combination of oral and PowerPoint slides. This presentation must include a summation of the issue, a history of this area, possible strategies to overcome problems, and a recommendation. Correct citation of sources of information is required. The class will act as a board with the authority to ask additional questions of the presenters. Credit will be assigned per effort of each team member as judged by the others and performance during the oral and PowerPoint presentation.
## Tentative Course Schedule

<table>
<thead>
<tr>
<th>Class Session</th>
<th>Topic and Event</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 31</td>
<td>Introduction to Regulatory Compliance/Risk Assessment</td>
<td></td>
</tr>
<tr>
<td>Sep 2</td>
<td>Good Laboratory Practices (GLP) Regulations FDA</td>
<td></td>
</tr>
<tr>
<td>Sep 7</td>
<td>Standard Operating Procedures/ Data Integrity</td>
<td></td>
</tr>
<tr>
<td>Sep 9</td>
<td>EPA/ISO/OECD</td>
<td></td>
</tr>
<tr>
<td>Sep 14</td>
<td>Case Study-Warning letter</td>
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<tr>
<td>Sep 16</td>
<td>GLPs in the molecular laboratory/Quality Assurance/</td>
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<tr>
<td></td>
<td>Clinical Laboratory Improvement Amendments (CLIA)</td>
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<tr>
<td>Sep 21</td>
<td>Ethical Considerations Underlying Regulations</td>
<td></td>
</tr>
<tr>
<td>Sep 23</td>
<td>Good Clinical Practices</td>
<td></td>
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<tr>
<td>Sep 28</td>
<td>Human Subjects: Internal Review Board (IRB)</td>
<td></td>
</tr>
<tr>
<td>Sep 30</td>
<td>Clinical trials and Regulations</td>
<td></td>
</tr>
<tr>
<td>Oct 5</td>
<td>Good Manufacturing Practices (GMP)</td>
<td></td>
</tr>
<tr>
<td>Oct 7</td>
<td>Case study- VIOXX</td>
<td></td>
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<tr>
<td>Oct 12</td>
<td>Research Integrity</td>
<td></td>
</tr>
<tr>
<td>Oct 14</td>
<td>Contracts and Regulations</td>
<td></td>
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<tr>
<td>Oct 19</td>
<td>HIPPA</td>
<td></td>
</tr>
<tr>
<td>Oct 21</td>
<td>Written Mid-term Exam</td>
<td></td>
</tr>
<tr>
<td>Oct 26</td>
<td>Introduction to Animal Research</td>
<td></td>
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<tr>
<td>Nov 2</td>
<td>Regulations and Theory in Radiation Safety</td>
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</tr>
<tr>
<td>Nov 4</td>
<td>Regulations and Theory in Laboratory Safety</td>
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</tr>
<tr>
<td>Nov 9</td>
<td>Regulations and Theory in Biosafety</td>
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<tr>
<td>Nov 11</td>
<td>Project Management</td>
<td></td>
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<tr>
<td>Nov 16</td>
<td>Designing for Biosafety Systems</td>
<td></td>
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<tr>
<td>Nov 18</td>
<td>Computer Based Laboratory Management</td>
<td></td>
</tr>
<tr>
<td>Nov 23</td>
<td>LIMS and data Validation (21 CFR Part 11)</td>
<td></td>
</tr>
<tr>
<td>Nov 25</td>
<td>Thanksgiving</td>
<td></td>
</tr>
<tr>
<td>Nov 30</td>
<td>Personnel Mgt: Regulations for the Workplace Environment</td>
<td></td>
</tr>
<tr>
<td>Dec 2</td>
<td>Oral Presentations</td>
<td></td>
</tr>
<tr>
<td>Dec 7</td>
<td>Oral Presentations/Last Day of Classes</td>
<td></td>
</tr>
<tr>
<td>Dec 8</td>
<td>Reading Day</td>
<td></td>
</tr>
<tr>
<td>Dec X</td>
<td>Final Exam</td>
<td></td>
</tr>
<tr>
<td>Dec 16</td>
<td>Grades Due</td>
<td></td>
</tr>
</tbody>
</table>

Need to find space for team presentations.

### Useful Links to get you started:

- Federal Drug Administration (FDA): [www.fda.gov](http://www.fda.gov)
- Centers for Disease Control (CDC): [www.cdc.gov](http://www.cdc.gov)
- Environmental Protection Agency (EPA): [www.epa.gov](http://www.epa.gov)
- International Organization for Standardization: [www.iso.org](http://www.iso.org)
- Organization for Economic & Development: [www.oecd.org](http://www.oecd.org)
- United States Department of Health & Human Services: [www.hhs.gov/ohrp](http://www.hhs.gov/ohrp)
- HIPAA: [www.hhs.gov/ocr/hipaa](http://www.hhs.gov/ocr/hipaa)
One possible approach is to award a certificate of oversight compliance training to students who successfully complete the regulatory oversight course. This departmental certificate would distinguish those interested in a career in regulatory compliance and potentially be a draw to the course. Alternatively, a PMS program could be envisioned in which students would take courses related to regulatory compliance and do an internship in one of the regulatory compliance units on campus, followed by a thesis on a current issue.
4. Competitive Graduate Student Travel Awards.

**1st Annual Plant Pathology and Microbiology Graduate Student Travel Award Competition**

**Purpose:**
- To enable Plant Pathology and Microbiology graduate students to travel to and present their research at national/international scientific meetings.

**Prizes:**

- **1st place:** $1,000.00
- **2nd place:** $750.00
- **3rd place:** $500.00

**Format:**
- Each student competitor must make a 20 minute oral presentation based on their thesis or dissertation research.
- The student presentations will be judged by a panel of faculty from Plant Pathology and Microbiology, Horticulture and Soil and Crop Sciences.
- Presentations are open to all graduate students, not just those nearing the end of their studies. Presentations will be judged on the basis of visual and oral presentation, mannerism, timing, and clarity of information conveyed.
- The top three presenters will receive:
  - A framed certificate.
  - Funding by the department for the corresponding amount to help cover registration, travel and lodging costs associated with attendance of the scientific meeting of their choice.

**Entry Requirements:**
- To enter, please submit name, year in program, major advisor’s name, and a short paragraph on the subject by September 20, 2010.
- Submit to:

  **Leland S. (Sandy) Pierson III**
  **Professor and Head**
  **Plant pathology and Microbiology**
  **plpm-head@ag.tamu.edu**