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February 2018

Plant Pathology and Microbiology: Bioenvironmental Sciences Academic Program Review

Plant Pathology & Microbiology
PLPM
TEXAS A&M UNIVERSITY

Bioenvironmental Sciences
BESC
TEXAS A&M UNIVERSITY

TEXAS A&M UNIVERSITY
AGRICULTURE & LIFE SCIENCES

TEXAS A&M AGRILIFE
RESEARCH | EXTENSION

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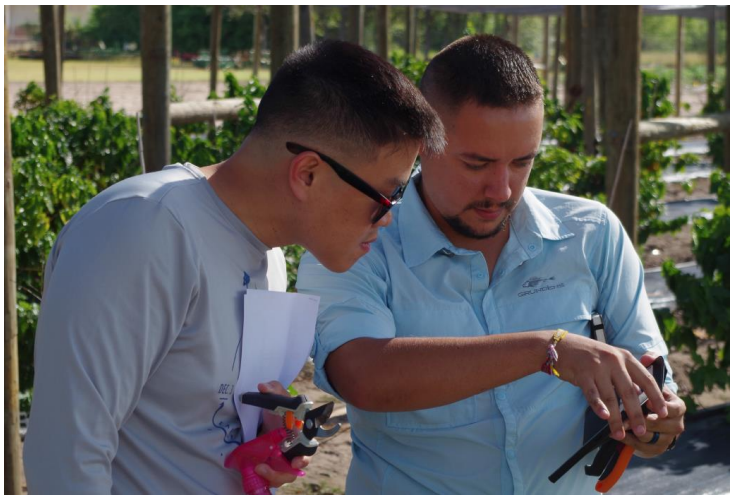
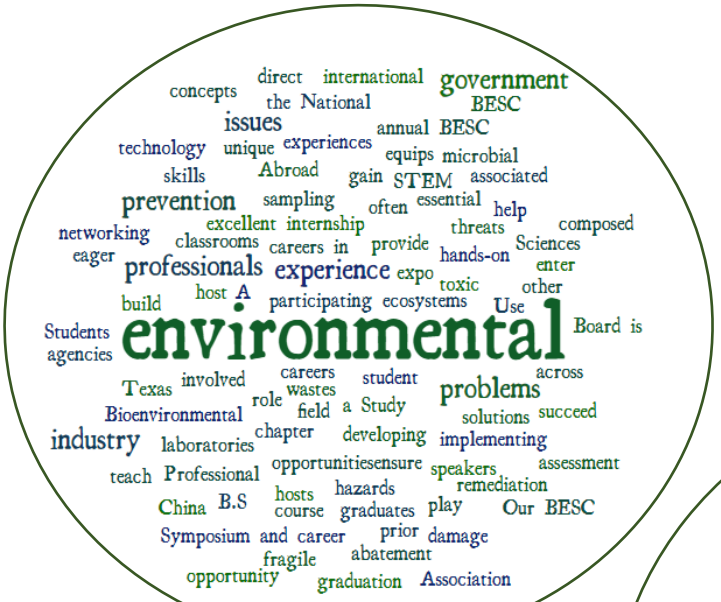


Graduate students Michael Jochum and Kelvin Chiong working at a field site.



Plant Pathology & Microbiology

PLPM

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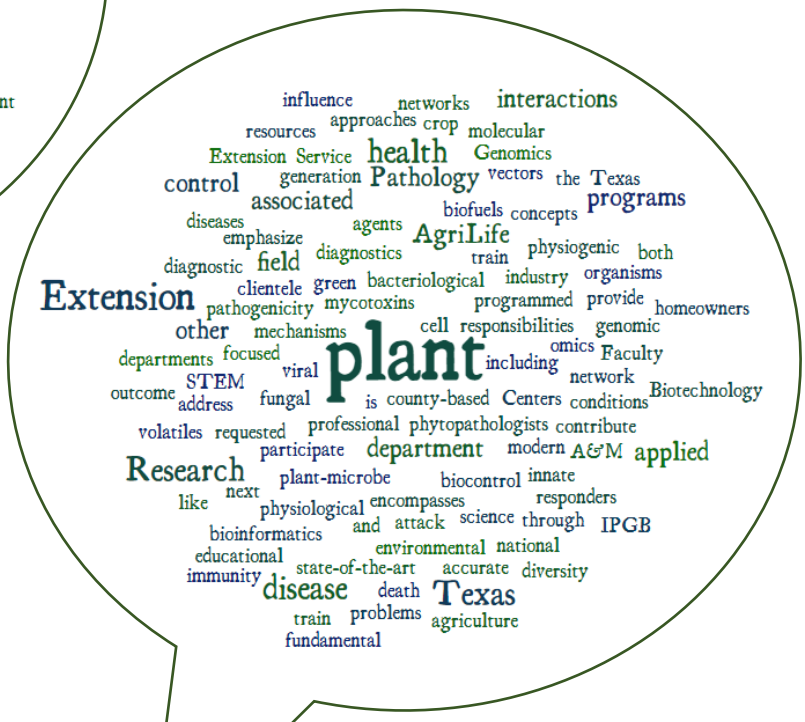

Bioenvironmental Sciences

BESC

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Hmm…what can I do with a degree in PLPM or BESC?

http://plantpathology.tamu.edu

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Section 1.0

Introduction

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From the Department Head

Welcome, and Howdy!

On behalf of the Plant Pathology and Microbiology/Bioenvironmental Sciences Department let me welcome the review team to College Station and Texas A&M University.

We begin this process with you with gratitude as we recognize how much time you have already spent reading this document and becoming familiar with Texas A&M University, the College of Agriculture and Life Sciences, Texas A&M AgriLife Research, Texas A&M AgriLife Extension Service, and the Department.

We hope that this self-study document has provided you a realistic portrait of Plant Pathology and Microbiology and our graduate program in plant-microbiology and our undergraduate program in Bioenvironmental Sciences. We hope that you will be able to help us further define our strengths in our academic, research and extension programs and help us identify needs to make a strong program even more successful in each of these activities.

Our goal is to be one of the foremost departments in the country. Our faculty nominated several possible review team members, and each of you was identified by our faculty as having the experience and expertise to help us advance towards our goal.

The department faculty and staff are dedicated to research, extension, and to training the next generation of plant pathology and environmental sciences majors.

If you have questions prior to your visit, we will do our best to find the information you need. In addition, as department head I thank you personally for your efforts on behalf of the Department of Plant Pathology and Microbiology.

Leland (Sandy) Pierson III

Charge to the Peer Review Team
Department of Plant Pathology and Microbiology

The Academic Program Review (APR) process at Texas A&M University provides the occasion for academic units to plan strategically, assess the quality and efficacy of their programs, and determine the best courses of action for ongoing improvement. APR is at the heart of our institutional commitment to excellence, and we sincerely thank you for assisting us. This letter provides you with the charge to the committee and a brief overview of the department.

Peer Review Team Charge
Please examine the department and its programs and make recommendations that will help in planning improvements. Your resources are a self-study report prepared by the department, copies of materials from the program's last review, information you gain through personal interactions while visiting Texas A&M University, copies of strategic plans and goal-setting documents at the department, college, and/or university level, and any additional information requested by you or by the department. Within the broad charge of recommending ways the department can continue to improve are some specific questions that we would like you to address:

- Based on the data / information provided in the self-study report or gathered by the review team, what are the department's overall strengths and weaknesses?
- Describe the alignment of degree program's strategic goals and priorities with college and institutional goals and priorities.
- How would you compare this department with its peers?
- What improvements (including student learning and faculty development) has the department made since the previous program review?
- With only current resources or a modest infusion of new ones, what specific recommendations could improve the department's performance, marginally or significantly?

We look forward to meeting with you during your time on campus. If you have any questions or require additional information prior to your visit, Ms. Bettyann Zito, APR Program Coordinator, at apr@tamu.edu.

Thank you.

Members of the PLPM External Review Team

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Review Team Itinerary (Tentative)

Sunday, February 25

2:00-5:00 PM	Team members arrive in College Station and are transported to the President's House for lodging.
6:00 – 8:00 PM	Welcome Dinner with DH and ADHs

Monday, February 26

8:00 – 8:45 AM	Entry Meeting and breakfast with Provost's Administrative Team at One Circle Drive
9:00 – 10:00 AM	Meet with college dean (Dr. Alan Sams) at One Circle Drive
10:00 – 11:30 AM	Meet with DH at One Circle Drive
11:30 – 1:30 PM	Lunch (travel to Peterson)
1:30 – 3:30 PM	Tour degree program facilities
3:30 – 4:30 PM	Meet with faculty in sub-discipline areas
6:00 – 8:00 PM	Dinner.

Tuesday, February 27

7:30 – 8:30 AM	Breakfast at One Circle Drive (travel to Peterson)
9:00 – 10:30AM	Meet with faculty committees
10:30 – 11:30 AM	Meet with undergraduate students
11:30 – 1:00 PM	Lunch
1:00 – 2:00 PM	Meet with COALS Department Heads
2:00 – 3:00 PM	Meet with graduate students
3:00 – 5:00 PM	Open or meet with DH/PC to discuss any report issues
5:00 – 6:00 PM	Dinner catered to reviewers' hotel workroom
6:00 – 9:00 PM	Reviewers' work session – prep for draft report/faculty debrief

Wednesday, February 28

7:30 – 8:45 AM	Exit Meeting and breakfast with APR Administrative Team dean (or designee) at One Circle Drive; (degree program will confirm dean's attendance)
9:00 – 10:00 AM	Reviewers debrief degree program leadership at the hotel
10:00 – 11:00 AM	Reviewers brief faculty, staff, and students on final report
11:00 – 12:00 PM	Reviewers make final changes to draft report, as necessary
12:00 PM	Lunch or departure as applicable

One-Page Overview of Plant Pathology and Microbiology

Vision: Positively impact society's ability to "*Feed our World*", "*Protect our Environment*", and "*Improve our Health*" by Excelling in Plant Health and Disease, Plant-Microbiome Interactions and the Bioenvironmental Sciences while preparing society to constantly improve these goals through science and education.

Mission: Conduct leading edge research on biotic (plant microbiome) and abiotic factors (drought, temperature, etc.) that impact plant growth, development, yield and stress resilience that impact farmers' ability to produce sufficient and safe food, fiber and fuel. We also teach members of society about sustainable and environmentally responsible crop production while we educate and prepare leaders in the STEM fields of plant and environmental health. Knowledge relevant to plant health, food safety and environmental health is conveyed to the citizens of Texas, the United States and the World through teaching and outreach.

Composition: Plant Pathology and Microbiology is composed of 16 on-campus tenured/tenure track faculty and 1 academic track faculty member. One faculty member recently joined the Dean of Faculties and is no longer ad-loc'd to PLPM. We have 7 Extension Specialists (3 located at Texas A&M AgriLife Centers). Additionally, there are 7 plant pathologists administratively tied to Texas A&M AgriLife Research Centers). The department has lost 6 faculty members over the past 5 years (3 to retirement). Current faculty include the Director of the Institute of Plant Genomics and Biotechnology, the Director of the Synthetic and Systems Biology Innovation Hub, and the Co-Director of the Center for Phage Technology.

Research: Programs focused on multiple aspects on plant pathogenicity, plant signaling, plant-microbe interactions, plant and root microbiome, synthetic biology and biofuels, plant biotechnology. Academic Analytics ranks the department 5th overall of 32 plant pathology departments in the US.

Teaching: Currently, graduate and undergraduate research has 35 graduate students, 42 undergraduate researchers, and 13 post-doctoral fellows. Graduate students gain knowledge and laboratory experiences through a variety of ways, including a series of intensive instruction modules. Since 2011, we graduated 19 M.S. and 24 Ph.D.s. We have the largest undergraduate program (BESC) among plant pathology departments in the US (~300 majors). These students benefit from the integrated and coordinated efforts of our faculty and the expertise of our 26-member BESC Professional Board composed of environmental experts and lawyers across Texas. All of our BESC majors are involved in high impact experiential internships.

Extension: Our 8 Extension Specialists and 1 Program Specialist are distributed at 3 Texas A&M AgriLife Centers. We have two plant disease diagnostic centers, the Texas Plant Disease Diagnostic Laboratory in College Station and the Texas High Plains Diagnostic Laboratory in Amarillo. We serve clients across the entire state on multiple issues, such as mycotoxins and pathogens important in food safety to insect-vectored pathogens causing disease on citrus, corn, wheat, potato, rice, vegetables, turf and many other crops.

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Organizational Overviews

Plant Pathology & Microbiology (PLPM)

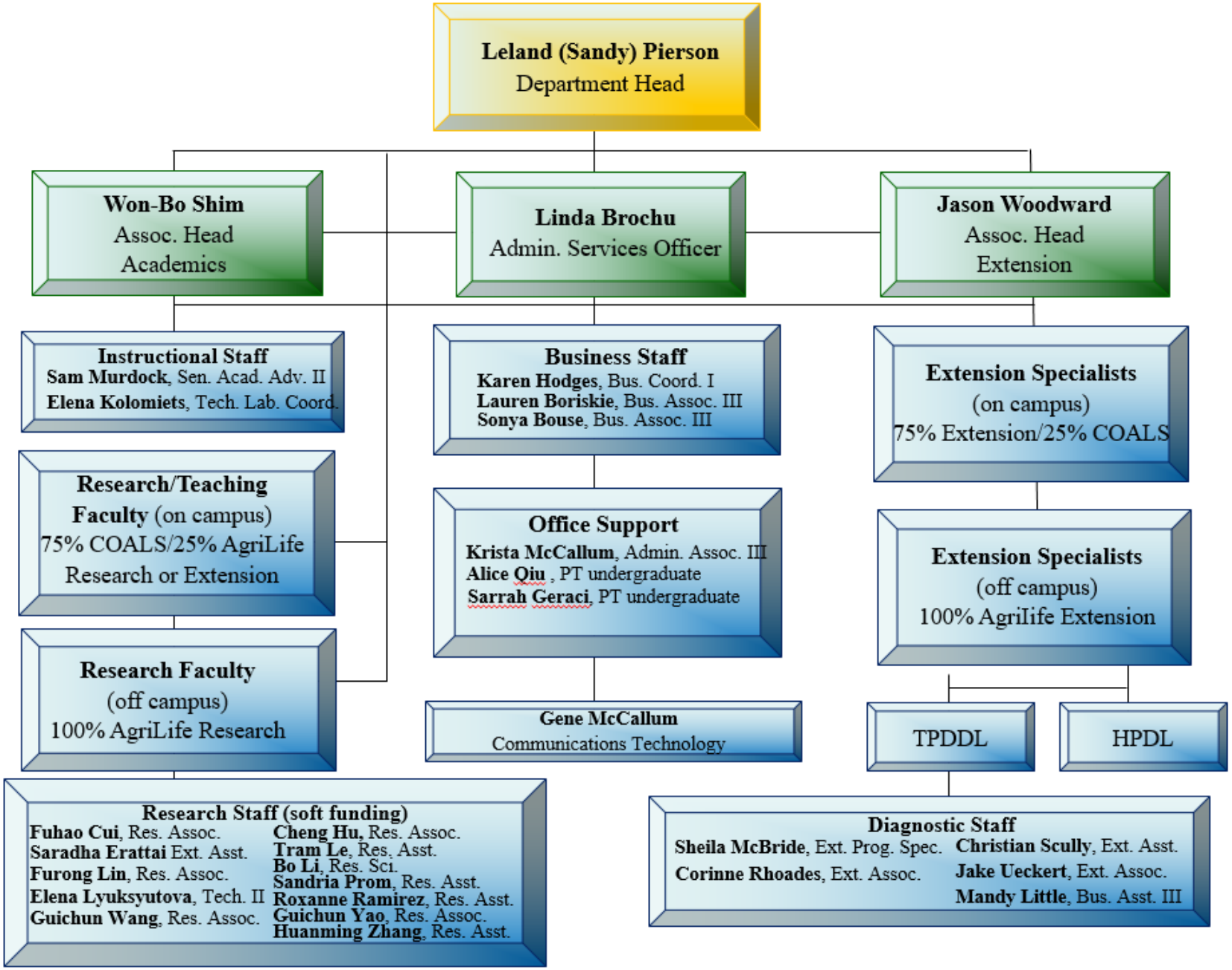
College of Agriculture and Life Sciences (COALS)

Texas A&M AgriLife Research

Texas A&M AgriLife Extension Service

The Texas A&M System (TAMUS)

Plant Pathology and Microbiology Organization Chart



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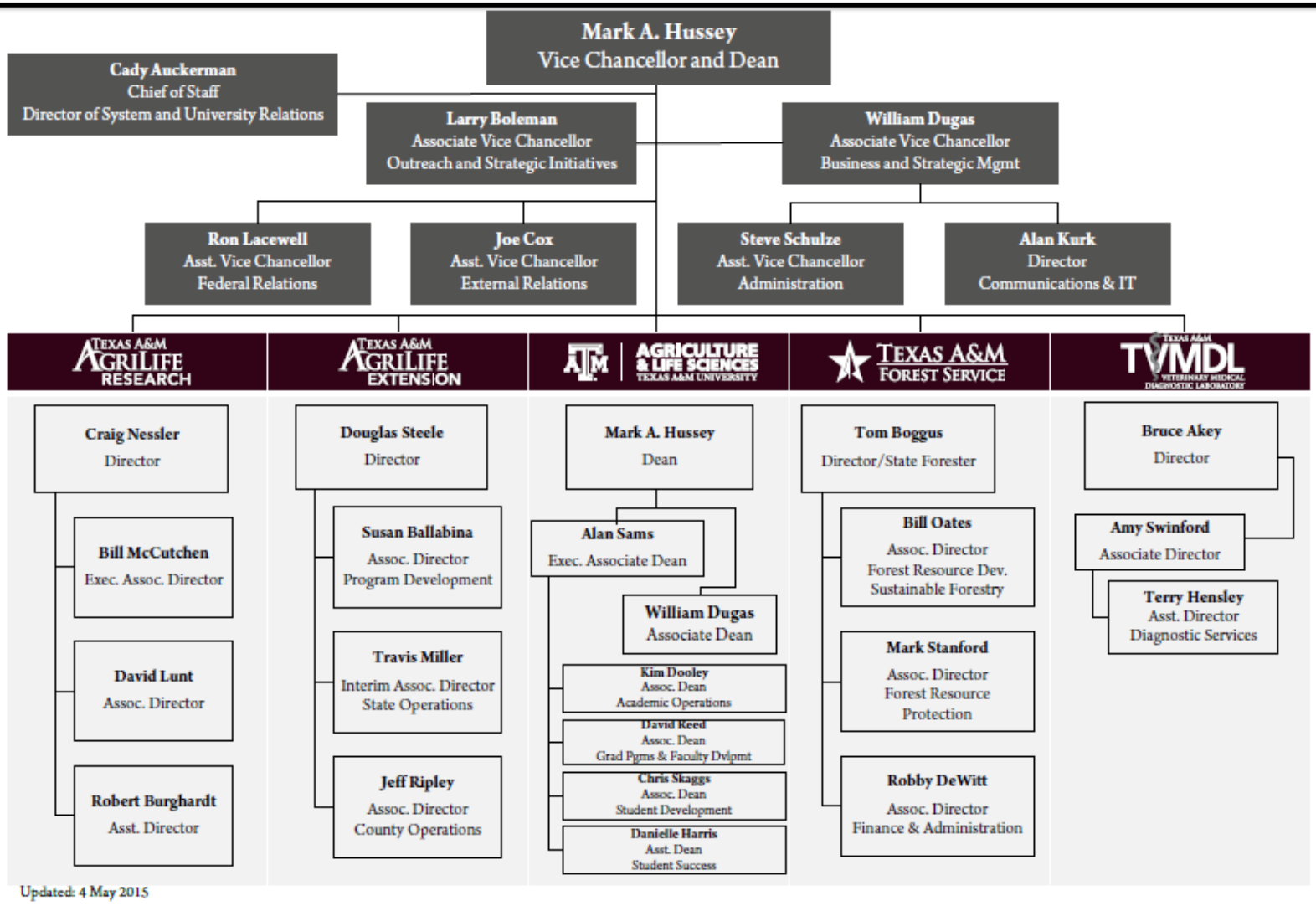
Office of the Vice Chancellor and Dean for Agriculture and Life Sciences



Updated: 4 May 2015

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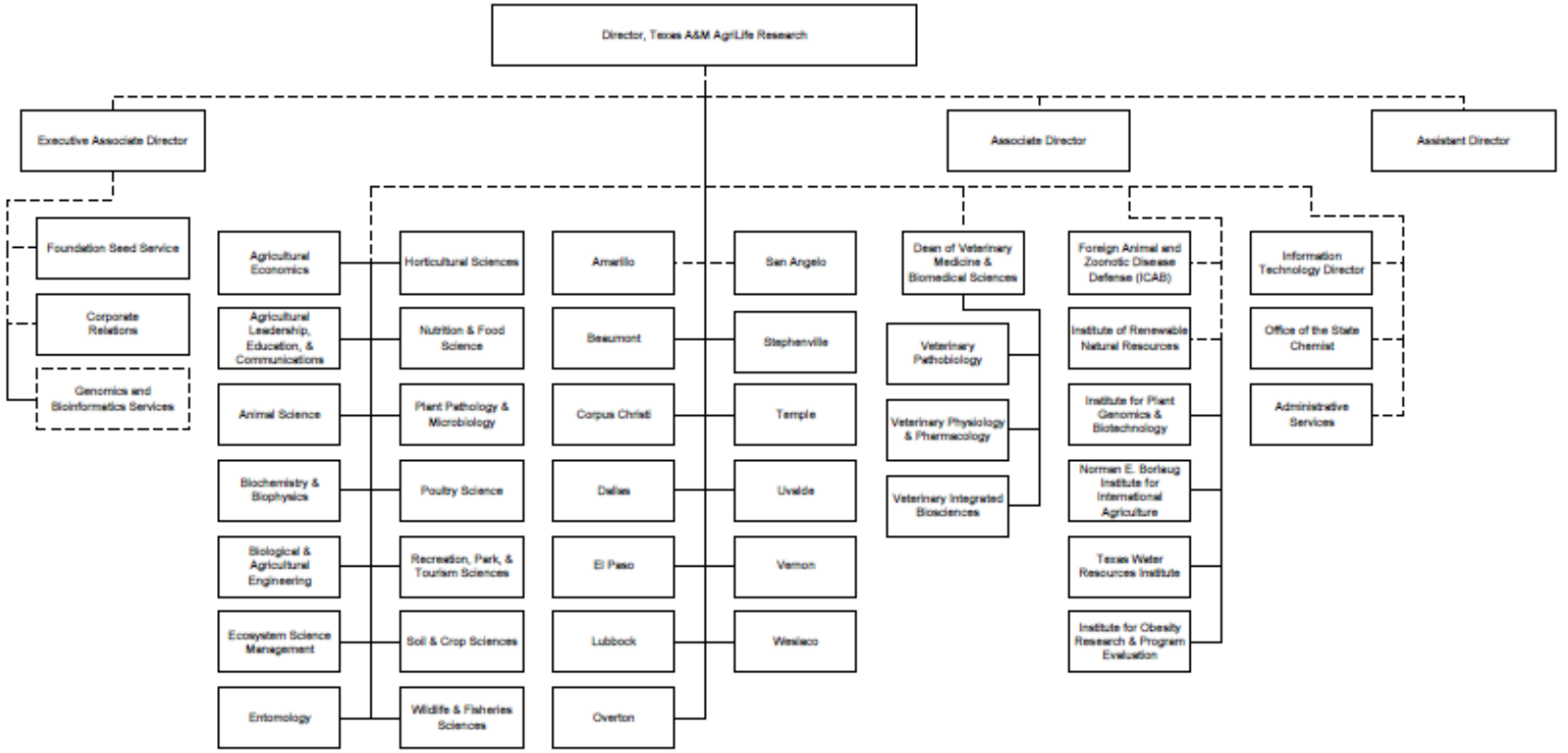

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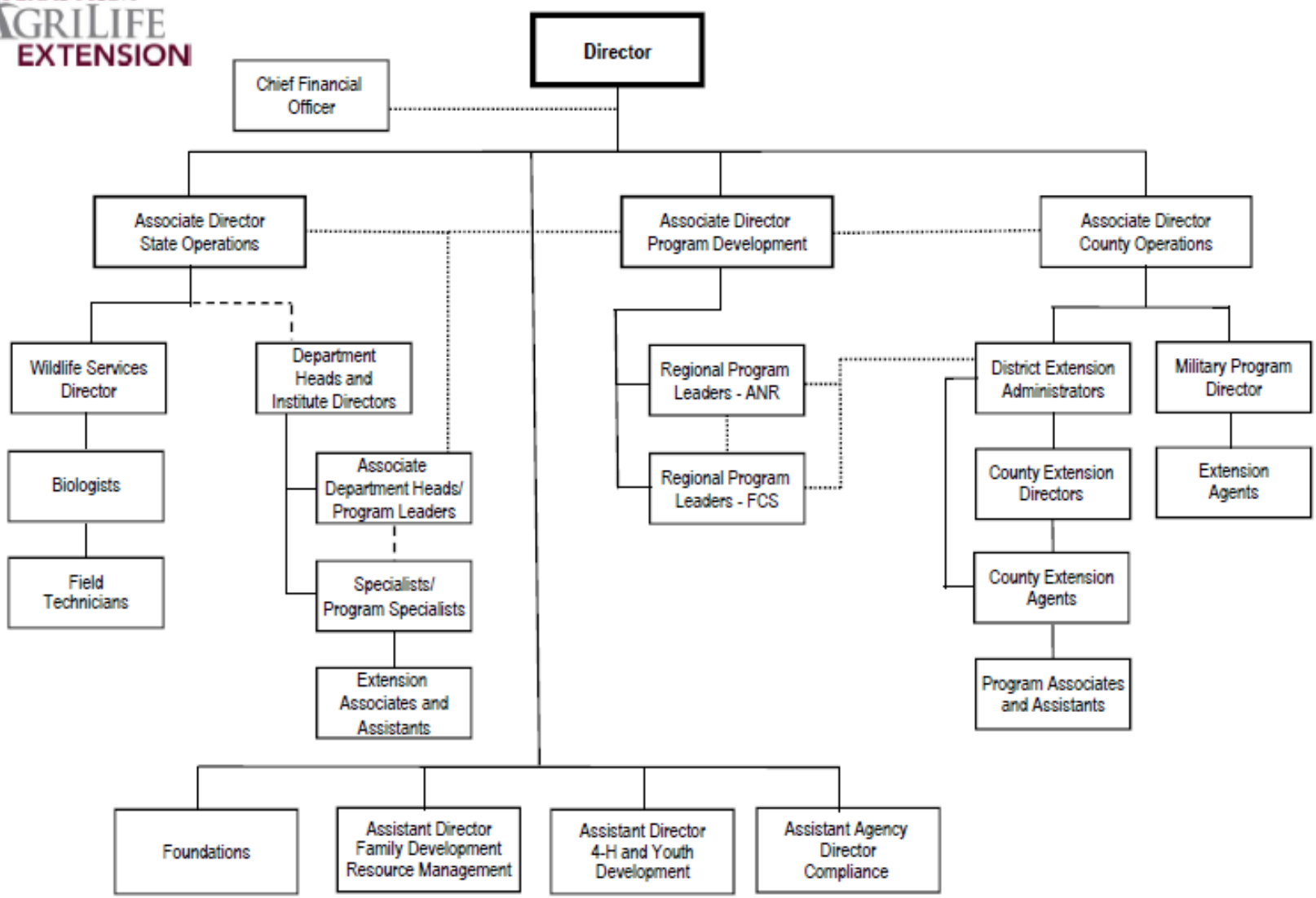

THE TEXAS A&M UNIVERSITY SYSTEM

System Members

★ UNIVERSITIES

TEXAS A&M UNIVERSITY
Michael K. Young, President
www.tamu.edu

● TEXAS A&M UNIVERSITY HEALTH SCIENCE CENTER
Carrie L. Byington, Vice Chancellor for Health Services, Dean of the College of Medicine and Senior Vice President for the Health Science Center
www.tamhsc.edu

TEXAS A&M UNIVERSITY AT GALVESTON
Douglas Palmer, Interim Vice President and COO
www.tamug.edu

TEXAS A&M UNIVERSITY AT QATAR
César Malavé, Dean and COO
www.qatar.tamu.edu

PRAIRIE VIEW A&M UNIVERSITY
George C. Wright, President
www.pvamu.edu

TARLETON STATE UNIVERSITY
F. Dominic Dottavio, President
www.tarleton.edu

TEXAS A&M INTERNATIONAL UNIVERSITY
Pablo Arenaz, President
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Kelly Quintanilla, Interim President
www.tamucc.edu

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Steven H. Tallant, President
www.tamuk.edu

WEST TEXAS A&M UNIVERSITY
Walter Wendler, President
www.wtamu.edu

TEXAS A&M UNIVERSITY-COMMERCE
Ray Keck, President
www.tamuc.edu

TEXAS A&M UNIVERSITY-TEXARKANA
Emily Fourmy Cutrer, President
www.tamut.edu

TEXAS A&M UNIVERSITY-CENTRAL TEXAS
Marc A. Nigliazzo, President
www.tamuct.edu

TEXAS A&M UNIVERSITY-SAN ANTONIO
Cynthia Teniente-Matson, President
www.tamusa.edu

AGENCIES

★ Headquarters

● Agricultural Agencies

Mark Hussey,
Vice Chancellor and Dean
Agriculture and Life Sciences
agrilife.tamu.edu

TEXAS A&M AGRILIFE RESEARCH
Craig L. Nessler, Director
agriliferesearch.tamu.edu

TEXAS A&M AGRILIFE EXTENSION SERVICE
Douglas L. Steele, Director
agrilifeextension.tamu.edu

TEXAS A&M FOREST SERVICE
Thomas G. Boggus, Director and State Forester
tfsweb.tamu.edu

TEXAS A&M VETERINARY MEDICAL DIAGNOSTIC LABORATORY
Bruce L. Akey, Director
tvmdl.tamu.edu

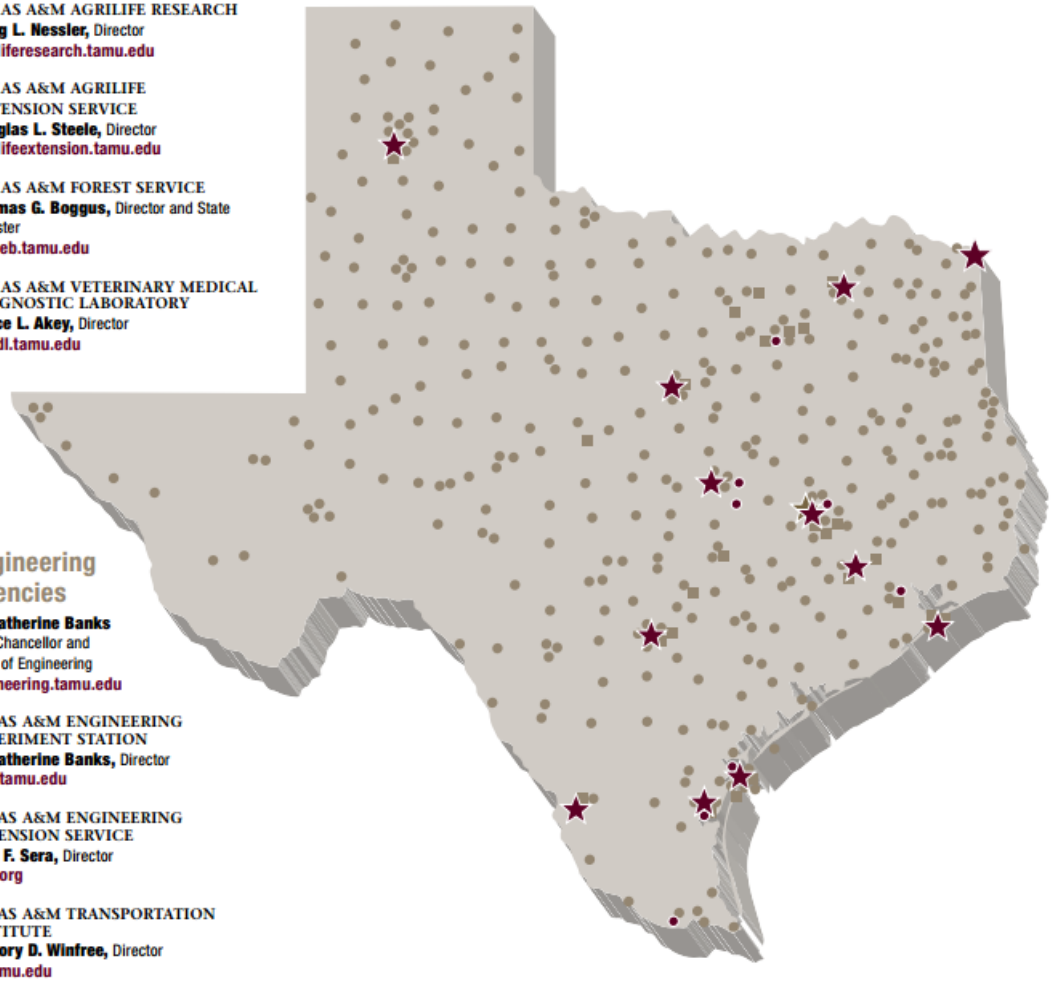
■ Engineering Agencies

M. Katherine Banks
Vice Chancellor and
Dean of Engineering
engineering.tamu.edu

TEXAS A&M ENGINEERING EXPERIMENT STATION
M. Katherine Banks, Director
tees.tamu.edu

TEXAS A&M ENGINEERING EXTENSION SERVICE
Gary F. Sera, Director
teex.org

TEXAS A&M TRANSPORTATION INSTITUTE
Gregory D. Winfree, Director
tti.tamu.edu



Texas A&M AgriLife Research & Extension Center Web Links

R Amarillo - http://amarillo.tamu.edu/

R Beaumont - https://beaumont.tamu.edu/

Blackland (Temple) - http://blackland.tamu.edu/

R Corpus Christi - http://ccag.tamu.edu/

R Dallas - http://dallas.tamu.edu/

El Paso - http://elpaso.tamu.edu/

R, E Lubbock - http://lubbock.tamu.edu/

Overton - http://overton.tamu.edu/

San Angelo - http://sanangelo.tamu.edu/

Stephenville - http://stephenville.tamu.edu/

E Uvalde - http://uvalde.tamu.edu/

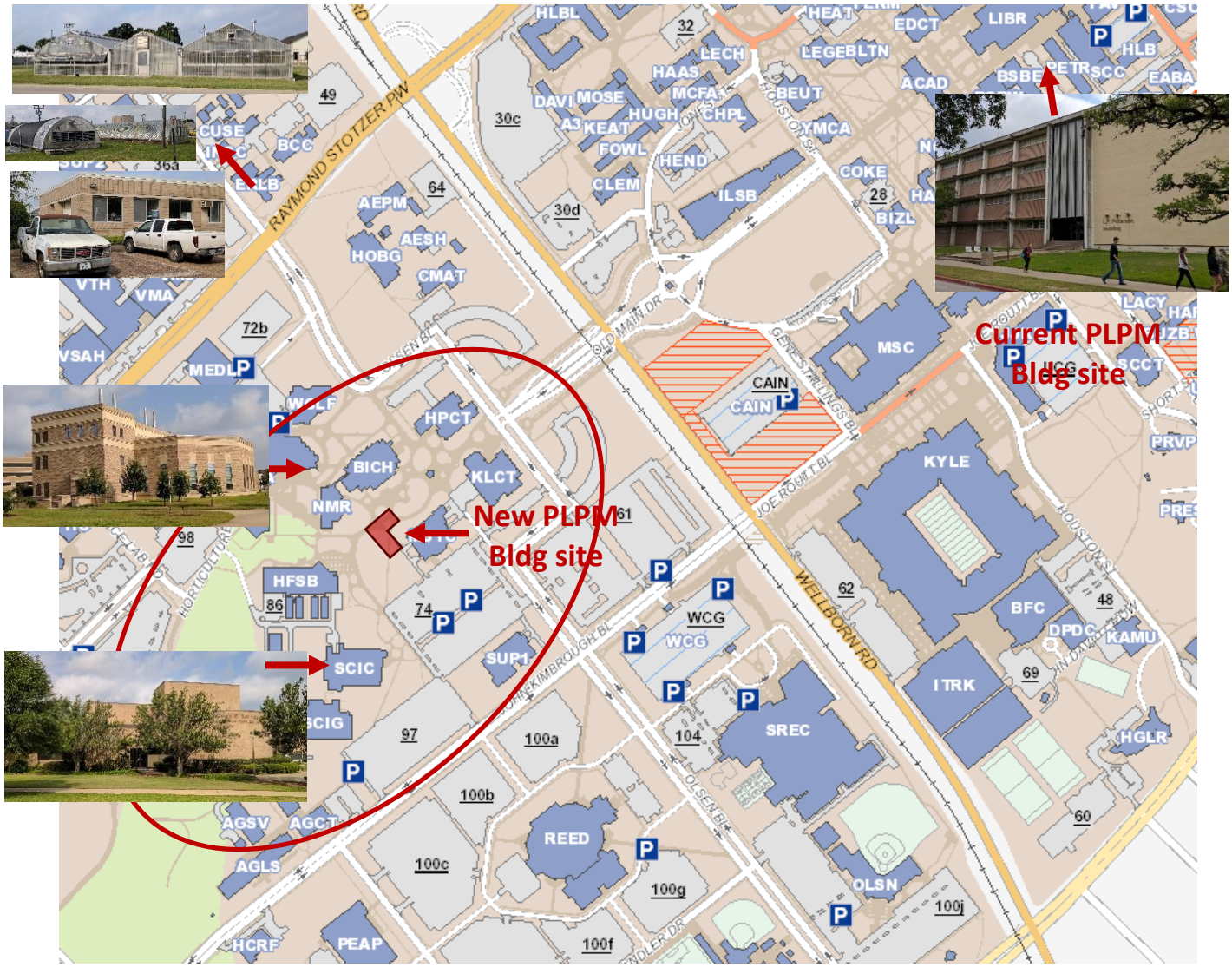
Vernon - http://vernon.tamu.edu/

R, E Weslaco - http://agrilife.org/weslaco/

R = **Locations of PLPM Research Faculty**

E = **Locations of PLPM Extension Specialists**

Texas A&M Campus Map with Relevant Locations



PETR = LF Peterson; **MSC** = Memorial Student Center; **RDER** = Rudder Tower; **KYLE** = Kyle Field; **HPCT** = Heep Center; **KLCT** = Kleburg; **MSTC** = Rosenthall; **BICH** = Biochemistry/Biophysics; **NMR** = Nuclear Magnetic Resonance Center;
HFSB = Horticulture and Forest Sciences; **SCIC** = Southern Crop Improvement Center, home of the Institute for Plant Genomics and Biotechnology (IPGB); **AGCT** = AgriLife Center; **AGLS** = Agriculture and Life Sciences; **AGSV** = AgriLife Services Building; PLPM Bldg = future home of PLPM/BESC. Grey areas are parking lots.

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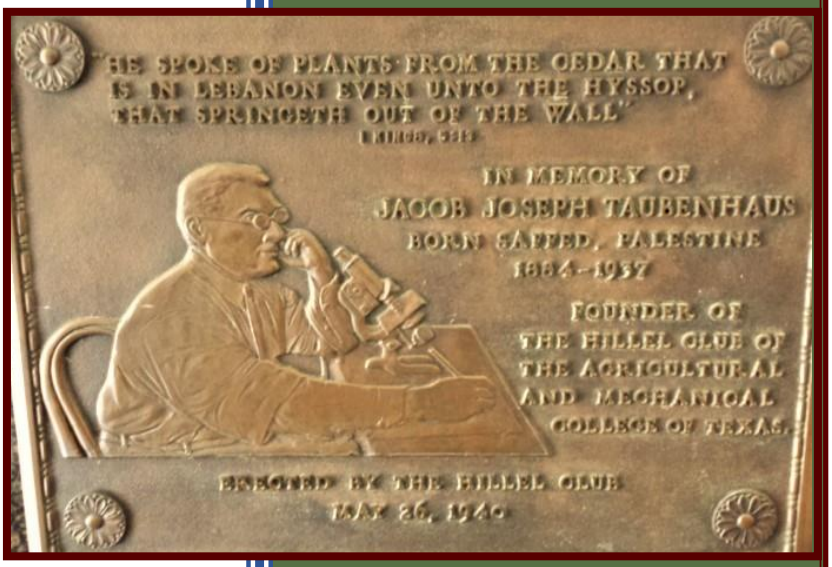
Brief History/Status of PLPM

Plant Pathology & Microbiology
PLPM
TEXAS A&M UNIVERSITY

Bioenvironmental Sciences
BESC
TEXAS A&M UNIVERSITY



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Brief History of Plant Pathology and Microbiology

Texas A&M University System

Texas A&M first began in 1876 as the state's land-grant institution. The Texas A&M University System was established in 1948 and is comprised of a statewide network of 11 universities, including Texas A&M University and ten regional universities across the state (www.tamus.edu). Texas A&M University in College Station is composed of 17 colleges and 7 agencies. 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, 7,800 students and offers more than 80 undergraduate and graduate degrees. Many faculty members have split appointments in COALS and Texas A&M AgriLife Research or Texas A&M AgriLife Extension. 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 A&M AgriLife Research and the Texas A&M AgriLife Extension Service. Texas A&M 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 Service, also headquartered in College Station, serves the entire state through 250 county extension offices.

Origin and Growth of Plant Pathology and Microbiology

The Department of Plant Pathology and Microbiology (PLPM) has undergone several transformations over the years. In 1916 the Texas Agricultural Experiment Station hired the first full time plant pathologist, J.J. Taubenhaus, who laid the groundwork for research, teaching and extension in the newly created Division of Plant Pathology and Physiology.

- **1936** the related disciplines of Genetics, Plant Physiology, and Plant Pathology were merged resulting in the creation of the Department of Plant Sciences.

- **1946** the department was renamed Plant Pathology and Physiology under the direction of A.A. Dunlap. In 1982 the Texas Plant Disease Diagnostic Laboratory (TPDDL) was created under the direction of Dr. Larry Barnes.

- **1961** the Departments of Plant Physiology and Pathology and Genetics were combined to form the Department of Plant Sciences, The Plant Sciences Building (L.F. Peterson) was built with the department as the major occupant.

- **1985** the Department was restructured as the Department of Plant Pathology and Microbiology under the direction of J. Artie Browning, with "Microbiology" added to the name 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 MAgr. 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.

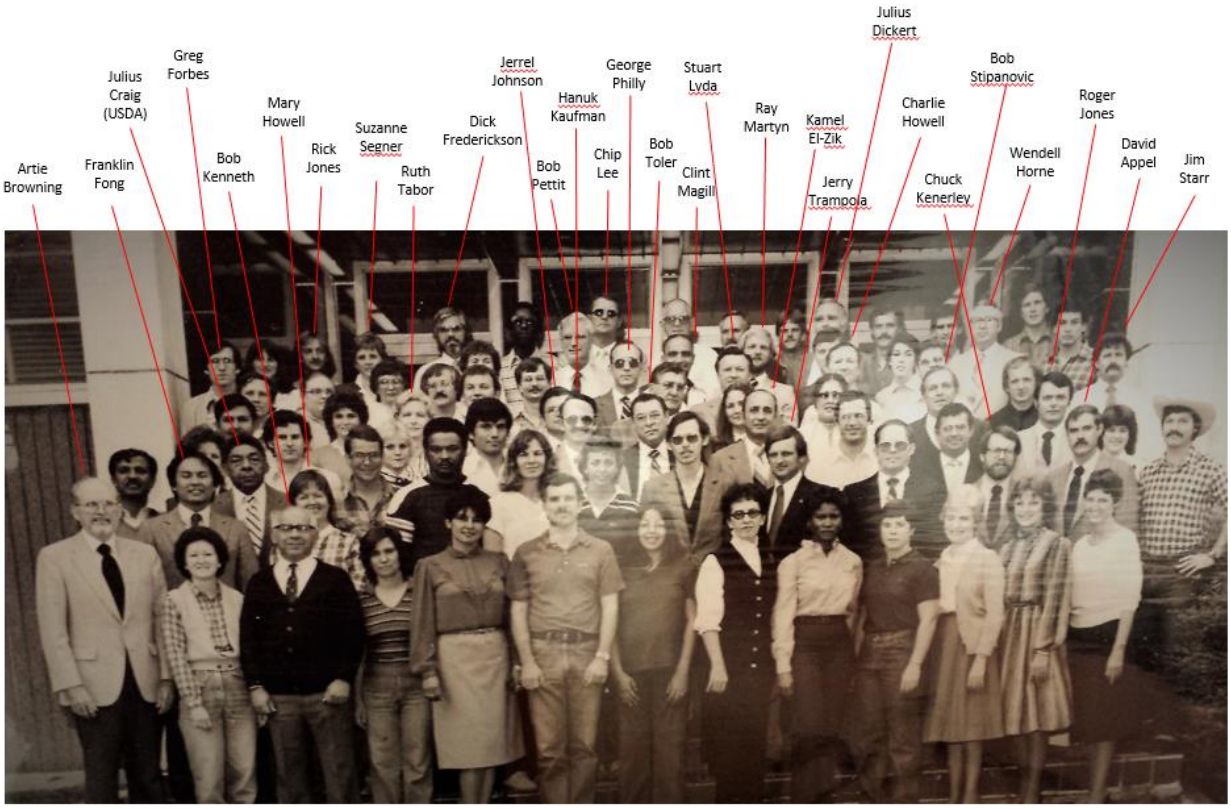

Photo circa 1989

- **1990** Dr. Neal Van Alfen was appointed Department Head. During this period, the department's mission became more integrated as Extension was incorporated into the Teaching and Research efforts of the department. 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.

- **2001** Dr. Dennis C. Gross became head. The department lost twelve faculty (7 to retirement and 5 for other positions) during this period. This provided a rare opportunity to bring in new expertise and directions for the department. Since 2001, 19 positions were filled, including 9 faculty members were hired (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). The department's focus expanded during this period to include bioenergy and biotechnology. Dr. Gross returned to the faculty in the fall of 2009. In 2010, the department had 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.

- **2009** Dr. Leland (Sandy) Pierson III became head of the department (Sept.). Dr. Pierson implemented changes to increase the department's visibility across campus and the state, and within APS through efforts for the society. Shortly after his arrival, Texas suffered the most extreme budgetary issues in 70 years that threatened the existence of the department. These state budgetary issues resulted in the loss of two (of three) department staff and one Extension Specialist through Reductions in Force (RIF). Several additional faculty and staff positions were funded solely through departmental designated funds, which maintained the status quo but severely reduced operating budget abilities. These reductions were amplified by recent changes in faculty salary recovery rates (from 80:20 to 10:90 dept:college/agency, respectively) and changes in IDC distribution by the college that resulted in a 50% reduction in the IDC previously returned to the department. These changes have significantly reduced the department's ability to proactively respond to opportunities and faculty needs in a timely manner.

- **2013** In response to revisions in the College Strategic Plan and with the expectation of upcoming faculty retirements, Dr. Pierson held a strategic research retreat in 2013 resulting in the prioritizing of departmental research focus areas and requested new faculty hires (See section on research).

- **2016** The department held a strategic extension retreat also resulted in the development of a new approach to maximize extension efforts across Texas (See section on extension).

Photo taken after department retreat 2013.

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Department Committees & Bylaws

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. (The current head Dr. Pierson holds faculty meetings the first Wednesday of every month prior to seminar).

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

Appointment of Committee Members:

The Department Head, acting with the advice of the Associate Department Heads, will appoint committee members and designate a chairperson 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.

Department Standing Committees

Curriculum and Assessment Committee

Charge: Discuss, deliberate and make recommendations regarding department curriculum and assessment related issues for the undergraduate and graduate programs. Hold monthly meetings with all teaching faculty. Currently the CAC meets the second Wednesday of every month.

Undergraduate

Responsible for the undergraduate degree programs and curriculum of the department.

- Coordination of content and scheduling of undergraduate service courses with departments being served.
- Review of new undergraduate courses, and of significant content changes in courses currently offered.
- Monitor the relevance of the undergraduate curriculum offered by the department.
- Makes recommendations to the Department Head for awarding of undergraduate scholarships.

- Recruitment of students into the department's undergraduate program.
- Development of effective placement procedures for graduates of the undergraduate program.

Graduate

Responsible for the graduate degree programs of the department.

- Coordination of content of graduate courses.
- Review of graduate courses, and of significant changes in courses currently offered.
- Monitor 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.

Assessment

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)
- 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.

Awards and Honors Committee

Charge: Identify appropriate awards for department faculty, staff, and students at the local, national, and international level. Solicit information from the nominee; allow nominee to prepare materials as appropriate. Currently the committee has pursued the following categories:

Graduate Student (teaching, research)

Staff (Research, Support, Extension)

Postdocs

Scholthof, K (Chair); Shaw, B; Woodward, J; Kenerley, C; Brochu, L; Graduate Student Representative

Graduate Recruitment Committee

Charge: Carry out correspondences and recruiting efforts with graduate student applicants for admission to PLPA. Work with ADH of Academics to apply for fellowship monies and to

oversee new graduate student orientation in the fall. Chair serves as advisor to new graduate students until they identify a major professor. Chair attends executive committee meetings on the Monday prior to the faculty meeting, usually first Wednesday of each month.
Ebbole, D (Chair); Jo, Y; Yuan, J

Seminar and Distinguished Visitor Committee

Charge: Arrange seminar schedule. Conduct the PLPA 681 course each fall. Chair attends executive committee meetings on the Monday prior to the faculty meeting, usually first Wednesday of each month
Shan, L (Chair); Gonzalez, C

Facilities, Equipment, Growth Room and Greenhouses Committee

Charge: 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 is/are 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.
- Proposing guidelines for 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.

Scholthof, H Chair; Isakeit, T; Kolomiets, E; Kolomiets, M; Magill, C; Ong, K
Ex-officio: Shim, W.-B.

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.

Facilities

Currently, the department is divided among multiple buildings across the campus. The majority of faculty are located in the LF Peterson Building on main campus. Three faculty members (Dickman, Shan, Yuan) are housed in the Borlaug Southern Crop Improvement Center (location of the Institute for Plant Genomics and Biotechnology-IPGB), and one faculty member (Gonzalez) is housed in the adjacent Nuclear Magnetic Resonance Imaging facility on the third floor. If fully completed, the new PLPM building on west campus will greatly alleviate many of the department's issues, although several faculty will remain in adjacent buildings.

Please see the SWOT analysis (Section 2) and the Reflections on Faculty Productivity (Section 4).

Below is a summary of space needs from 2010 (little has changed).

Personnel: According to the 2008 snapshot, PLPM was composed of 117 people. Calculated space available was 60,657 and computed needed space was 84,196. This means the department currently has only 72% of the total space it needs (28% deficit). However, this audit 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. The department often hosts visiting scientists and faculty. Last year PLPM hosted 8 visiting scientists which required providing office space and laboratory space.

Building: The Peterson Building was constructed in the 1960's. PLPM has made full use of its facilities but many aspects need upgrading and renovation. Although the calculations show we are down 28% on space we need, much of the space we have is divided into sub-optimal configurations, with small awkward rooms and even 4 cases in which non-functional cold-rooms are used for storage and not for research as they are unsafe eyesores. It has proven difficult to be competitive in attracting a top level junior scientist to the department without renovation of laboratory spaces. Also, unless additional space in Peterson is freed up (this could include space the Psychology Department is occupying and musical practice rooms), other faculty will be forced to vacate space they use currently for any new hire.

Seminars: The department hosts a weekly seminar series often including outside speakers. This seminar series is attended by 45-50 people each week, currently Wednesdays 3-4 PM. Since the room was assigned to central room scheduling, we have to fight for seminar space each semester. Currently we host our seminars in a military sciences classroom, which is small, noisy and inconvenient for west campus faculty to get to.

Collegiality: Currently most floors lack any sort of area with seating for faculty and students to gather. There are two reasons for this need. First, no eating or drinking is allowed within laboratories. Currently, there is no room for students and faculty to sit and eat together on a floor. Additionally, the ability to promote discussions and brainstorming via chance meetings is lacking without common gathering space. All new buildings incorporate such common seating areas in their designs.

Greenhouses: The department had 5 greenhouses, but were in such unusable condition that the college sold them to engineering. Currently we are allowed to use some old greenhouses on Agronomy Road, and can pay for use in the IPGB. Texas A&M AgriLife Research is designing a high throughput greenhouse on west campus, but it will not be useful for plant pathogens. Horticultural Sciences has new greenhouses out in the Brazos Bottoms, but again we cannot use production greenhouses for our research programs.

Power: Last year the power issue that has been ongoing peaked with a 3-week sporadic outage that required great effort to solve (although the reason for it is still unclear). The 18 -80^{o}C freezers, -20^{o}C freezers and refrigerators were without power for hours at a time. The building has no back-up power. The full loss of strain collections, etc. is unknown, especially since several groups have large-scale culture collections from numerous areas around the world that are used for bioenergy conversion studies, etc.

Physical separation: The department is physically divided across campus. The distance from Peterson to the rest of the college on west campus has hindered collaboration and inconvenienced faculty and programs.

Summary: The Peterson Building has outlived its usefulness for the department. The new building on west campus (following page) is desperately needed, and will greatly improve the physical environment and teaching mission of the department. However, faculty competitiveness will only be enhanced if the building is completely finished, including growth chamber rooms and greenhouses (Please see the SWOT analysis and the Reflection on Faculty Productivity).

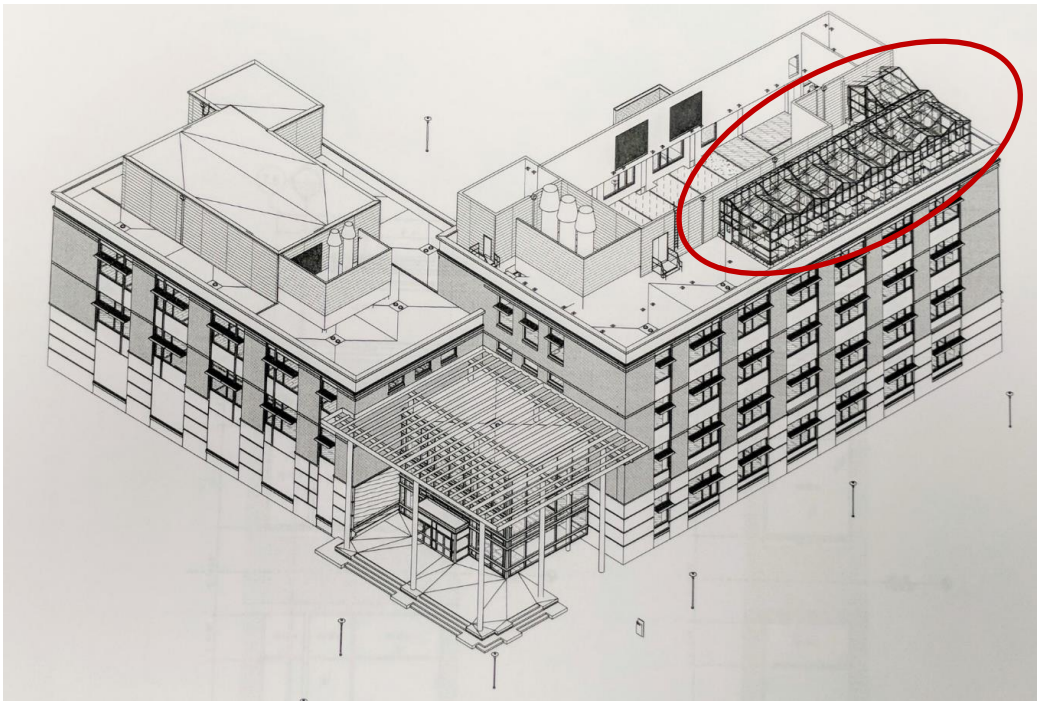
New Plant Pathology and Microbiology/Bioenvironmental Sciences Building

- Approved August 23, 2016, official ground breaking Sept. 28, 2017.
- Approximately 79,000 gross square footage (gsf)
- 4 floors for research with plant growth rooms/greenhouses on roof
- 3 floors for teaching and administrative

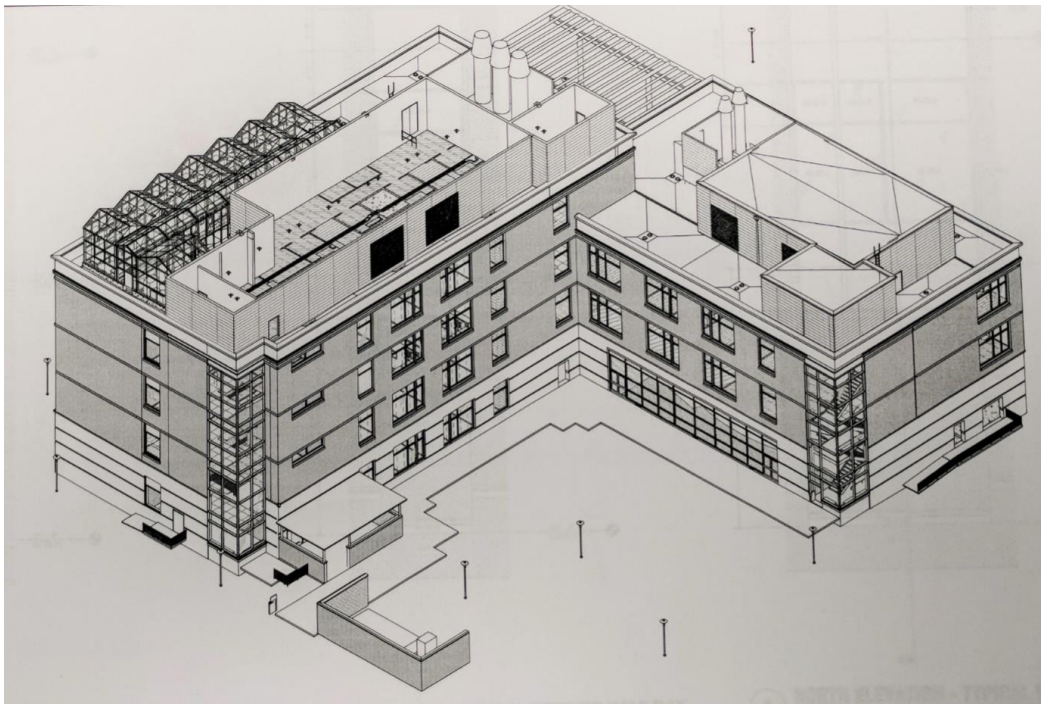
For more information:

https://aglifesciences.tamu.edu/blog/2017/09/29/ground-broken-for-plant-pathology-microbiology-building-at-texas-am/

Also see the following pages of this section.



Front View



Back View

PLPM Remarks during the Groundbreaking Ceremony

--Welcome to an exciting day! Many thanks to all of our distinguished guests, especially Regent Elaine Mendoza, Chancellor John Sharp, Vice Chancellor and Dean Mark Hussey, Texas A&M AgriLife Research Director Craig Nessler, and Texas A&M AgriLife Extension Director Doug Steele.
--I also want to echo the thanks to the College, Facilities, Planning and Construction, Randall Scott Architects, FLAD architects and SpawGlass Construction for their professional dedication to this project.
--A large thank you to the faculty, staff and students in PLPM for their hard work and efforts, and I especially thank the members of the BESC Professional Board for attending.
--Finally, thanks to all of you (audience) for attending.

--As you heard, our department is ***focused on three major Grand Challenges: 'Feeding Our World, Improving Our Health,'& 'Protecting Our Environment.'***

--The American Phytopathological Society motto is ***"Healthy Plants, Healthy Planet."*** *This simple message is extremely relevant today, as the world must produce more food & more fiber using less land, less water, and fewer agronomic inputs.*

*--Plant pathology has focused on plant microbes since its beginning. The great Irish potato famine in 1846 might be one of the best recognized events, but realistically mankind has battled plant disease for centuries. Modern plant pathology understands that all forms of higher life developed in the presence of microorganisms, and this microbial community, collectively called the '****microbiome'****, critically influences all aspects of human, animal and plant development and health. One of the department's* ***goals*** *is to use a better understanding of this microbiome to* ***improve plant yield and quality*** *while simultaneously* ***reducing disease in an environmentally sustainable manner****.*

--PLPM faculty perform research on a diverse range of plant-microbe interactions-- including ***plant immunity, biocontrol, pathogenicity, epidemiology, plant signaling, volatiles, mycotoxins, PCD, and biofuels****. We utilize all '–omics' approaches (genomics proteomics, metabolomics) to address these questions. Through these approaches, we can better understand how the microbiome determines crop health and the ability of the plant to resist stresses, such as* ***disease, drought, poor water quality & nutritiously poor soils****. Unlike animals and humans, plants are even more dependent on their microbiome because they are not motile. Because of this, when the plant microbial community is out of balance (known as "****dysbiosis****"), the negative effects on plant yields and quality can be significant, costing the grower and consumers money and wasting resources. Our graduate program immerses students in modern theories & methodologies in plant-microbe interactions.*

--Our ***undergraduate Bioenvironmental Sciences (BESC) major*** *prepares environmental professionals responsive to industry needs in the 21st century. Our majors enter careers in industry, local, state and federal government, & law where they develop & implement solutions, including* ***identification & remediation of environmental hazards, microbial threats, toxic wastes, and other ecosystem damages****. A large part of the success and rapid growth of our*

*major is directly due to the efforts of our **BESC Professional Board**. These 24 environmental professionals from across Texas play a critical role in training our BESC students. As an additional note, tomorrow the department will host our **annual BESC symposium** in the AgriLife Center from 1:30 -5 PM). Our keynote speaker will be Craig Bonds, Director of Inland Fisheries of Texas Parks and Wildlife. These events will be followed by our **annual BESC tailgate** sponsored by Mr. Doug Anderson of Gruene Environmental Companies.*

*--Our department has great and **dedicated faculty members** with expertise across diverse areas. However, the complexity of science issues we face requires strong faculty interactions. Moving PLPM to west campus will enhance our collaborative efforts with the Institute for Plant Genomics and Biotechnology (IPGB) & other College of Agriculture and Life Sciences (COALS) departments, including Entomology, Horticulture, Soil and Crop Sciences, Biochemistry and Biophysics, Ecosystem Sciences and Management, and Wildlife and Fishery Sciences.*

*--A central theme to the new building is "**Science on Display**". When completed and equipped in May 2019, this building will greatly increase our ability to compete & perform **world-class research** in plant pathology. It will also **enhance our student's educational experiences**--- from the **300-seat 21st century lecture hall**, to the **PLPM teaching laboratories**, to the **BESC experiential learning laboratory**.*

*--Combined with our modern research laboratories and rooftop **greenhouses**, these facilities will enhance the recruitment and training of plant pathologists and environmental specialists needed to **allow Texas to grow economically while maintaining environmental sustainability**. As we are all aware, natural disasters such as Hurricane Harvey and the presence of current and continual discovery of newly emerging plant pathogens serve as steady reminders of the need for these fields.*

*--Again, **thank you** all for your continued support as we work collaboratively to improve our ability to "**Feed our World, Protect our Environment, and Improve our Health!"***

--Sandy Pierson

TEXAS A&M University®

Section 2.0

Plant Pathology and Microbiology: Vision, Mission and Strategic Plans

TEXAS A&M UNIVERSITY
AGRICULTURE & LIFE SCIENCES

TEXAS A&M AGRILIFE RESEARCH | EXTENSION

Development of the department's vision and mission statements

The Department of Plant Pathology and Microbiology designed its Vision, Mission and Strategic Plans based on faculty discussion and in reference to the multiple plans, including the University's Vision 2020, Action 2015, the college's Grand Challenges, and the Texas A&M AgriLife Research and Texas A&M AgriLife Extension Service strategic plans. A brief summary of several of these plans is provided below (also see **Appendix A**).

Texas A&M University and College of Agriculture and Life Sciences Strategic Plans

Texas A&M University Vision 2020

The Academic Master Plan at Texas A&M University was adopted in 1999 as ***Vision 2020***. The Twelve Imperatives in *Vision 2020* are integrated in the Department's academic programs (see).

Five of the Imperatives are highly relevant to Plant Pathology and Microbiology and we attempt to follow these and the recommendations of the previous academic review committee as we adapt our curriculum to meet the needs of the future.

1. Elevate Our Faculty and Their Teaching, Research, and Scholarship. As we hope to be recruiting new faculty members from lecturers to tenure-track, we actively seek outstanding individuals at the forefront of science at their respective professional level. We try to identify and hire the next leaders in their field and we actively work to retain these top scholars. However, over the past nine years we have only been approved to hire one tenure-track faculty member (Chappell) and one Academic Track faculty member (Stoddard).

2. Strengthen Our Graduate Programs. The foundation of an outstanding graduate program is the ability to recruit top students. Although we annually receive inquiries and applications from a number of excellent prospective students, we are not successful in enrolling all of our top prospects. This is partly due to the quality of current facilities and our financial inability to offer multi-year support of the students. Recently:

- Faculty voted to raise our graduate student stipends significantly to try to increase competitiveness
- Recently established a spring Graduate Student Symposium to increase the visibility of the exciting research and extension performed by our students

3. Enhance the Undergraduate Experience. We developed a strong undergraduate program in the Bioenvironmental Sciences through a combination of mechanisms:

- High impact experiential learning opportunities via internships in research labs or with companies and agencies;

- Establishment of a 24 member BESC Professional Board, that supports a mentoring program that offers career advice and mock interview
- Initiation of a BESC Fall Symposium, with student poster competition, keynote speaker, and tailgate social
- Hosting the local chapter of the National Association for Environmental Professionals (NAEP) which meets twice a month with an invited environmental expert
- Encouragement of majors to join the 'LinkedIn' network (www.linkedIn.com)
- Development of a study abroad course in China.

4. Diversify and Globalize the A&M Community. We seek a diversified faculty and students who will bring different views, perspectives and ideas together to enhance and enable our programs to have global impacts. We established a department climate plan last year and it will be revised periodically (**Appendix B**).

5. Meet Our Commitment to Texas. As a land grant, sea grant and space grant institution, Texas A&M University has a responsibility to the citizens of Texas. A major goal of our academic, research and extension programs is to serve the citizens of Texas. Our Bioenvironmental Sciences undergraduates are employed throughout Texas (see section on teaching) and work to elevate environmental standards through positions in academia, business and government. Our Plant Pathology and Microbiology faculty members and majors actively work to enhance the sustainability and competitiveness of Texas agriculture.

Texas A&M University Action 2015

Plant Pathology and Microbiology and Bioenvironmental Sciences has been the leader in the incorporation of high impact experiential learning through student internships, research internships, visits to environmental fairs, senior capstone writing and communication courses, and Study Abroad opportunities. These courses and experiences meet the expectations outlined in the Academic Master Plan and the Quality Enhancement Plan (QEP) for Texas A&M University (see **Appendix A**). Dr. Heather Wilkinson served as a Faculty Fellow in the Provost's office during development of the QEP and brought her expertise back to our teaching programs. Please see the section on Teaching for more details.

College of Agriculture and Life Sciences Grand Challenges

In 2014 the College of Agriculture and Life Sciences launched a new strategic plan called the Grand Challenges (https://grandchallenges.tamu.edu/home/). The Grand Challenges consist of five basic areas: **1. Feeding Our World; 2. Protecting Our Environment; 3. Improving Our Health; 4. Enriching Our Youth; and 5. Growing Our Economy.**

Premise: Our society will face increasingly large and complex problems in the coming decades. Some of these challenges can be addressed through research, teaching and outreach in the academic fields we work on in the College of Agriculture and Life Sciences.

During the 2012-2013 academic year, the College of Agriculture and Life Sciences embarked on an exciting interdisciplinary, faculty-driven initiative to chart our top priorities for the future. This year-long process, which included a series of lectures, white paper development, and a town hall meeting, culminated with the identification of five grand challenges – feeding our world, protecting our environment, improving our health, enriching our youth, and growing our economy.

Each of the grand challenges are multi-disciplinary and interconnected. With this in mind, the College has created a searchable database that allow users to search by faculty research expertise as well as a listing of ongoing, funded research projects. This database and list of projects aim to facilitate discussion and increase involvement in our mission to address the grand challenges.

The College of Agriculture and Life Sciences hosts an annual Grand Challenge Mini-Symposium to encourage networking among Texas A&M AgriLife faculty and increase awareness of faculty research areas.

The department directly addresses 3 of the Grand Challenges.

- **Plant Pathology and Microbiology devised its research strategic plan to fit the Grand Challenges (addressed later in this section)**

Plant Pathology and Microbiology/Bioenvironmental Sciences

Executive Summary

Periodic external reviews of all degree granting programs are conducted by the Provost's office at Texas A&M University. The previous Plant Pathology and Microbiology reviewed was completed in 2011. The current review focuses on the time period beginning with the 2011 academic year and concludes with fall commencement (December 2017).

Research

Faculty in the Department of Plant Pathology and Microbiology work on all aspects of plant diseases, from **A**flatoxin production by *Aspergillus flavus* on corn **to** **Z**ebra chip in potato caused by *Candidatus* Liberibacter solanacearum. These plant diseases can cost producers thousands to millions of dollars by their devastating effects on yield and additional economic costs associated with control strategies. Faculty programs focus on a diversity of plant-microbe interactions, from plant innate immunity, biocontrol, host-pathogen interactions (signals, volatiles), mycotoxins, pathogenicity mechanisms, control of programmed cell death, to biofuels and bioinformatics. Plant Pathology and Microbiology is composed of 16 on-campus tenured/tenure track faculty and 1 academic track faculty member. One faculty member recently joined the Dean of Faculties and is no longer ad-loc'd to PLPM. We have 7 Extension Specialists (3 located at Texas A&M AgriLife Centers). Additionally, there are 7 plant pathologists administratively tied to Texas A&M AgriLife Research Centers). These researchers, along with our 5 adjunct faculty, serve on graduate student committees and address plant pathology issues across the state. PLPM faculty include a University Distinguished Professor, the Director of the Institute of Plant Genomics and Biotechnology (IPGB), the Director of the Synthetic and Systems Biology Innovation Hub (SSBIH), the co-Director of the Center for Phage Technology, and the Director of the Root/Rhizosphere Interface Grand Challenge. This year Academic Analytics ranked our faculty as 6th nationally in awards received and Academic Analytics ranked the department 5th overall of 32 plant pathology departments in the US. The department averaged $3,377,761 in grant support over this period.

Extension

We have 3 Extension Specialists located at 3 Texas A&M AgriLife Research and Extension Centers (Lubbock, Uvalde, Weslaco). We have two plant disease diagnostic centers, the Texas Plant Disease Diagnostic Laboratory (TPDDL) in College Station and the Texas High Plains Diagnostic Laboratory (HPDL) in Amarillo. We serve clients across the entire state on multiple

issues, such as mycotoxins and pathogens important in food safety, insect-vectored pathogens, including viruses, fungi and bacteria that cause disease on citrus, corn, wheat, potato, rice, vegetables, turf and many other crops.

Teaching (Undergraduate)

Students earning a B.S. in the STEM field of Bioenvironmental Sciences play direct roles in developing and implementing solutions to environmental problems. There are currently 320 majors in our three undergraduate degree programs [Bioenvironmental Sciences (BESC), Environmental Studies (ENST), and Environmental Business (USAL)]. During the period from 2011-2017, 613 Bioenvironmental Sciences students graduated from our program. Our graduates enter careers in industry or government associated with prevention and remediation of environmental hazards, such as microbial threats, toxic wastes, and other damage to fragile ecosystems. The BESC major is the largest undergraduate program among plant pathology departments in the U.S. We utilize experiential learning in our classrooms, laboratories, and offer excellent internship opportunities to ensure our students gain experience with the concepts and the technology essential for prevention, assessment, and abatement of environmental problems. From 2011 to 2017, 611 of our students have had an internship experience, many with companies, industries, and the state and federal government. Also during this period, 66 students have been funded through our Bioenvironmental Sciences Undergraduate Research Scholars (BURS) Program during which they have performed research on our faculty member laboratories. We sponsor the Texas A&M chapter of the National Association of Environmental Professionals (NAEP) and our students serve in leadership roles. During 2012, we founded a BESC Professional Board composed of environmental professionals across Texas. Our 26-member board is very involved in enhancing our student educational and career experiences, and our students have benefitted greatly from their dedication. We host an annual BESC Poster Symposium and an annual environmental career workshop. Since 2013, students may also participate in a Study Abroad course on environmental issues or plant pathology in China. To date 61 students have benefitted from this opportunity. Additionally, several undergraduate students gain laboratory research experience working with our faculty. Currently we have 42 undergraduate researchers working on special projects in our research laboratories.

Teaching (Graduate)

The field of plant pathology is primarily a graduate program, and we recruit students from Texas and across the U.S. Additionally, our undergraduate major has served as a direct pipeline for some outstanding graduate students. The department offers M.S. and Ph.D. degrees in plant pathology and microbiology. During the period from 2011-2017, we have graduated 19 M.S. and 24 Ph.D. students. The department is optimizing the balance between classroom instruction and research. Graduate students gain intense lecture and laboratory experiences, including through a series of intensive instruction modules. These modules were developed in response to suggestions from the previous program review.

In summary, Plant Pathology and Microbiology serves the needs of the state of Texas, the U.S. and the world by preparing a highly skilled workforce in the areas of the bioenvironmental sciences and plant pathology that fills critical expertise needed by business, higher education, professional schools, and private or public service. This Self-Study document highlights our successes, challenges and plans for both plant pathology and bioenvironmental sciences. We look forward to your insights to ensure that our degree programs become even stronger as their relevance to society's success grows larger.

Plant Pathology and Microbiology/Bioenvironmental Sciences

Vision:

Plant Pathology and Microbiology will positively impact our ability to **"*Feed the World*"**, ***"Protect our Environment"***, and **"*Improve our Health*"** by excelling in the education and preparation of students in the fields of Plant Health and Disease, Plant-Microbe Interactions and the Bioenvironmental Sciences

Mission:

- Conduct leading edge research on biotic and abiotic factors (plant diseases, plant pathogens, stressors) that directly and indirectly impact:
  - Plant growth, development, yield and stress resilience
  - Farmers' ability to produce sufficient safe food to feed the world
  - Plant, human, animal and environmental health
  - Sustainable and environmentally responsible crop production
- Educate and prepare leaders in the STEM fields of plant and environmental health through a creative and challenging educational environment that integrates scholarship, fundamental knowledge, and experiential learning
- Convey information relevant to plant health, food safety and environmental health to the citizens of Texas, the United States and the World through teaching and outreach

Excellence:

- Defined through departmental research, teaching, extension and service
- Includes innovative approaches to solving issues related to plant health and resiliency via understanding the plant microbiome
- Enhancing responsible environmental management to increase sustainability of the environment through environmental training

Plant Pathology and Microbiology is Unique

Plant Pathology and Microbiology provides scientific expertise (theoretical and applied) found nowhere else in the college, agencies, and university. This expertise directly and indirectly benefits Texas citizens and the state, including:

- **Expertise on multiple forms of plant-associated microorganisms**
- **Mechanisms involved in survival, development, reproduction, transition from saprophytic to pathogenic states**
- **Mechanisms involved in pathogenicity by biotrophic and necrotrophic pathogens**
- **Mechanisms in microbial communication within communities and between kingdoms, including the plant host**
- **Roles of communities of microorganisms in plant health**
- **Role of microorganisms in agronomic ecosystem health and provision of ecosystem services**
- **Diagnosis of cultivatable and non-cultivatable pathogens and endophytes**
- **Molecular and physiological growth of fungal hyphae**
- **Genetic network analysis of regulatory mechanisms determining microbial behaviors and expression of metabolites influencing plant health and toxicity**
- **Analysis of complex plant and microbial metabolite, including volatile compounds that influence plant development and stress resistance**

In preparing to hold strategic planning retreats, the department considered its current situation.

Existing Strengths of the department

- Currently 16.94 FTEs (02 + 06) with 6.84 for Extension (07)
- Faculty expertise (see above)
- Dr. Femi Alabi hired (2013) as Assistant Professor and Extension Specialist at the Weslaco AgriLife Research and Extension center. Non-teaching
- Dr. Kati Stoddard hired (2015) as an Instructional Assistant Professor (AT)

- Dr. Thomas Chappell hired (2017) as Assistant Professor (TT) on campus
- Three faculty located in the IPGB on west campus
- One laboratory in the NMR Building (C Gonzalez)
- Popular undergraduate major in the Bioenvironmental Sciences (BESC) that serves our students well
- Strong graduate program in plant pathology and microbiology (Academic Analytics ranked us 5th/32 departments recently)
- Bioenvironmental Sciences (BESC) Professional Board composed of 26 environmental professionals from across Texas
- BESC Endowment Fund initiated by the Professional Board
- BESC Honors Program
- Donald and Melba Ross Graduate Scholarship (new)
- National Association of Environmental Professionals (NAEP) Chapter, meetings twice a month with invited speakers
- Annual BESC Fall Symposium with keynote speaker and tailgate
- Annual spring PLPM Graduate Student Symposium

Limitations Hindering Department Success

- Need to maintain faculty numbers. The department has lost several faculty, including:
    Dr. Paul de Figueiredo
    Dr. Jim Starr (retired)
    Dr. Mark Black (retired)
    Dr. Dennis Gross (retired)
    Dr. Ron French resigned (2017)
    Dr. Greta Schuster resigned (2017)

New faculty needed to maintain critical core plant pathology expertise, enhance grantsmanship, and to serve our teaching mission, including graduate student mentoring and training.

- The department lacks a healthy diversity in rank. Currently, only two of our seventeen faculty (12%) are junior rank (Chappell and Stoddard)
- Predicted senior faculty retirements (~ 5) within next couple of years
- Lack of modern competitive infrastructure (greenhouses, growth chambers, cold rooms, etc.)
- Loss of 3.5 FTE of support staff (1 office, 2 building, 0.5 IT)
- Lack of modern offices and laboratories, seminar and lecture rooms required to recruit the best faculty
- Budget factors that limit the department's ability to anticipate and respond quickly to emerging opportunities and issues:
    - Changes in funding allocations (retirement, salaries, and IDC) combined with previous budget reductions

    - Department funding (~$204,000 + $59,000 fringe) several faculty and staff salaries on IDC funds due to a lack of sufficient budget support
- Inability to offer more than one-year support to incoming graduate students. This lack of graduate student support negatively impacts our ability to recruit the best possible graduate students
    - Department spends ~$250,000 (salary, tuition and fringe) to support eight GATs using combined centrally provided and IDCs
- Obstacles to collegiality, cohesiveness and integrated research within the unit:
    - Physical separation of members of the department across the campus
    - The lack of a department-controlled seminar room
- Lack of classroom assignments in Peterson has required Peterson faculty members to travel to west campus for all classes except lab courses. This requires an additional 30-60 minutes of transit time depending on the time of day due to the large enrollment at Texas A&M
- As faces all departments, reduced NIFA federal competitive funding in plant sciences (38% of total in 2008, currently 18% in 2013-source: M. Draper)

As part of our continuing efforts to be more successful and effective, the department has held two strategic planning retreats over the past several years. The next sections describe this process and the results of the strategic planning retreats on research and extension, respectively. These are described below.

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Plant Pathology and Microbiology Strategic Plan- Research

PLPM Strategic Plan- Research

Background

The College of Agriculture and Life Sciences underwent a strategic planning exercise during 2012-2013. One outcome of this effort was the launch of the Five Grand Challenge areas. These five areas would serve as the basis for future resource allocations and faculty hiring.

(https://grandchallenges.tamu.edu/home/)

In response to the five Grand Challenges, the department organized a strategic research retreat to discuss how to develop new a new department strategic plan that supported the college's goals and objectives. Two moderators were hired and the retreat held Dec. 17, 2013 at the G. Rollie White Center.

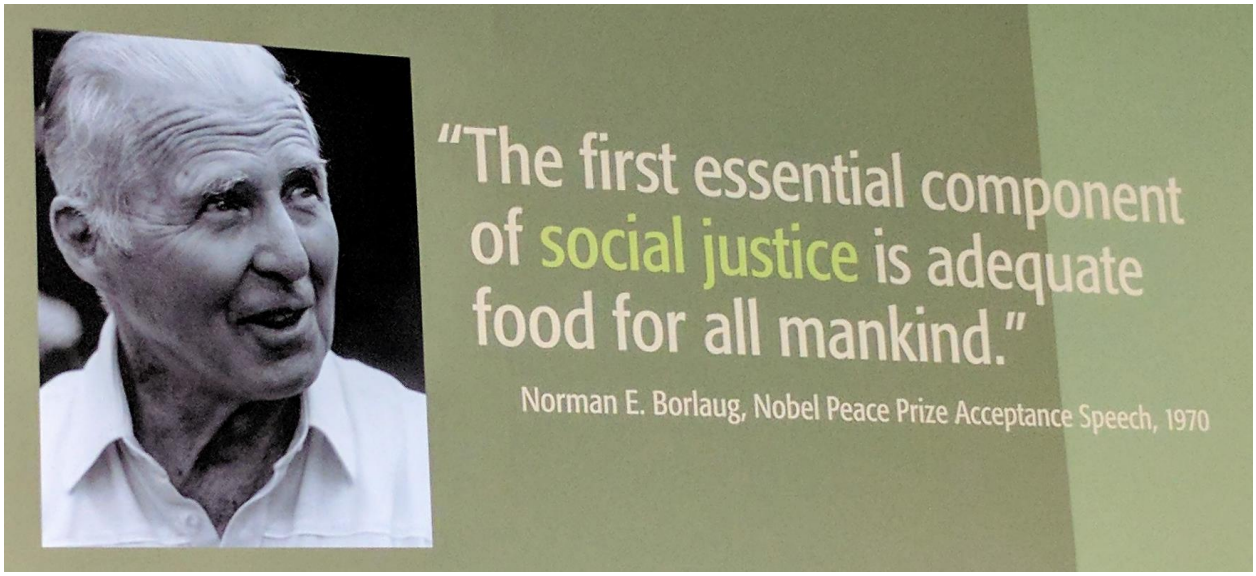
Faculty were charged with identifying key research expertise in the department and identifying which areas of expertise were most directed to support the Grand Challenges. The opening catchphrase was "How do we position our department for future success under the 5 Grand Challenges." Initially 22 separate areas of expertise were identified, which through further discussion were narrowed to eight. After continued discussion, consensus agreed on five major focus areas for the department that directly or indirectly supported 4 of the colleges 5 Grand Challenges (**Fig 1**).

Of these focus areas, unanimous agreement listed the importance of the emerging area of 'Phytomicrobiomes' as the top priority supported by the other 4 areas. Using this logic scheme, which supported the colleges strategic plan, a matrix was designed that incorporated and prioritized the department's 5 focus areas into a priority hiring matrix to guide new faculty hires over the next 5-7 years as many of the current faculty would be retiring within that timeframe (**Fig. 2**). As a consensus the faculty ranked the hiring of a Phytomicrobiomes faculty member as the top need. Logic for this ranking is supported by the department's long-term commitment to plant-microbiology at the graduate level and the Bioenvironmental Sciences at the undergraduate level. The central role that plant microbiomes influence all aspects of plant and environmental

health. This was exceedingly timely and fit extremely well with the American Phytopathological Society's new Phytobiomes Initiative that involved our department head in the preparation and writing of the Phytobiomes Roadmap. Note that all of 5 of these focuses linked the graduate to the undergraduate teaching and research areas within the department.

The department requested permission and assistance to hire new faculty members in 2014 and 2015 in the priority areas of 1) Phytomicrobiome, 2) Epidemiology, and 3) Nematology.

- In 2016, we were given permission to begin advertising for a molecular epidemiology and modeler assistant professor position. We are very pleased to have Dr. Thomas Chappell as a member of the department as of Sept. 1, 2017.
- In the summer of 2017, we were approved to recruit a plant microbiome faculty member at the assistant professor level. We have requested recruitment of a plant nematologist to replace Jim Starr (retired) without success.
- The department recognizes that lack of nematology expertise is an area of expertise lacking in the department.
- The recent retirement of Dr. Dennis Gross resulted in yet another need for the department to recruit a plant bacteriologist.



A quote from Dr. Norman Borlaug (displayed in the AgriLife Center).

Fig. 1

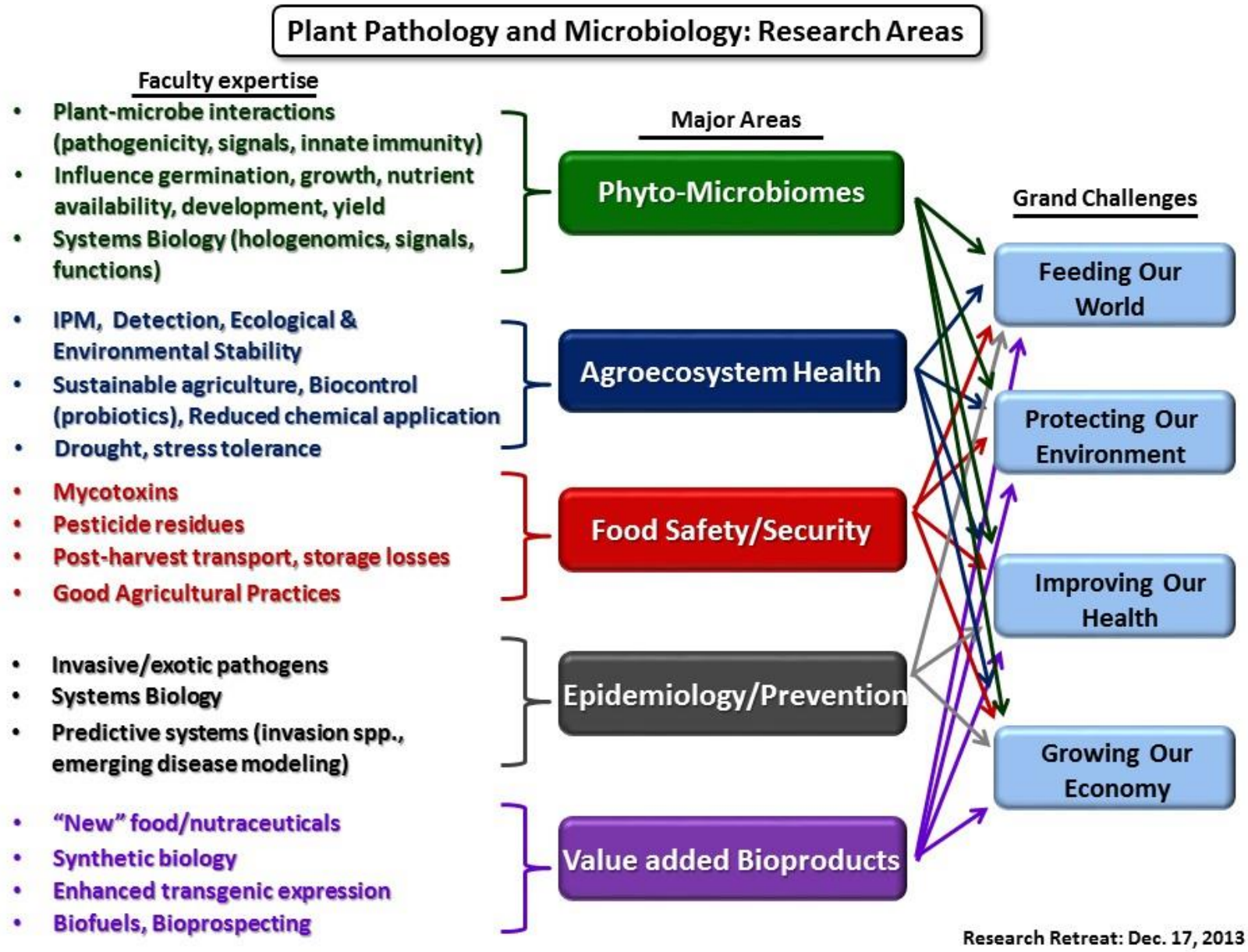
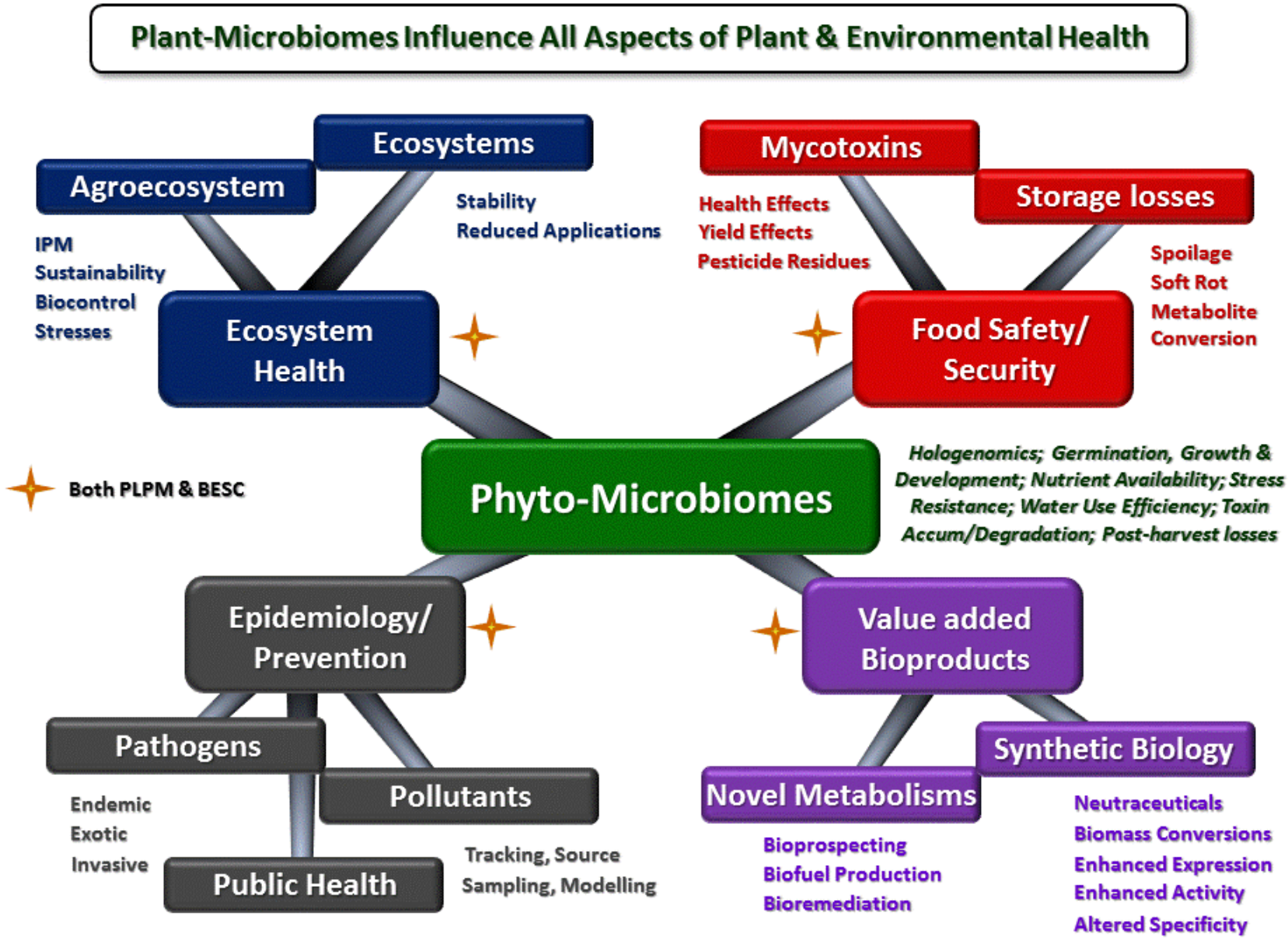
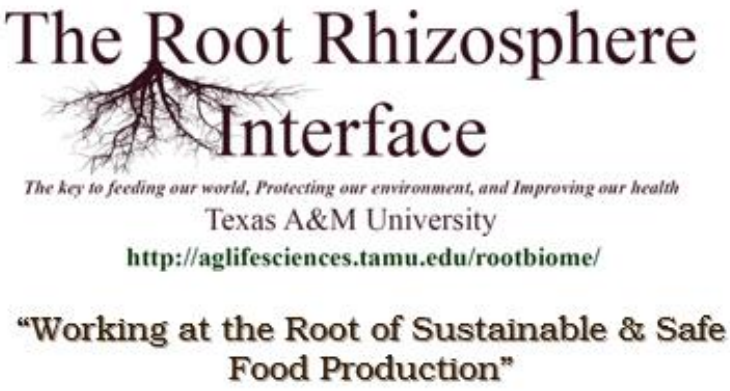

Plant Pathology and Microbiology: Research Areas
Faculty expertise
Plant-microbe interactions (pathogenicity, signals, innate immunity)
Influence germination, growth, nutrient availability, development, yield
Systems Biology (hologenomics, signals, functions)
IPM, Detection, Ecological & Environmental Stability
Sustainable agriculture, Biocontrol (probiotics), Reduced chemical application
Drought, stress tolerance
Mycotoxins
Pesticide residues
Post-harvest transport, storage losses
Good Agricultural Practices
Invasive/exotic pathogens
Systems Biology
Predictive systems (invasion spp., emerging disease modeling)
"New" food/nutraceuticals
Synthetic biology
Enhanced transgenic expression
Biofuels, Bioprospecting
Major Areas
Phyto-Microbiomes
Agroecosystem Health
Food Safety/Security
Epidemiology/Prevention
Value added Bioproducts
Grand Challenges
Feeding Our World
Protecting Our Environment
Improving Our Health
Growing Our Economy
Research Retreat: Dec. 17, 2013

Fig. 2


Plant-Microbiomes Influence All Aspects of Plant & Environmental Health
Ecosystems
Agroecosystem
Stability
Reduced Applications
IPM
Sustainability
Biocontrol
Stresses
Ecosystem Health
Mycotoxins
Storage losses
Health Effects
Yield Effects
Pesticide Residues
Spoilage
Soft Rot
Metabolite
Conversion
Food Safety/ Security
Both PLPM & BESC
Phyto-Microbiomes
Hologenomics; Germination, Growth & Development; Nutrient Availability; Stress Resistance; Water Use Efficiency; Toxin Accum/Degradation; Post-harvest losses
Epidemiology/ Prevention
Value added Bioproducts
Pathogens
Pollutants
Endemic
Exotic
Invasive
Public Health
Tracking, Source
Sampling, Modelling
Synthetic Biology
Novel Metabolisms
Bioprospecting
Biofuel Production
Bioremediation
Neutraceuticals
Biomass Conversions
Enhanced Expression
Enhanced Activity
Altered Specificity

An example of the role of PLPM in a Grand Challenge Project

The Department's programs address three College Grand Challenges (Feeding Our World, Protecting Our Environment, Imroving Our Health) through its undergraduate and graduate teaching and research and extension efforts. As an example of this, the DH led a team that submitted 'The Root/Rhizosphere Interface' as a Grand Challenge initiative. A summary of the project follows.



The **Root/Rhizosphere Interface** is a collaboration comprised of approximately 27 faculty members across Texas that belong to the departments of PLPM, ENT, ESSM, HORT, and SCSC plus multiple Texas A&M AgriLife Research faculty at 5 research and extension centers. Accomplishments to date include:

- Establishment of a Coordinating Committee and Research Focus Groups with Project Leaders in the areas of Root Biology, Root Imaging, Root Breeding, and Root Microbiome;
- Development of a project website (https://aglifesciences.tamu.edu/rootbiome/);
- Developed 2 courses: HORT/MEPS/PLPA618: Root Biology, 3 units, and BESC481C-931: The Plant Microbiome, 1 unit senior capstone course;
- Hosted 8 experts in the field of the plant-microbiome, and;
- Led recruitment efforts for a Presidential hire in the area of Phytobiome Biology (unfortunately unsuccessful, primarily due to lack of infrastructure).
- The initiative was presented at various venues, including: 2016 State Ag and Rural Development Leaders (SARL) summit; Phytobiomes Roadmap Strategic Planning meeting hosted by the Samuel Roberts Noble Foundation; Foundation for Future Agricultural Research Funding (FFAR); American Society for Plant Biology Plant Science Research Network (ASPB-PSRN); TAMU Microbiota Research Interest Group; and The American Institute of Biological Sciences (AIBS).
- To date, members of the RRI have successfully competed for >$10 M in competitive grants from a variety of sources, including NIFA, NSF, DOE-ARPA.

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Plant Pathology and Microbiology Strategic Plan- Extension

PLPM Strategic Plan- Extension

Dr. Jason Woodward became Associate Department Head of Extension in 2015. One of his first steps was to organize and host an extension retreat in 2016 to examine our strengths, weaknesses, opportunities and threats (SWOT)**.**

Prepared by Jason E. Woodward

Mission

Develop and deliver innovative solutions for the diagnosis and management of plant diseases to promote sustainability and economic viability for the citizens of Texas.

Program overview

Currently, there are a total of six Extension Specialists and one Program Specialist in PLPM with responsibilities over the state of Texas (equivalent to the size of France and Switzerland combined). Several of these Specialists have joint appointments with other agencies and/or universities. As a result our unit has a total of 6.84 FTE. The current statewide distribution of Specialists includes College Station (Appel, Isakeit, Jo, Ong and McBride), Amarillo (open), Lubbock (Woodward), Uvalde (Cochran), Weslaco (Alabi) and Kingsville (open).

The overall objective of the Extension Plant Pathology Unit is to provide rapid and reliable diagnostic services to people of the state of Texas. Proper identification of disease problems is critical in order for disease management strategies to be effective. Specialists are placed throughout most of the state, providing a strategic network to detect pathogens and inform clientele of possible disease outbreaks. The hub of this statewide network is the Texas Plant Disease Diagnostic Laboratory (TPDDL) in College Station, which is a member of the Southern Plant Diagnostic Network (SPDN). We also have the Texas High Plains Diagnostic Laboratory (THPDL) located in Amarillo (open, temporarily overseen by C. Rush), which is affiliated with the Great Plains Diagnostic Network (GPDN). Together these two laboratories provide diagnostic services to homeowners, nurseries, producers AgriLife Specialist, volunteers and special projects. Logistically, the two labs serve southern and northern regions of the state, respectively. The remaining Specialists service most all of the other agricultural sectors including row crops, turfgrass, vegetables, grapes and small fruits. Plans are underway to create a satellite laboratory in Fredricksburg to better meet the needs of grape and small fruit growers (Appel Prospectus).

Vision, Challenges and Opportunities for Growth

The vision for the Extension Plant Pathology is to unify efforts in the area of disease diagnosis.

Opportunity 1: We propose officially to make the TPDDL the flagship program of our unit. Current changes in billing through credit cards would allow the THPDL the opportunity to create an accounting system, as one is currently non-existent, congruent with the TPDDL. Generation of

such funds will facilitate reporting the impact of the clinic(s) to stakeholders, as well as create a revenue stream that can be used to support operations and possibly a Program Specialist.

Dr. Ong is Director of the TPDDL and is to be commended for his efforts in running this unit. In addition to one Program Specialist, the lab employees three Extension Assistants, six Student Workers and one Business Assistant, which is done primarily through soft funds. Funding for a Diagnostician, classified as the Program Specialist, is comprised of roughly three parts: Departmental, SPDN and Specific Research Grants. The current level of support received from the Department, which is allocated from Administration, is consistent and greatly appreciated; however, commitments from the SPDN are continuously being reduced. The future of these funds, added to the uncertainty of research opportunities, greatly affects the sustainability of this position. Dr. Ong is also to be recognized for getting STAR-D accreditation for the TPDDL (see Section 4).

Opportunity 2: Rapid growth in the grape and wine industry in the last 10 years has greatly impacted the state's economy. Across the state, various fungal, nematode and bacterial diseases greatly reduce grape production. Wine grape production in the Texas Hill Country has especially been plagued by such diseases. Furthermore, the impact of virus diseases is poorly understood at this time. Creation of the Texas A&M AgriLife Extension Viticulture and Fruit Laboratory in Fredericksburg has provided growers with a state of the art resource in the area. Recently, funding was made available to help support diagnostic efforts at that facility. We hope to leverage that money with other resources to create a Program Specialist position that will play an active role in the diagnostic needs and best management practices for grape and small fruits. In the long-term, the role of Extension Plant Pathology at that location will be to develop, utilize and offer novel tools for the diagnosis of difficult to identify pathogens such as fastidious bacteria and viral diseases. These services would be fee-based, and would compete with the limited, high priced commercial services that exist currently. This again would enable the generation of funds that could be used to augment existing operational budgets.

Such growth would greatly increase the visibility of Texas A&M AgriLife Extension, while meeting the demands of clientele in the region. We anticipate the volume of samples handled by the TPDDL will also increase as will the need for clerical support. The reclassification of a Program Specialist would also create a void that would need to be filled by a full-time diagnostician. Several positions are funded in the clinic; however, the efforts of such positions are tied to projects coming from short-term grants. Increased support by way of funds committed to salaries provide stability in the short-term that will lead to a greater return on initial investment in the long-term and allow the Agency to fulfill the Land Grant mission.

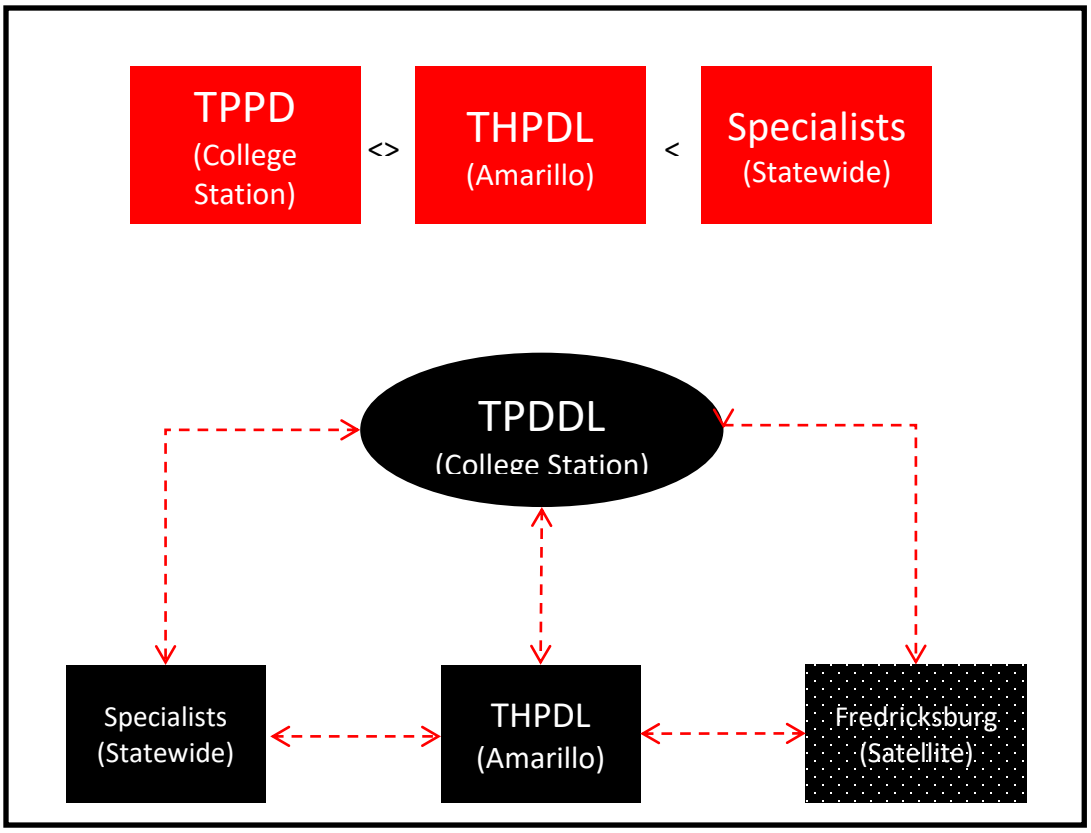


Figure 1. Current (top) and proposed (bottom) linkages among existing and proposed diagnostic facilities.

Projected Impacts

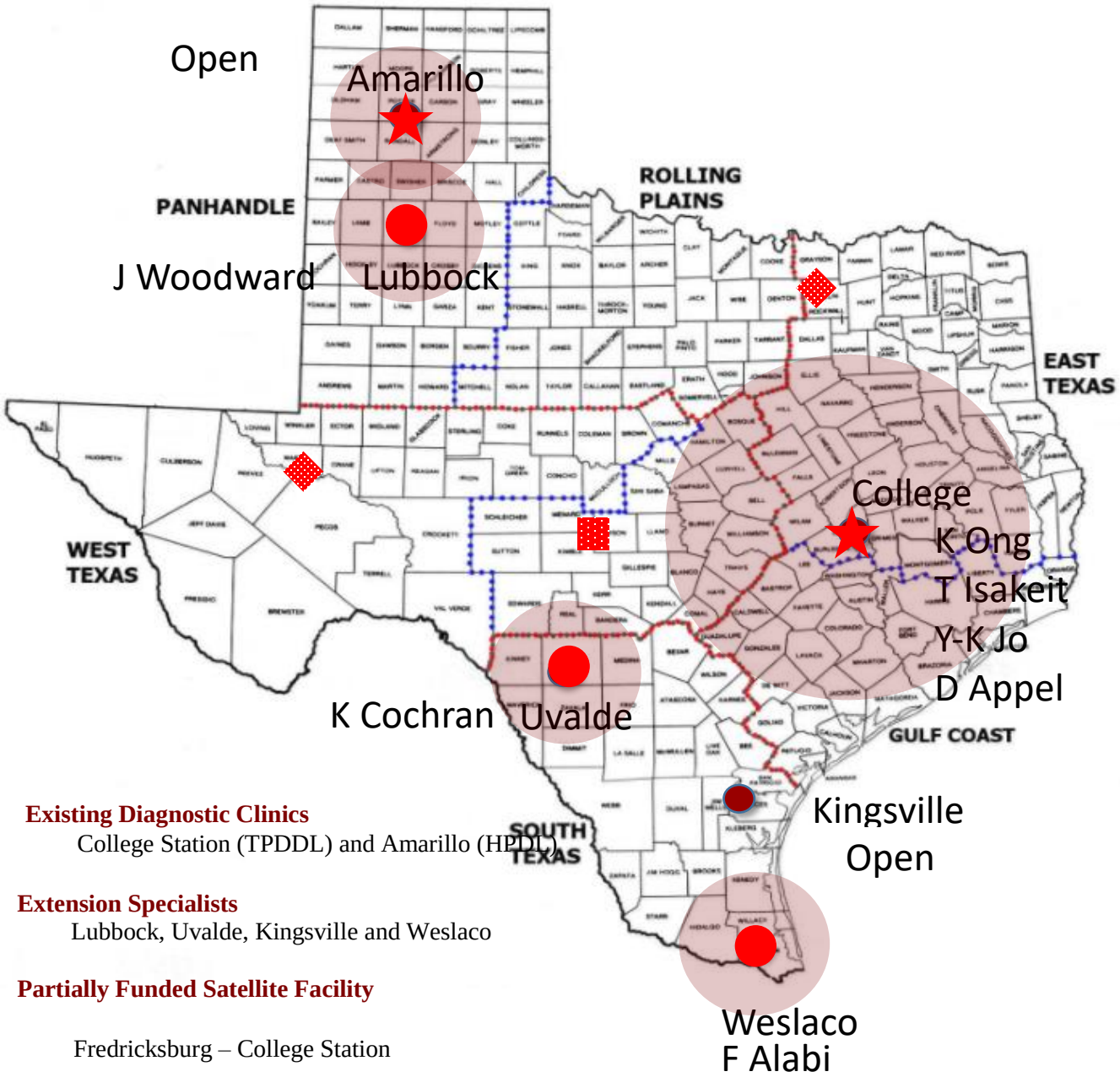
Scenario 1: Strengthening of diagnostic services to respond to bacterial diseases (*Xanthomonas* spp.). Recent outbreaks of bacterial diseases caused by *Xanthomonas* spp. have occurred throughout the southern U. S. Extension plant pathologists have been on the forefront of these issues in Texas. The resurgence of Bacterial blight of cotton (*X. axonopodis* pv malvacearum) and development of symptoms on varieties proven to be resistant has caused great concern. Cooperation with AgriLife Research personnel and specialists from other states led to AgriLife receiving a Federal Grant. In addition, our specialists have been actively involved in developing and refining quarantine and sampling protocols for Citrus canker (*X. axonopodis* pv citri) with the Texas Department of Agriculture. Furthermore, our specialists in conjunction with the USDA-APHIS recently confirmed the presence of *Xanthomonas vasicola* pv. vasculorum. Communication among specialists has and will continue to allow our unit to be responsive to producer needs and helps facilitate the collaborations needed to develop methodologies to expedite diagnosis of these and closely related pathogens.

Scenario #2: Strengthening of diagnostic services to respond to viral diseases (identification emphasis). Advances in molecular techniques have revolutionized our ability to identify plant and animal viruses. Expertise that is currently in place within the Plant Pathology and Microbiology Extension Unit is positioned to develop, adapt and deploy such technologies in order to respond to clientele needs. An example of our recent efforts has led to promising results in identifying and

characterizing viral pathogens in wheat, roses and wine grapes. Unity among our diagnostic labs will further extend our reach of these services to existing and other commodity groups as needed.

Dr. Young-Ki Jo with PLPM graduate students examining field crops for pathogen issues as part of his PLPA 623 Diseases of Field Crops course offered in the summer.

Proposed Extension Plant Pathology Diagnostic Network



★ **Existing Diagnostic Clinics**
College Station (TPDDL) and Amarillo (HPDL)

● **Extension Specialists**
Lubbock, Uvalde, Kingsville and Weslaco

■ **Partially Funded Satellite Facility**

Fredricksburg – College Station

◆ **Proposed Program Specialist Positions**

Reflections: Extension

Our greatest strength is the commitment and expertise of our 5 extension specialists and 1 program specialist to Texas growers. However, even at full strength, having 6.3 FTE extension specialists expected to cover a state the size of Texas (think France and Switzerland combined), efficient coverage of all grower needs is a challenge. The recent resignation of Dr. Ron French. who oversaw the High Plains Plant Disease Diagnostic Clinic in Amarillo and the recent resignation of Dr. Greta Schuster at Texas A&M Kingsville due to her assumption of the department head role at that institution amplified this challenge. In addition to personnel losses, proposed reductions to our unit budget pose significant challenges. However, opportunities to accomplish our newly developed "Strategy in Strengthening the Impact of Extension Plant Pathology in Texas" exist. Below are four potential solutions to addressing the posed budget reduction and resignation of Dr. French.

Solution #1.

> Proceed with executing the proposed Budget Reduction Scenario sent forth at Dr. Miller's request (10-April), where a reduction in force would be required. In this scenario we feel that the 0.25 FTE position that we have with Texas A&M Kingsville, plays the least important role in our units ability to address needs of clientele or strengthening the impact of plant pathology from a statewide perspective. This would require that the position soon to be vacated in Amarillo be refilled as soon as possible.

Solution #2.

> Substitute the position (0.25 FTE) lost in Kingsville with the position that was vacated in Amarillo (1.0 FTE).

Solution #3.

> Execute the reduction regarding the 0.25 FTE position in Kingsville and reallocate funds from the position to be vacated in Amarillo to hire a new Extension Specialist that will be located elsewhere in the state (Dallas or El Paso). This will require that the laboratory in Amarillo be staffed by AgriLife Research personnel, currently involved in various aspects of the clinic (C. Rush lab). Appropriations will need to be made within the department to make sure that operating budget associated with the clinic will cover the operating budget.

Solution #4.

> Similar to solution #4, we propose reallocating funds associated with the Extension Specialist position to be vacated to Program Specialist(s) positions for the aforementioned areas.

Summary

With the replacement of strategic extension specialist positions and the addition of a program specialist, PLPM Extension can continue to serve the needs of our clientele in Texas.

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Changes Implemented Since Prior Academic Program Review (2011)

Changes Implemented Since Previous APR (2011)

Introduction

The Department of Plant Pathology and Microbiology underwent its last program review in 2011. The findings of the external review team and our responses and implemented changes as the result of that review are detailed below.

Major findings by the review team:

- The Department is doing well with energetic and successful teaching and research activities.
- The Department's plans and actions align well with the University's Vision 2020 goals.

Responses to the Review Team's Report

Undergraduate Teaching Program (Bioenvironmental Sciences):

We agree that the BESC program is innovative and successful, and faculty and staff in the Department work extremely hard to make it so. The BESC Honors Program is a natural progression in the major and is part of a planned effort to enhance the quality of the major for our top students. It was also the first Honors Program in the college. The committee noted that one of the strengths of the program is it is nationally unique. In fact, sufficient interest was generated nationally in the major that I was invited to discuss the major at the American Phytopathological Society meeting that year in Hawaii. The committee also noted that the program requires plant pathology faculty to teach outside their area of expertise. This is true, and some faculty are incorporating their plant pathology expertise into the concepts taught in several of the courses. In fact, this incorporation of a recognition of the role of plants, microbes and agriculture in environmental sciences makes our graduates unique as they enter the environmental field.

As the 2011 APR committee noted, the number of "environmental" studies majors at TAMU is confusing to students. One previous constraint to the BESC major was a lack of visibility. Since students usually discover the BESC major after 1-2 years, they run into 120 h credit limit issues before they complete the BESC requirements. We continue to be more conspicuous, and our academic advisor actively promotes the degree. An earlier issue was potential competition from the College of Geosciences, which has an environmental program that has a different core focus. However, our faculty, especially Dr. Heather Wilkinson, has established good relations with Geosciences, and they have begun recommending to their students to take some of our classes that best fit their career goals.

Response to specific recommendations:
1. Provide funds to Teaching Assistants to support BESC courses.
The department originally funded two GATs, and these students support our plant pathology laboratory courses, of which we offer four sections each semester. We agreed that additional GAT support would benefit the BESC major, especially courses such as 'Environmental

Sampling' that takes a large amount of the instructor's time to prepare and conduct. In the past few years, we increased our support for Graduate Assistant, Teaching (GAT) from four to eight using fee monies including distance education (DE) and IEEF funds.

2. Continue efforts to recruit more first and second year students.
This is ongoing, and we have gained increased visibility among incoming freshmen. We will continue to pursue additional events aimed at increased visibility on and off campus.

3. Develop a course to meet the International and Cultural Diversity requirements with biological content. The previous team encouraged a course for non-science majors. One issue that we face with all new courses is the number of levels of approval that must be garnered for any new course, with the probability of being blocked at a number of levels by other departments. We proposed to use our course 'Pathogens, the Environment and Society' (BESC314) for Cultural Diversity credits twice and been denied both times. We will continue to explore this option.

4. Consider prioritizing a faculty member with BESC expertise for the next hire.
We were authorized to recruit a lecturer position for the BESC major in 2015. Of the applicants for this position, Dr. Kati Stoddard was exceptional due to her background in environmental sciences both at the BS level (a former BESC major) and through her M.S. and Ph.D. graduate studies in the environmental sciences. Dr. Stoddard had been asked to serve chair at Texarkana. We were able to recruit her to our department as an Instructional Assistant Professor. This is an Academic Track (AT) position. Dr. Stoddard teaches multiple core BESC courses in the classroom and as distance courses, and she serves as the faculty liaison to our chapter of the National Association of Environmental Professionals (NAEP).

5. Use of graduate students to grade undergraduate student writing. This suggestion was considered but not pursued due to the high demands already placed on our graduate students.

6. Unify the environmental studies majors across campus.
This would be a good way to integrate the major across campus, with specific departments actively leading in tracks related to their expertise. For example, as plant microbiologists PLPM would be a natural leader in biological issues, whereas a faculty member in Geosciences or Soil and Crop Sciences might lead in soil chemistry. However, this is a college-level responsibility.

7. Identify classroom space for use for BESC teaching.
Classroom size is one of the limitations to growth of the BESC major. In fact, the only BESC course taught in the LF Peterson Building at this time are our laboratory-based courses. Our hope is that this issue will finally be solved upon completion of the new PLPM building on west campus in May 2019.

Graduate Teaching Program (PLPM major):

The Department currently trains approximately 35 graduate students. The APR team thought this is a good number of students and provides a critical mass for interaction both among themselves and with the faculty. Recognition of the efforts by faculty to recruit under-represented students was appreciated, as this demands tremendous time and effort. Several international efforts are

underway and are still relatively new for the department. However, we continue to pursue appropriate international collaborations for graduate teaching where and when appropriate. With regard to some of the constraints, the current graduate curriculum is based on the needs of the students plus the Department's need for WSCH. On the subject of required courses, it is interesting that the panel noted we require too many PLPM-specific courses while also noting that graduate students often want more training, which often is not directly relevant to their graduate program.

Response to specific recommendations:

1. Review and revise the curriculum to streamline the core curriculum.
The department has made major revisions to its program. First, the separate Undergraduate and Graduate Program Committees were dissolved. The department head established a single Curriculum and Assessment Committee (CAC) (see department committees and the Assessment sections) in which all teaching faculty are members. The department held multiple meetings to discuss how to minimize duplication of material and we explored alternate methods to reduce the required number of graduate courses our students were required to take while maintaining our WSCH numbers.

2. The WSCH system has created perverse incentives.
This is not an issue that the department can address.

3. Student stipends should be increased to levels comparable to other graduate programs. A more equitable pay-scale should be created.
The Department's stipends were based on the mean level of stipends in COALS and allied departments at TAMU. Much of the current inequity in the pay system is due to the mechanisms of pay incentives, such as the one-time $7K enticement funding for a limited number of applicants funded by the college. How question how students can feel equitably treated when the system itself creates inequities. To enhance our competitiveness, the faculty voted in 2014 to increase graduate student stipends from $19,600 (+ tuition) for Ph.D. and $19,000 (+ tuition) for M.S. students to $24,000 (+ tuition) for both Ph.D. and M.S. students.

4. Continue recruiting efforts to maintain a critical mass of graduate students.
Ongoing. As all plant pathology departments observe, it is increasingly difficult to recruit the best students as agricultural sciences in general become less attractive to students. Previously, limitations in graduate student stipends, limitations in central support, and the lack of sufficient teaching assistantships made recruiting and retaining graduate students problematic. Our Graduate Recruitment Committee has done an outstanding job of contacting and bringing excellent candidates to the department.

5. Increase program flexibility with regard to transfer credits and required course substitutions.
We re-evaluated transfer credit opportunities. However, many students that have received credit at foreign institutions (which only increases as our international efforts expand) we have found have poor plant pathology backgrounds. They do require more coursework to become proficient. The student's graduate committee has authority to alter the required course load to fit the student's career needs and goals.

6. Increase involvement of off-campus center-based faculty in graduate training.
This is an important goal. Obstacles we to overcome include distance, travel time, lack of affordable accommodations at several centers and food costs. Housing is also an issue. Most apartments in College Station only allow 12-month leases, and students cannot afford to be paying rent at two locations. We will continue to examine ways to make this opportunity available. One hurdle is the current requirement that M.S. and Ph.D. graduate students complete 9 credit hours of their coursework within Brazos County as determined by the THECB (http://eahr.tamu.edu/residence-requirement). An additional hurdle is our current lack of technical ability to easily teach graduate courses at a distance. Over the past several years, we had a student at the Weslaco Center jointly advised by Dr. Herman Scholthof on campus and Dr. Erik Mirkov at Weslaco. Also, this past year we had one student advised by Dr. Shane Zhou at the Beaumont Center. The arrival of Dr. Jeanmarie Verchot at the Dallas center this year offers us potentially new opportunities for these effort as Dallas is physically a 3 ½ hour drive , not 5-7 hours away.

Research and Scholarship:
The Department has tried to maintain a well-balanced portfolio of expertise in order to train students in the breadth of plant pathology and to serve the needs of the citizens of Texas. The reviewers recognized the then lack of coordination between the campus-based faculty and faculty located at the IPGB and at Research Centers around the state. This has been a long term issue as little was done to alleviate the perception that facility at each facility had different priorities for teaching and research. The fact that the department head has no authority over Texas A&M AgriLife Research Faculty located at centers compounds this impression. This is frustrating since the department, and not the center directors, is charged with organizing and supporting these faculty promotion packages. Improved coordination of oversight across the multiple facets of the department would strengthen integration.

Response to specific recommendations:
1. See section on Facilities.

2. The Department should identify one or two distinguishing fields of research excellence and work collectively to focus current collaborations and future hires to strengthen these areas.
In response to this excellent suggestion, the department held an off-campus research-intensive retreat in 2013. During this professionally moderated retreat, faculty initially identified 28 different areas of expertise. Over the course of the retreat, faculty agreed to narrow these to five main focuses. We have been using this priority system to make requests for new faculty for the department. However, since 2013, we were approved for only one new hire (Dr. Tom Chappell) and only recently were approved to search for the second prioritized position (Plant microbiome). Please see the Research Strategic Plan section for more details.

3. The Department needs to be more structured for new faculty mentoring. We have a mentoring structure approved by the Provost and COALS in place.

4. Encourage the Department to work with COALS or TAMU development to build a strategy to create an endowment for the department's programs.

This is ongoing at multiple levels. Due to the fact that the department as it currently exists was begun in 1985, it competes directly with several other more established departments (SCSC, Hort) for some possible donors. Also, plant pathology historically does not produce graduates with similar means as other disciplines such as engineering does. Therefore, we first have focused on our undergraduate BESC program as the environment is (or should be) important to everyone.
We reached out and established a **BESC Professional Board** in 2012. The Board has been a major step forward (please see the section of the Board). We were assigned a college development officer (one of four departments they were responsible for) five years ago. Unfortunately, our officer left for another position. After a period of time, we were assigned another development officer. Ms. Jennifer Burnett has been actively promoting the department and making multiple contacts. She and the department head have made several trips to establish relationships and cultivate contacts for support for the program. A major result was the establishment of the **BESC Excellence Fund** in 2012. More recently, the recognition of the BESC program resulted in the establishment of the **Donald and Melba Ross Graduate Scholarship in Microbiology** in 2013. We will continue to make efforts to establish contact with former students, both undergraduate and graduate. Our BESC Professional Board is actively involved in fundraising. The establishment of an annual BESC tailgate Bar-B-Q is one example of their efforts. Examples of development flyers are in **Appendix C.**

Facilities:
The review team noted that the Borlaug Center was very good space and the Peterson Building was the single largest constraint to the department's continued success. The lack of a dedicated room for departmental seminars was and continues to be a serious threat to department continuity. The previous room in Peterson used for departmental seminars was taken away by the Registrar despite numerous attempts to get it back.

Response to specific recommendations:
1. The administration urgently needs to develop a realistic and immediate plan to move PLPM, including the plant diagnostic lab, to appropriate space on West campus.
The college administration has been well aware of the issues with the Peterson Building. We are extremely excited that construction of a new PLPM building is ongoing on west campus to replace the Peterson Building.

2. Short-term stopgap measures should include the purchase of two more golf carts, upgrade the Peterson electrical wiring, provide priority room assignment for one 60-seat classroom in Peterson for departmental seminars, and adequate building maintenance.
a. The department purchased one golf cart several years ago to try to make getting across campus easier for faculty and students. Having additional carts would be useful, but the impending move to west campus makes this issue nonessential.
b. The issue of electrical wiring in Peterson was prohibitively expensive for the Peterson Building. Unfortunately, in 2016 a major transformer failed in Peterson, leaving the department and its 18 -80ºC freezers without consistent power for ~2 weeks. Freezers were chilled intermittently, but we still do not know the full extent of the loss to strain collections this event caused. A junction was installed and several freezers were relocated to a common room on the Peterson first floor. These could be connected to a generator truck in case of future power

emergencies. However, I learned subsequently that getting a generator truck to this site would be problematic.

c. The control of a classroom of sufficient size for departmental seminars is a necessity. Although only 6-9 graduate students enroll in the seminar course each semester, departmental faculty, post-doctoral students, technicians, graduate students and undergraduates plus visiting scientists also attend, resulting in weekly audiences of 60-70. As seminar is a focal point of the department socially and scientifically, loss of quality seminar space has reduced interactions and frustrated the department. With the loss of building proctor and manager due to budget constraints, the Peterson Building and its limited resources has continued to decline.

Department Culture:
The Department is successful due to the efforts of the faculty, their commitment to both undergraduate and graduate education is obvious and their research programs are important. The committee identified a growing perception by the faculty on main campus that they are not as valued as those on west campus. This partly a result of most of the junior faculty being located (or recently relocating to) the Borlaug Building while the senior faculty are on main campus in the Peterson Building. A perception is that the "research" faculty are in Borlaug while the "teaching" faculty are in Peterson with less functional space and equipment. The Main campus faculty also do not have adequate access to the facilities and greenhouses in Borlaug, further widening the perception. In addition, at the time of the review, non-departmental remodeling and personnel hiring occurring in Borlaug for a genomics/bioinformatics center was in stark contrast to the reductions in staff and salaries being felt by PLPM faculty.

Response to specific recommendations:
1. Please see response 4 under Research and Scholarship.

2. Department members need regular physical mixing to preserve a sense of common scientific purpose and prevent decisiveness.
The Department Head has gatherings at his home, which are well attended. The Department should explore more after work get–togethers. The reduction in regular departmental seminars due to (i) loss of a consistent room semester after semester, (ii) the reduced seminar budget, and the physical separation of the department has reduced weekly faculty mixing. More activities have been developed, including the fall BESC symposium and the spring PLPM graduate symposium.

3. The process of revising the curriculum and identifying strengths could help harmonize the department's internal culture.
We have held two department retreats, one focused on research, and one focused on extension. In addition, the old separate Undergraduate and Graduate Program Committees were dissolved and a common Curriculum and Assessment Committee (CAC) formed. The CAC has worked to redesign the graduate curriculum and to integrate the BESC curriculum. However, more work needs to be done, as the majority of time has been spent on assessment (see section of Assessment).

4. Strategic discussions on research and teaching expectations are needed.
See above.

5. Teaching expectations should be made explicitly at the time of hiring and teaching accountability needs to be clarified and rationalized.
We agree. However, current letters of offer are clear with a few exceptions. In fact, although several faculty disagree, every faculty member in the department teaches. Not all faculty teach the same amount, but that is based on alternative faculty contributions to the core missions of the department as directed by the college and agency administrative leadership.

6. An ongoing policy of transparency will help ensure mutual understanding and lead to increased mutual respect within the Department. A departmental "brag sheet" is recommended to highlight research, teaching and extension successes.
The Department head hosts awards during the spring celebration at his house. During this celebration, promotions, tenure, special awards and other individuals are honored for achievements. Recently, the department awards committee has developed plans to get more faculty, students and staff recognized for their service and accomplishments.

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Section 3.0

Department Support Personnel

Staff Descriptions and Duties

The department's success is dependent on our core of dedicated staff members. Our staff provide a wide range of services and support to the faculty and students in our department. Administrative staff members provide clerical, IT support, accounting, payroll, and student service functions. Technical staff members, paid primarily from grant sources, assist in various aspects of laboratory and field research.

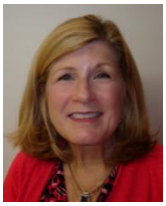
Budget cuts in 2010-11 resulted in the Reduction in Force (RIF) loss of 1.5 office, and 2 building, support personnel, a significant reduction. The positions affected included:

- Greenhouse Manager
- Building and Common Equipment Oversight/Maintenance
- Receptionist/Travel
- IT Support (loss of 50% FTE)

Many of the duties previously performed had to be absorbed by other staff or assigned to department committees. Linda Brochu deserves special recognition for her efforts to promote cross-training among staff members so all areas can be covered if a staff member is away from the office. These efforts have led to increased harmony and unity. This is becoming especially critical as the university keeps changing central soft-ware management systems (e.g. BAM, Workday). All equipment and common area responsibilities are the responsibilities of the end users in common areas with the expected deterioration of equipment when used my multiple users. Elena Kolomiets has taken on the responsibility of oversight, but she cannot be everywhere as her other duties occupy most of her time.

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, management techniques and computer software training. Staff members are encouraged to pursue degrees through Texas A&M University and are allowed flexible work schedules to accommodate coursework.

Following is a list of departmental staff members, a brief synopsis of their duties and responsibilities, and the length of tenure with the department.



Linda Brochu (Business Administrator)

(23 years) Manages all business functions including budgets, purchasing, facilities and payroll for research, teaching, and extension components of the department; supervises departmental staff and oversees all personnel issues in the department; assists faculty members with grant management; serves on various committees, including the PLPM Executive Committee. Received the 2013 Vice-Chancellor and Dean's Award Outstanding Service Award.

Karen Hodges (Business Coordinator)

(11 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 which handle leave records, time records, training assignments and document management systems.

Sonya Blouse (Senior Business Associate)

Sonya Bouse (1 year) Responsible for teaching and extension accounting including preparing purchase orders, requisitions for equipment purchases, and processing invoices for payment. Handles teaching and extension credit card purchasing and account reallocation. Assists with travel requests and reimbursements.

Lauren Powell-Boriskie (Business Associate)

(4 Years) Responsible for research accounting including preparing purchase orders, requisitions for equipment purchases, and processing invoices for payment. Handles research credit card purchasing and account reallocation. Assists with travel requests and reimbursements.

Gene McCallum (Microcomputer Specialist)

(4 years) Maintains departmental website; provides software and hardware assistance as needed; upgrades software and hardware for departmental and classroom computers; creates and manages user accounts. Shared with IPGB.

Krista McCallum (Administrative Associate)

(1 year) Coordinates meetings and appointments for Department Head; coordinates travel itinerary for Department Head and visitors to the department; assists with Promotion and Tenure process and faculty hiring; assists with graduate recruiting and maintains graduate records.

Elena Kolomiets (Technical Lab Coordinator) (2 years) Assists faculty in the development, preparation and implementation of teaching lab materials and experiments; organizes teaching lab equipment and facilities and maintains teaching culture and plant collections; responsible for departmental inventory and records; manages common equipment and handles building and safety issues.

Sam Murdock (Senior Academic Advisor)
(10 years) Serves as the undergraduate advisor for Bioenvironmental Sciences and Environmental Studies programs (> 350 students); 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.

The department also has two student worker assistants: **Alice Qiu** and **Sarrah Geraci**.

Staff/Faculty Member Ratio

Below is a comparison of Staff to Faculty numbers in 2011 and 2017.

Year	Staff	Faculty FTE (Total)		Staff/Faculty Ratio
2010	11	24.46 (17.90 02+06) and 6.56 (07)	=31.02	35.5
2017	7.5	23.78 (16.94 (02+06) and 6.84 (07)	=30.62	24.5

The trend at the university is to implement software packages requiring more local effort. As busy faculty assume more of these duties, their reliance on our limited staff for support increases, placing even more demands on our limited number of staff. See ‘Reflections by Staff’ below.

Conclusion:

The budget reductions that hit the department in 2010 resulted in the RIF of 3.5 staff positions. Our current annual budget allocation is insufficient to cover all remaining staff salaries, requiring the department to use limited designated funds (IDCs) to cover portions of several staff salaries. The loss of the building monitor has resulted in no consistent oversight of common equipment and maintenance that has led to deterioration in facilities. The loss of the greenhouse position has led to similar issues with greenhouses and growth chamber oversight and maintenance. We also share our IT staff member with IPGB due to a lack of funding.

Reflections: By Staff

Strengths:

Our Employees - Our primary strength lies with the people we have and the fact that we accomplish so much with so little. Our staff are:

- **Responsive** - Overall the business staff members provide timely and useful/appropriate assistance to faculty, staff and students in our department. For example, we target same business day response time on requests for many business functions (such as Purchase Orders, Payroll changes, computer technical support, and grant support issues). Our academic advisor is approachable, and provides timely advising to undergraduate students and responds promptly to issues and concerns, both in person and electronically. Our teaching lab coordinator works closely with faculty and ensures that all teaching labs and materials are organized and meet the class schedules.
- **Connected -** Our staff are well-connected around campus and have worked for many years to build relationships with other university personnel (for example, Admissions, AgriLife Dean's Office, Dean of Faculties, Immigration Services, IT, AgriLife Human Resources, Payroll, Facilities.). Our staff members know who can help resolve issues, answer questions and where to direct needs or problems. Also, our staff are well-respected by other campus units for their leadership, work ethic and reputation.
- **Committed** - Our staff members are willing to put in extra time to meet deadlines if needed, have picked up additional duties when there have been vacancies and reductions in force, and are always willing to help (even when it is not something in the job description).

Our programs: - Our undergraduate program sets us apart from other PLPA Departments in the country. The interdisciplinary nature and well-designed student-friendly degree program keeps our major attractive, marketable and relevant and a strong program in our College. Several staff members are involved with the BESC Professional Board and assist with organizing meetings and supporting their exciting initiatives.

Weaknesses:

Understaffed – There are several areas that our staff are not able to cover due to existing workload and expertise. As budget cuts have been made, staff positions were eliminated or consolidated (total loss of 3.5 staff FTEs in 2011). As a result, we have no permanent support staff to handle greenhouse and research needs. We have replaced a full-time staff position with part-time student workers. Our IT staff member is shared with another unit even though our department really needs full-time computer support. We have assigned some duties related to common equipment and building issues to our academic lab coordinator, which was already a full-time position. Other staff have absorbed miscellaneous duties as needed. As our number of undergraduate majors increase, we will face the need for a second academic advisor. While we have managed to cover most of the needs most of the time, being short-handed adds an element of stress and inefficiency when we have to scramble to cover an issue. It is also apparent how

small a team we have when several people have to be out at the same time due to unanticipated absences.

Turnover - While we presently have a stable team, we have dealt with staff turnover in the recent past. With a small staff, there is little room for internal advancement. It seems we train good employees who then seek other jobs on campus as promotions. While our limited budget makes it difficult to set up an internal promotion system, we must identify ways to reward our excellent employees.

Opportunities:

New Building - The anticipation of having a new facility (functioning temperature control, modern security, and pleasing surroundings) is exciting to everyone in the department, including the staff. The building will provide a positive work environment that will certainly encourage productivity and boost morale. Our plan (and hope) is that the building will help create a welcoming place that makes people enjoy coming to work every day. At the same time, the move to a new building will be extremely challenging. It is a daunting task to clean out every area in Peterson and determine what needs to be moved and what needs to be sent to surplus. The move will require that every research lab and common use space be decommissioned by Environmental, Health & Safety (EHS). Once set up in the new building, there will be inspections by EHS before research can commence. This will require a tremendous amount of coordination and communication. It will certainly be difficult to accomplish by adding duties to existing staff. Consideration of creating a temporary staff position responsible for facilitating the move is critical.

New Faculty – Hiring new faculty members brings enthusiasm and excitement to all areas of department and will continue to develop and elevate our program. With our interdisciplinary science degree programs, diverse faculty and our variety of courses, we are positioned to attract both high-quality students and employees. New faculty also bring new research programs, graduate students, and lab personnel, all of which are supported by departmental staff. This becomes a great opportunity for growth for our department but at the same time can be a challenge as we try to provide more services with no increase in support staff.

Threats (Challenges):

Funding – The lack of hard-dollar funding for some departmental salaried positions (faculty & staff) and operating expenses is concerning especially when formula funded resources seem to be continuing to be cut. The erosion of our salary and operating budget has resulted in reduction in force that can make it difficult to meet needs, to maintain our infrastructure, and decreases morale.

Changes to Work Processes – Over the last couple of years, there have been a number of major roll-outs of new web-based portals to be used for business functions: for example, Concur, IPayments, Aggie Buy, Buy A&M, Workday, Graduate Review System. Learning and implementing the programs, adjusting our business practices and communicating the changes to the department has been challenging. In several cases, the new systems are less efficient and effective, causing even greater frustration and confusion. While we generally embrace changes, constant change can certainly be disruptive to conducting business.

Distance Education Funding – Currently, some faculty, staff and grad student salaries are funded using DE funds, which are generated by student fees assigned to the DE classes. There is concern that the future of these distance fees may change (or be eliminated) with new leadership

at the college and university level. This would cause a major problem in covering salary requirements. Additionally, there is concern that the DE fee may be reviewed and revoked since our DE courses require in person attendance for exams. These required in-person exams limit our DE enrollment since the student's schedule must be open for those exams. Many other DE courses around the college do not require the in-person exams, making our courses less desirable to both our students and other majors.

Competing Courses/Programs – The School of Public Health and other COALS/Science programs have the potential to encroach on our program. The competing programs are reducing the electives from our program and offering similar courses that may be attractive to our students. We must maintain the customization and flexibility of our degree programs as we develop new courses and respond to changing times.

TEXAS A&M University®

Section 4.0

Research, Extension & Scholarly Activities

Plant Pathology & Microbiology
PLPM
TEXAS A&M UNIVERSITY

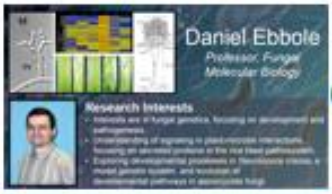
TEXAS A&M UNIVERSITY
AGRICULTURE & LIFE SCIENCES

TEXAS A&M AGRILIFE
RESEARCH | EXTENSION

Plant Pathology and Microbiology Faculty Focus Areas

Plant-Microbe Interactions

Mycology (Patho/Develop/Mycotoxins)



Plant Defense

Virology/Plant Interactions

Biofuels/Synthetic Biology

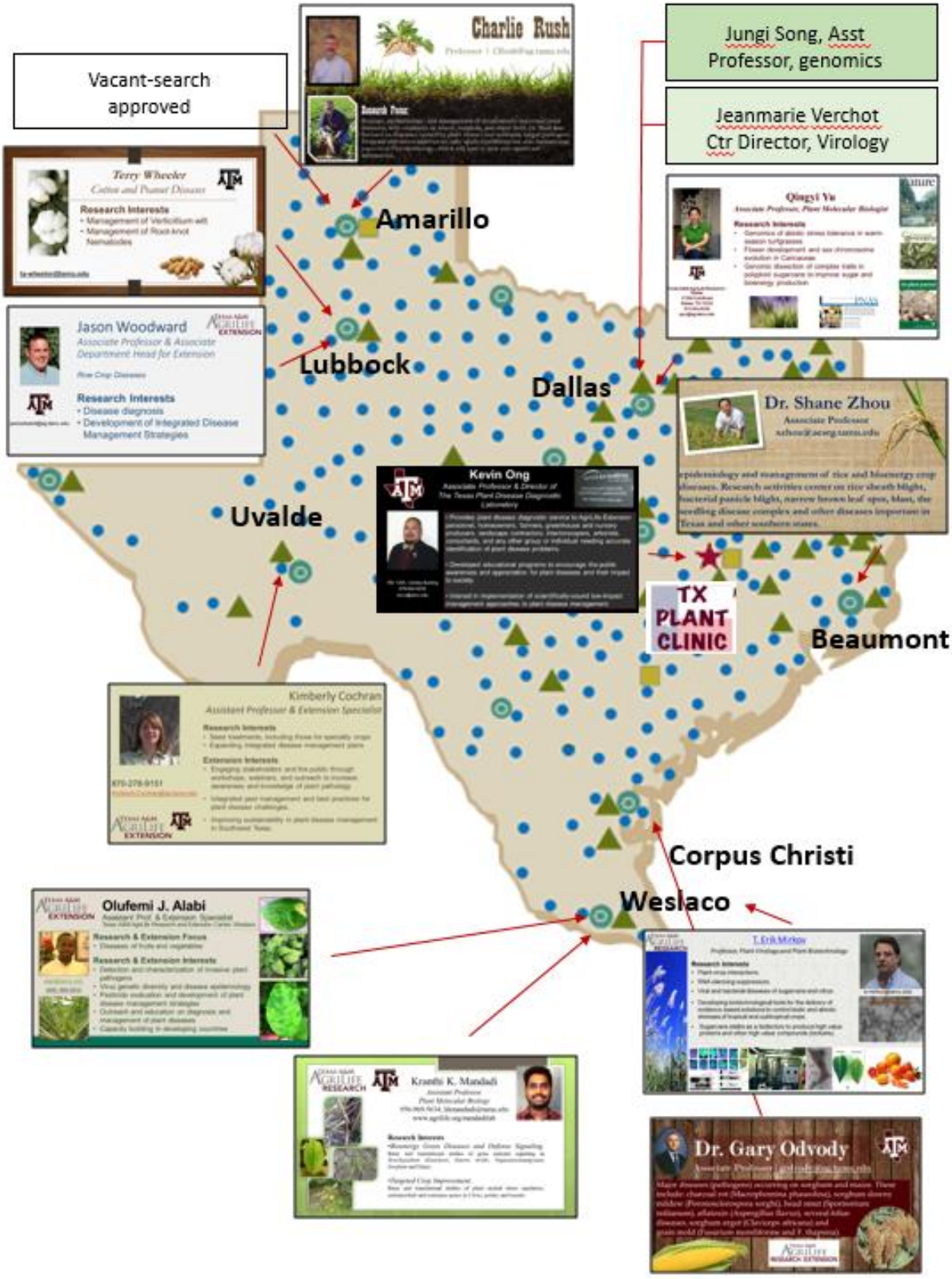
Applied Plant Pathology

Bioenvironmental Sciences

= Teach BESC courses

Plant-Microbiome Search approved

PLPM Off-Campus Faculty at AgriLife Centers

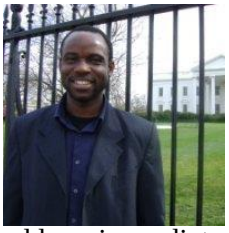


Programs are focused on multiple aspects on plant pathogenicity, plant signaling, plant-microbe interactions, plant and root microbiome, synthetic biology and biofuels, plant biotechnology. Academic Analytics ranks the department 5th overall of 32 plant pathology departments in the US.

Short Descriptions of Faculty Research & Extension Programs

The location of each faculty member is listed.

- **Appendix D:** 2-page faculty CVs
- **Appendix E:** recent faculty publications
- **Appendix F:** the 18 characteristics of a Ph.D. program



Olufemi Alabi (Weslaco, 100% AgriLife Extension)

Extension & Outreach Focus: The key goals of my extension program include the (i) timely and accurate diagnosis of viruses and other infectious agents of fruit and vegetable crops, (ii) development and evaluation of disease management tactics, and (iii) active engagement and communication of outcomes of these efforts to growers and industry stakeholders. **Research Focus:** I conduct translational studies that address immediate and long-term needs of growers and other stakeholders involved in the production of fruit and vegetable crops. My research program emphasizes virus discovery and characterization, genetic diversity and population genetics studies, and understanding of disease epidemiology. The overarching goal is to utilize the results of these studies to develop science-based disease management strategies.

David Appel (College Station)

Forest Pathology: The following report describes three of the primary activities in the Forest Pathology Lab. The common theme of these activities is improving our understanding of the epidemiology of plant pathogens to make better disease management decisions. Projects include Oak Wilt caused by Ceratocystis fagacearum), Pierce's Disease caused by *Candidatus* Liberibacter sp., and Sudden Oak Death caused by *Phytophthora ramorum.*

Tom Chappell (College Station)

Plant Disease Epidemiology and Modeling: Plant pathosystems are dynamic, and timely understanding of the mechanisms and causes of relevant dynamics greatly benefits disease management. The Chappell lab uses primarily statistical approaches to develop models of plant pathosystems and works to implement these models as tools to support risk, vector, and disease management in the context of agroecosystems. Climate, synoptic- to microscale meteorology, landscape configuration, and vector dynamics are of principal interest, and we work to understand the relationships of drivers such as these to their respective epidemiological outcomes.

Kimberley Cochran (Uvalde, 100% AgriLife Extension)

Extension & Outreach Focus: I attend to the needs of my clientele by conducting a diverse extension program aimed at addressing the plant disease management and education needs of Texas growers, Master Gardeners, and other citizens of Texas. I provide extension support and programs for District 10, which spans from Bastrop in the east to Bracketville, TX in the west, portions of the Texas Coastal Bend, and the Texas Winter Garden area which extends to the Crystal City, TX area. Texas producers of many specialty crops need more research and disease management support, and I strive to provide that to them through research projects, collaborations, and educational programs. Research interests and current projects include Pierce's Disease on grape, resistance and chemical control of Anthracnose and Stemphylium Leaf Spots on spinach, fungicide control of Cotton Root Rot (aka Texas Root Rot) in olives, and surveys of and management strategies for Rhizoctonia and Charcoal root rots of sesame, and anthracnose in pecan. In my work with spinach, I collaborate with some of the foremost experts in spinach pathology, Drs. Jim Correll, Sierra Hartney, and Lindsey du Toit. I have also been collaborating with Dr. Terry Spurlock with *Rhizoctonia solani* identification and research, and Dr. Kevin Ong to rework the Master Gardener Handbook and the Plant Disease Handbook online. To serve urban areas of my district, I provide robust Master Gardener Intern trainings and Master Gardener Specialist programs. These educational programs include the basic principles of plant pathology and disease management and advanced concepts in the Specialist programs. Crop specific disease programs are provided on an as needed basis, and include a wide variety of subjects, ranging from pecans to strawberries.

Marty Dickman (College Station)

Fungal – Plant Interactions: My research program centers on fundamental aspects of fungal-plant interactions. From the fungal side the focus involves the identification of genes that regulate pathogenic development and signal communication. I am also the PI on a grant for the recently completed genomic sequence of Sclerotinia sclerotiorum. My other interest is in plant programmed cell death (apoptosis) and the extent to which parallels exist between plant and animal systems. We have recently shown that modulation of cell death can be an effective means to control certain diseases as well as abiotic stress. The overall goals of these studies are 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.

Daniel J. Ebbole (College Station)

Development and pathogenesis share the common features of responding to environmental conditions to execute a program of gene expression resulting in new cell types. An important question in plant pathogenesis is to understanding the functions of pathogen effectors and their host target(s). Fungal effectors play roles in suppressing host defense mechanisms, however, other biotrophic functions, such as manipulating host physiology to promote nutrient acquisition and cell-to-cell movement are possible. Therefore, identification of the full set of fungal proteins secreted during host invasion is a major effort in plant pathology research. Candidate effectors are generally identified by virtue of i) their expression in planta ii) assessing their activity on the host using purified proteins or by manipulating expression iii) detecting the rapid evolution of effector genes due to

selective pressure from the host. My lab is using a combination of these approaches to identify and characterize a gene family of putative effectors from *Magnaporthe oryzae*, the rice blast fungus and define interactions with monocot hosts.

Carlos Gonzalez (College Station)

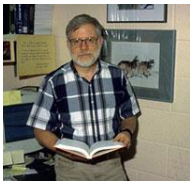
Plant Bacteriology: Research in my laboratory encompasses a range of studies that address the genetics of virulence and pathogenicity. The model systems used in our studies are members of the Burkholderia Cepacia Complex (BCC) composed of nine species. The BCC are recognized as significant pathogens in cystic fibrosis patients. We are currently studying secretion systems responsible for export of a cytotoxic protein(s) in both *B. cepacia* (plant pathogen) and *B. cenocepacia* (human pathogen) to determine common mechanisms for pathogenicity. In addition we are conducting genomic analysis of BCC bacteriophage.

Thomas Isakeit (College Station, 100% AgriLife Extension)

Research & Extension Emphasis: I respond to the needs of Texas growers with research and educational efforts aimed at solving their plant disease problems. I work on diseases of field crops, with emphasis on major diseases of cotton, corn, and sorghum in Texas. I also work on diseases of some vegetables, with emphasis on watermelons. With cotton, I am evaluating fungicides for control of Phymatotrichopsis root rot, in collaboration with agronomists, IPM agents and county agents throughout the state. For corn, I've emphasized aflatoxin control, through collaborative projects on host resistance with the corn breeder, Dr. Seth Murray and plant pathologist, Dr. Mike Kolomiets. I also do field studies on the use of atoxigenic strains for biological control of aflatoxin. My sorghum emphasis is management of metalaxyl-resistant sorghum downy mildew strains. I also collaborate with USDA-ARS plant pathologist, Dr. Louis Prom, on sorghum anthracnose and grain mold research. While it is essential to respond to disease problems as they arise, I strive to anticipate how changes in agriculture in the future will affect plant diseases and approaches for their control. Information resulting from all these efforts is useless unless it is communicated to the clientele that need it- primarily farmers, which is the key component of my job. The ultimate purpose of my activities is to help maintain the viability of agriculture in Texas.

Young-Ki Jo (College Station, 75% AgriLife Extension)

Research Emphasis: The principal focus of my research and extension deals with the management of diseases associated with turfgrass, rice, and soybean. Studies are conducted to develop molecular identification methods of causal pathogens and to improve cultural and chemical strategies to manage diseases in the field.



Charles M. Kenerley (College Station)

Biological Control: The long-term goal of my research program is to understand the interactions of Trichoderma species with pathogenic fungi as well as plant hosts to promote crop protection. My laboratory has developed a system for determining the mechanisms of biocontrol using the ubiquitous mycoparasite *T. virens*. The capability of *T. virens* to secrete hydrolytic enzymes involved in the degradation of fungal cell walls and produce antibiotic compounds that detrimentally alter fungal membranes presents an opportunity to study single and synergistic effects of these biologically active compounds. We have isolated and characterized several genes that encode for hydrolytic enzymes (chitinases, glucanases, proteinases) and antibiotics (peptaibols). Functional analysis of these genes is being conducted by genetically constructing strains of *T. virens* that over-express or are incapable (gene disruption) of producting the target enzymes. These novel strains are being screened for alterations in their general life stages (growth pattern, sporulation capacity, germination of spores, antibiotic profile), their interactions with pathogenic fungi, and their ability to colonize roots of plants. Another area of interest is the induction and regulation of these genes during the mycoparasitic interaction, under various substrate conditions, and as roots are colonized. These same genes can be used to construct transgenic cotton plants (as we have done with an endochitinase) for enhanced resistance to fungal pathogens. We have projects that are determining the effects of using a combination of strains each over-expressing a single enzyme, single strains constructed to over-express gene combinations or over-expression stains combined with transgenic plants on plant protection against fungal pathogens.

As several types of peptides (peptiabols, siderophores, toxins) secreted by fungi are synthesized by enzymes instead of ribosomes, we have projects to identify and characterize the non-ribosomal peptides (NRPs) from T. virens. Clearly these peptides have the potential to affect microbe-microbe and plant-microbe interactions as they appear to function in a signaling role between organisms, may directly affect the integrity of cell membranes, and promote the acquisition of iron from the environment. We have cloned several NRPs and are in the process of determining their expression patterns, interrelationships and functional role in mycoparasitism. Many species of Trichoderma are rhizosphere competent, forming a close association with the plant host. The ability to form an intimate association (invasion of epidermal cells) with a plant suggests a mechanism of recognition and/or host response. We have isolated and purified an elicitor from *T. virens* that is involved in the induction of host resistance mechanisms. This research has the potential for developing novel control strategies for plant pathogens as well as unraveling the mechanisms by which these host-associated fungi can colonize plants.

Michael V. Kolomiets (College Station)

Functional genomics of maize oxylipin pathways: The focus of research interests of my laboratory is to investigate genes and metabolites of lipid-based biochemical and signal transduction pathways and the role they play in plant development and survival in response to pathogens. Key regulatory components of these pathways are lipases, lipoxygenases (LOX), 12-oxo-phytodienoate reductases (OPR). One of the greatest scientific challenges that we face currently in this field is to understand the physiological function of individual genes and isozymes, pathways they initiate and their metabolites. Although we are interested in most aspects of these pathways, our current emphasis is to elucidate functions of individual members of the multigene families of LOXs and OPRs in corn. Using genomics tools we have identified and cloned all members of maize LOX gene family. RNA profiling and other expression data strongly suggest their involvement in disease resistance mechanisms. By using reverse genetics strategy, a project is underway to identify maize mutants in which function of all LOX genes is interrupted by insertions of Mutator transposable elements. To assess function of these genes in defense-responses these mutants will undergo vigorous disease resistance screening, oxylipin profiling via HPLC, GC-MS and other biochemical techniques. The most harmful corn diseases worldwide are those

caused by pathogens *Fusarium verticillioides* and *Aspergillus flavus*, that produce mycotoxins that are extremely harmful to humans and animals. Therefore, these and other corn diseases are the primary targets of our research program.

Clint W. Magill (College Station)

Fungal Genetics and Host Resistance: The use of molecular probes is allowing us to gain new insights into fungal plant pathogens and to host responses to potential pathogens. We are currently developing real-time PCR primers for two downy mildews that are considered to be a threat to maize production if introduced into the US. We are also developing PCR-based tags genes for resistance to head smut, anthracnose, downy mildew and grain mold in sorghum. These molecular tags will be useful for breeding cultivars with more durable resistance and for cloning specific resistance genes. We have also used PCR to clone segments of the cotton and sorghum equivalents of genes that function in known host defense pathways. These clones are being used to compare the rate and timing of induction of each gene in resistant and susceptible lines following inoculation with a pathogen.

Kranthi Mandadi (Weslaco, 100% AgriLife Research)

Plant Stress Biology and Biotechnology: World-wide, pathogens, insects and abiotic stresses cause major losses to agricultural production and productivity. Our lab employs integrated approaches for basic and translational studies of crop stress responses in model and crops. We are using the latest genomics, genetics, and bioinformatics tools to study plant stress responses to diverse plant biotic and abiotic stress conditions, as well as enhance their stress tolerance using biotechnology and breeding tools. Current Projects: **Fastidious plant diseases of vegetables and fruits:** Fastidious (unculturable) plant pathogens are devastating to several food and commodity crops. Examples inlcude Huanglongbing on citrus and potato zebra chip disease. We utilize genomic, genetic and biotechnology tools to discover and utilize novel disease resistance genes to confer tolerance to the devastating pathogens. Furthermore, to overcome the challenges in studying fastidious pathogens, we are developing new technologies and bioassays that enable culturing and propagation of these pathogens. These tools are used to conduct high throughput screening of antimicrobial genes and therapeutics. **Bioenergy grass diseases and crop improvement:** Diseases and abiotic stresses of grasses result in annual yield losses of US $300 million or more. However, very little is known about the gene regulatory networks that function in grass defenses, particularly related to grass viral diseases. To enable fundamental studies of cereal and bioenergy grass defense pathways, we are pursuing genetic and genomic studies using model grasses, *Brachypodium distachyon* (a C3 grass) and *Setaria viridis* (a C4 grass). The research findings are further translated to agronomic grasses such as sugarcane and energycane using biotechnology and breeding tools.

T. Erik Mirkov (Weslaco, 100% AgriLife Research)

Plant Molecular Virology: The research in my laboratory has both an applied aspect and a basic aspect. The main emphasis of the applied research is to incorporate viral resistance genes into crops important to south Texas agriculture using transgenic plant technologies. We have used pathogen derived resistance approaches to create transgenic citrus and sugarcane plants that are resistant to the main viruses causing economic losses in these crops. We are also expressing novel lectins and lytic proteins in transgenic plants for the control of insect viral vectors and phytopathogenic bacteria. Currently, there are projects in both sugarcane and citrus.

In addition to using pathogen derived resistance approaches to create transgenic citrus resistant to Citrus tristeza virus, the most important virus of citrus worldwide, we are developing and utilizing positional cloning methods to isolate viral resistance genes from citrus and citrus relatives. A major effort in the lab has an overall objective to use positional cloning methods to isolate a dominant gene (Ctv) from the trifoliate orange that causes resistance to all know isolates of Citrus tristeza virus. Starting with a genetic linkage map spanning 1.8 cM, and a subsequent chromosome walk of 1.2 Mb, we have narrowed down the genomic region that must contain Ctv to 125 kb, which contains eight candidate genes.
Another major emphasis in the lab is to identify and characterize host proteins involved in the dsRNA mediated antiviral defense pathway. Many different plant viral proteins have been identified as suppressors of this RNA silencing defense pathway. We have identified and are using suppressors encoded by sugarcane viruses as molecular probes to isolate plant proteins in the RNA silencing pathway. To date, five different proteins (including a protein able to bind RNA) have been isolated. Furthermore, using newly developed in vivo assays we have confirmed that the host RNA binding protein and a interacting host 14-3-3 protein are required for RNA silencing. This approach will allow us to dissect this very important RNA surveillance, targeting, and degradation pathway.

Gary N. Odvody (Corpus Christi, 100% AgriLife Research)

Diseases of cereal crops caused by fungi, bacteria, and viruses. Major diseases (pathogens) occurring on sorghum and maize. These include: charcoal rot (Macrophomina phaseolina), sorghum downy mildew (Peronosclerospora sorghi), head smut (Sporisorium reilianum), aflatoxin (Aspergillus flavus), several foliar diseases, sorghum ergot (Claviceps africana) and grain mold (Fusarium moniliforme and F. thapsina). Research areas for pathogens include ecology, survival, initial inoculum, pathogen variability, and host:parasite interaction (especially under stress environments). Part of a large interdisciplinary sorghum improvement team at Texas A&M that is active globally through INTSORMIL research activities.

Kevin Ong (College Station, 100% AgriLife Extension)

Director of the Texas Plant Disease Diagnostic Laboratory (Plant Clinic). This laboratory provides 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 Plant Clinic collaborates efforts with state and federal agencies through the National Plant Diagnostic Network – Southern Region. Prior to this position, he was the regional Plant Pathologist based at the Texas AgriLife Research and Extension Urban Solutions Center in Dallas where he develop several educational programs to encourage the public to develop an appreciation for plant diseases, their impact, and scientifically-sound management methods. His current professional interests include development, validation and implementation of existing and new plant disease diagnostics methodologies which includes molecular diagnostics. More information about the Texas Plant Disease Diagnostic Laboratory can be found at http://plantclinic.tamu.edu.

Leland (Sandy) Pierson III, Head (College Station)

Secondary metabolite production in beneficial bacteria: Molecular regulation and roles of phenazines (PZ). We study the regulation and function of PZs in the root-associated bacterium *Pseudomonas chlororaphis* strain 30-84 and the opportunistic pathogen *P. aeruginosa*. PZs are nitrogen containing heterocyclic compounds produced by a wide range of soil and root-associated bacteria that are required for biofilm formation and persistence in the rhizosphere. These compounds additionally inhibit the growth of several pathogenic fungi. PZ production is regulated by a complex sensory network that includes quorum sensing, positive and negative two component regulation, and post-transcriptional regulation. Ongoing work includes the generation of bacterial derivatives producing structural PZ variants and transcriptomic analyses of the mechanisms involved in PZ regulation and in elucidating the multiple roles PZs play for the producing bacterium.

Signaling among microbial populations in vitro and in situ: Phenazine (PZ) production is regulated via quorum sensing which is dependent on the accumulation of diffusible microbial pheromones. Mutants defective in the production of these signals were rescued for PZ production in vitro and in situ by signals produced by another subpopulation of the wheat rhizosphere community. Additionally, we identified a second subpopulation from the wheat rhizosphere that inhibited PZ production via the production of non-AHL signals that interfered with normal quorum sensing activation of the PZ biosynthetic operon. Thus, PZ production is influenced directly by other members of the rhizosphere community. We are studying some of the negative signals produced by select rhizosphere strains both at the genetic level and are examining their effects on PZ expression by strain 30-84 on plant roots.

Charles Rush (Amarillo, 100% AgriLife Research)

Soilborne Disease: 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. Currently the lab is composed of three post docs, three technicians, and several graduate students and student workers from West Texas A&M University. Major research projects, all funded by external competitive grants, include ecology and epidemiology of karnal bunt, remote sensing to differentiate between biotic and abiotic stresses, management of sorghum ergot, and genomic variability among Benyviruses. Although Dr. Rush has no official extension responsibilities, his lab has provided plant disease diagnostic services since the lab's inception, and recently they have established a satellite diagnostic laboratory to the Great Plains Regional Diagnostic Laboratory at Kansas State University, part of the Homeland Security Plant Disease Diagnostic Network. Dr. Rush's lab is the only USDA-APHIS approved Karnal Bunt Quarantine Research Lab in the Southern Great Plains, and as such, provides a phytosanitary seed certification service that allows Texas producers to sale seed wheat outside of the state.

Herman B. Scholthof (College Station)

In my laboratory, we study the molecular mechanisms that determine whether a plant is susceptible or resistant to virus infection. Although there are multiple factors that influence the ability of a virus to infect a plant, crucial events are viral movement and the evasion of resistance responses, including RNA silencing or interference (RNAi). To investigate some of these aspects we use *Tomato bushy stunt virus* (TBSV) as a model system. TBSV has an RNA genome with five genes of which two (encoding for proteins designated P22 and P19) are involved in virus spread and which can also act as elicitors of resistance responses. P22 is

required for cell-to-cell movement and P19 performs host-specific activities for virus transport. P19 is also a suppressor of RNAi through sequestration of short interfering RNAs (siRNAs) that are consequently unavailable to program any Argonaute (AGO) in the RNA-induced silencing complex (RISC). We use P19 mutants and biochemical isolation procedures to characterize a novel virus-induced RISC-like complex from plants, and through genetic approaches aim to identify AGO proteins involved in antiviral silencing. A biotechnologically directed effort deals with exploiting virus proteins (e.g., suppressors) and replicons to increase expression of value-added foreign genes in suspension cells or whole plants.

Karen-Beth G. Scholthof (College Station)

Molecular Plant Virology: My molecular plant virology research is on a virus complex of *Panicum mosaic virus* (PMV) and its satellite virus (SPMV). For molecular genetic studies on the PMV/SPMV virus:host interactions we are using the model grass, *Brachypodium distachyon*. Our current research focus includes investigations into the mechanism by which SPMV capsid protein (CP) localizes to the nucleolus, how host proteins facilitate this trafficking, and how SPMV and PMV induce host responses to infection. My second area of research is the historiography of *Tobacco mosaic virus* (TMV) in the early 20th century in the United States. My research and writing on the history of plant virology has been incorporated into graduate and undergraduate courses.

Libo Shan (College Station)

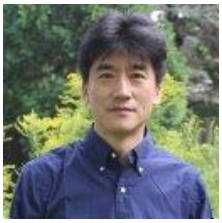
Plant Molecular Biology: We and plants detect "danger" by recognizing microbe-associated molecules and launch complex innate immune signaling to prevent infection. Successful pathogens, however, have evolved multiple sophisticated virulence strategies to dampen the host immunity and result in infection. My research interest is to understand the genetic, molecular and biochemical mechanisms of the dynamic host-microbe interactions using Arabidopsis-Pseudomonas as a model plant-pathogen system. My ultimate goal is to understand how the host-microbe interactions shape the evolution of microbial pathogenicity and plant immunity in both model and economically important plants.

Brian D. Shaw (College Station)

Fungal Developmental Biology: Roles of Cytoskeleton and Endocytosis in Hyphal Growth. Fungi cause an estimated 70% of disease to our crops, and post-harvest spoilage of our food supply leading to billions of dollars in losses. Fungi are an increasing concern as human pathogens. Fungi are contaminants effecting indoor air quality leading to allergy and exposure to toxins. All these processes and more, require polarized hyphal growth for their impact on humans. Therefore, understanding how hyphae are made is a fundamental concern. The fungal hypha is an emergent cell type that is the characteristic growth form of most members of Kingdom Fungi. These elongated, thread-like cells, grow only at their highly polarized apex. Recently, research has implicated both polarized secretion through an emergent organelle, the Spitzenkorper, and endocytosis concentrated in a collar at the cell apex in regulating hyphal growth. The Shaw lab utilizes state of the art microscopy to bring the structure and components of these structures to a level of detail not previously available.

Won-Bo Shim (College Station)

Fungal pathogens of cereal crops can cause devastating disruption to the global food supply, and the economic loss due to crop diseases can add up to billions of dollars annually worldwide. The Shim lab at Texas A&M University focused on studying fungal pathogens of field crops, particularly *Fusarium* species. Notably, hazardous *Fusarium* mycotoxins pose a significant threat to global food safety and human health. Crop losses as well as the regulatory, testing, and management costs associated with mycotoxins in the US tops $1 billion annually.
The Genus *Fusarium* has had a great negative impact on agriculture and food safety but also presents a great opportunity for answering many fundamental questions. We are pursuing new discoveries that will ultimately lead to innovative tools for controlling crop diseases and mycotoxin contamination. To broaden the impact, we are actively collaborating with colleagues at Texas A&M as well as other prominent institutions worldwide. We are also very excited about our collaborations with colleagues in Texas A&M Engineering to spearhead multidisciplinary projects that can innovate plant pathology research.



Junqi Song (Dallas, 100% AgriLife Research)

The plant biotic stress research laboratory at the Texas A&M AgriLife Research and Extension Center of Dallas is uniquely focused on how plants perceive and respond to microbial pathogens by combining molecular, genetic, biochemical, genomic and proteomic approaches. Our long-term research goal is to understand the complex network of signal transduction and pathway interactions in plant immunity.

Terry Wheeler (Lubbock, 100% AgriLife Research)

Soil-borne diseases of cotton and peanut: Assisting cotton breeders (both public and private) in breeding for disease resistance to root-knot nematodes, bacterial blight, and Verticillium wilt. The breeding work emphasizes both greenhouse and field evaluations. Chemical testing (both experimental and labeled materials) for *Thielaviopsis basicola*, root-knot and reniform nematodes. Testing program is conducted both in greenhouse, and small and large plot field trials. Management of pod rot of peanuts, in particular when *Pythium* spp. are present. This work involves both sampling methodology and testing threshold based methods versus traditional, calendar based timings. Interaction between irrigation rates and plant pathogens in large-scale agricultural settings. This work is done with root-knot nematode and *Verticillium dahliae*, on cotton.

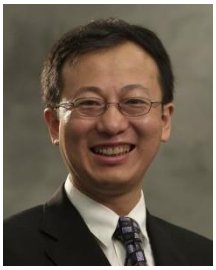
Heather H. Wilkinson (College Station)

I apply evolutionary and ecological genetics approaches and questions to a variety of microbial systems. At the most basic level our overarching goal in my program is to elucidate the genetic basis for adaptation and/or how the patterns of associated phenotypes are distributed in nature or across environmental conditions. My strategy in research is not only to directly test hypotheses central to a specific project, but also, to concomitantly build tools and resources necessary to expand and/or redirect the scope of the project as needed due to opportunity, curiosity or both. Such tools include items like databases, well-characterized libraries of biological materials, and experimental skill-sets among personnel. Currently, I lead a collaboration among myself, Terry Gentry and Mark Holtzapple to optimize the microbial communities in a carboxylate biofuel platform (CBP) developed at Texas A&M,

MixAlco™. We seek to generate a deep understanding of community dynamics within the CBP across time and/or process conditions. Our current research emphasis involves evaluating screens of 501 communities collected over three years from 77 sites distributed throughout the continental United States, Puerto Rico, and Hawaii to determine the degree to which soil environments select for communities pre-adapted to conditions in commonly associated industrial processes with microbes, and 2) characterize the dynamics of many independent microbial communities within the CBP under a variety of process conditions and industrial scales. We are currently resolving a picture of the environmental conditions that prime the most optimal communities for this process, the particular functional categories of taxa that contribute to particular process performance phenotypes, and the role of process conditions in constraining CBP performance phenotypes and community diversity. In combination with other work to create a library of isolates (N>1800) from the top performing communities, we now have both testable hypotheses and well-characterized tools for the next stage where we will conduct directed studies of assembled communities. In addition I expanded into other collaborations associated with screening our isolate library for traits important to additional industries (e.g. bioremediation, hydrocarbon degradation, butanol production, agriculture).

Jason Woodward (Lubbock, 79% AgriLife Extension)

Peanut and Cotton Diseases: The objectives of my extension program are to provide relevant education and field support to clientele in the Hugh Plains of Texas with regard primarily to disease management issues in peanuts and cotton. These objectives are achieved by my participation in local, regional and national programs, as well as through the production of various publications, such as newsletters, extension bulletins, research reports, and fact sheets. Information generated in my program comes from conducting applied research trials that address the current needs of growers in the region, as well as through collaborative efforts with faculty and personnel from the Texas Agricultural Experiment Station (TAES), Texas Tech University (TTU), and other University and Industry scientists. Particular interests of my program include integrated disease management by innovative, cost effective strategies comprised of new fungicides or fungicide combinations, and cultural practices. Additional aspects of my program include plant disease epidemiology, management of fungicide resistance, and plant disease diagnosis.



Joshua Yuan (College Station)

We aim to use integrated and multidisciplinary approaches to address important issues in bioenergy and plant biology. We are employing the latest systems and computational biology platforms to carry out four aspects of research. First, we are using the shot-gun proteomics, molecular network, and other high throughput methods to identify key genes controlling plant energy balance and defense. Several new groups of genes have been identified and are being studied. The research is a continuation from our traditional plant biology research. Second, we integrate the latest metagenomics and metaproteomics approaches to explore the molecular and systems level mechanisms for biomass degradation in Natural Biomass Utilization Systems (NBUS) like cattle rumen, termite gut, white rot fungi, and other insect guts. The study has led to insights about the biomass deconstruction and potential knowhow for reverse design of new biorefinery functions. The topic was spinned off from our plant insect interaction work and got expanded to a much broader perspective. Third, we are employing the state-of-the-art HDX mass spectrometry platform to explore enzyme dynamics toward understanding the dynamics-function relationship and developing new solutions for rational design of biocatalysts. The research serves as a perfect complements to the enzyme discovery for an integrated solution for biomass conversion. Fourth, we are carrying out metabolic engineering in both algal and higher plant species for improving terpenoid yield toward fuels, chemicals, and therapeutics

applications. The complementary algal cultivation technologies and such were developed. The research direction was derived from our study of terpenoid function in plant defense. Overall, the four directions work together to address the key challenges in second and third generation biofuels as well as crop growth and safety. For more information, please visit our lab at http://people.tamu.edu/~syuan.

Xin-Gen 'Shane' Zhou (Beaumont, 100% AgriLife Research)

Rice and bioenergy crops: Research interests are in the epidemiology and management of rice and bioenergy crop diseases. Research activities center on rice sheath blight, bacterial panicle blight, narrow brown leaf spot, blast, the seedling disease complex and other diseases important in Texas and other southern states. Studies are conducted to better understand disease incidence and severity in response to changes in population genetics of pathogens, rice varieties, environmental conditions, cultural practices, and fungicide use. Current research projects include evaluating and identifying disease resistance, exploiting beneficial microorganisms and cover crops for biocontrol of diseases, and evaluating the impacts of fungicides on disease epidemics and grain yield and quality for main and ratoon (second) crops. The ultimate goal of my basic and applied research program is to develop effective disease management tools and to provide economically and environmentally sound disease management recommendations for rice production.

Jeanmarie Verchot (Dallas, 100% AgriLife Research)

Center Director, Texas A&M AgriLife Research and Extension Center, Dallas. Our long-term interest has been to understand the mechanisms of virus disease, specifically in potyviruses and potexviruses -- common families infecting a wide range of crops. We endeavor to use our understanding in engineering novel methods for crop disease control. We have focused over the last decade on how virus proteins interact with cellular membranes in their host plants. We have uncovered genetic stress response machinery that appears to down-regulate virus infection, creating a tolerant state in the plant. When this stress response is compromised, the host plant becomes sick and necrotic. Our research aims to identify ways to increase plant vigor and yields in the face of virus infection, by empowering this cellular stress response machinery.

Qingyi Yu (Dallas, 100% AgriLife Research)

Research Emphasis: Flower Development and Sex Chromosome Evolution in Papaya. T**he majority of flowering plants produce flowers that are 'perfect' and contain both 'male' and 'female' organs. Papaya is a polygamous plant species producing both dioecious and perfect flowers and provides an opportunity for studying flower development in dioecious and hermaphrodite plant species.** Genomic Dissection of the complex polyploidy sugarcane genome for energy cane improvement. Sugarcane (Saccharum spp. Poaceae) is recognized as one of the world's most efficient crops in converting solar energy into chemical energy. Construction of a high density genetic map of pineapple for genome sequencing and marker-assisted selection. Pineapple is the most important economic species among the crassulacean acid metabolism (CAM) plant species and could become the best representative of this under-explored node of the angiosperms. CAM plant species are particularly adapted to arid environments and exhibit a unique water-conserving photosynthetic pathway.

Adjunct faculty

Kelly Craven (Samuel Robert Noble Foundation, Ardmore, OK)

A confluence of events including an increase in population from 7 billion people to 11 billion by 2100 and a dwindling world supply of arable crop land and rock phosphate necessitate efforts to produce more food with less resources. We aim to utilize and optimize the plant microbiome (together with the plant and environment referred to as "the phytobiome") to more effectively provide nutrients to plants and to maintain or improve crop productivity with less agronomic inputs (fertilizer, water).

Thomas DeWitt (College Station)

Ecological Quantitative Genetics; Functional Ecology; Phenotypic Plasticity; Natural Selection;
Conservation Biology; Environmental Stochasticity; Biomathematical Models; Development; Freshwater Ecology.

Elizabeth Pierson (College Station)

Research emphases include plant-microbe interactions, biological control, and sustainable agriculture. She conducts research related to zebra chip disease of potato, microbe-insect interactions, and terrestrial plant ecology. She teaches the undergraduate course Garden Science and the graduate course Plant-associated Microorganisms, which is available to students in three different graduate programs. Dr. Pierson is active in graduate education, currently serving as a member of the Horticultural Sciences Graduate Program Committee and the MEPS admissions committee and as the advisor for the Horticulture Graduate Council. She also serves as a chair or member of graduate research committees and provides undergraduate laboratory research experience.

Louis K. Prom (College Station)

Identification of Resistance in Sorghum to Fungal Pathogens and Characterization of Pathogen Population Structure; Genomic Dissection of Anthracnose Resistance Response in Sorghum [Sorghum bicolor (L.) Moench]

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Texas Plant Disease Diagnostic Laboratory (TPDDL)

The Texas Plant Disease Diagnostic Laboratory (TPDDL) was begun 28 years ago to provide plant disease diagnostic support to our Texas A&M AgriLife Extension personnel and to assist clients with plant disease problems. This laboratory provides service to the people of Texas by PLPM at Texas A&M University in conjunction with Texas A&M AgriLife Extension Service. This laboratory provides plant disease diagnostic service to 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. Check out the Texas Plant Disease Handbook (http://plantdiseasehandbook.tamu.edu/) and the TPDDL Factsheets (http://plantclinic.tamu.edu/factsheets/) for more information on plant diseases.

TPDDL Staff

Payton Duvall-Freymuller
Extension Assistant

Shelby 'Corinne' Rhodes
Extension Assistant - Stone Fruit Survey & Assistant Diagnostician

Mandy Little
Extension Assistant - TX MGS-First Detector Program

Madalyn 'Maddi' Shires
Graduate Student - Rose Rosette Disease

Sheila McBride
Lead Diagnostician & Extension Specialist

Jake Ueckert
Extension Associate - Special Projects

Dr. Kevin Ong
Director of The Texas Plant Disease Diagnostic Laboratory & Professor in the Department of Plant Pathology & Microbiology

Come see us in the Centeq Building at the Texas A&M Research Park
1500 Research Parkway.
Suite A130
Phone: 979-845-8032
Fax: 979-845-6499
Email: plantclinic@tamu.edu

- Check us out on YouTube: https://www.youtube.com/user/PlantDiseaseClinic
- Check us out on Facebook: facebook.com/TXPlantClinic
- Check us out on Twitter: https://twitter.com/txplantclinic
- Check us out on Instagram: https://www.instagram.com/txplantclinic/

STAR-D Accreditation

Taken from : NPDN NEWS August 2017.

We are very pleased to announce that the fifth NPDN laboratory, Texas Plant Disease Diagnostic Laboratory (TPDDL), has received STAR-D laboratory accreditation! Our congratulations go to all the members of this laboratory who have worked so diligently to earn this honor, especially Sheila McBride, Diagnostician and Quality Manager, and Kevin Ong, Laboratory Director. This accreditation is the result of many hours of their hard work and is an opportunity for continual quality improvement of plant diagnostic services to their customers. The System for Timely, Accurate and Reliable Diagnostics, known as STAR-D, is the National Plant Diagnostic Network's (NPDN) Laboratory Accreditation Program. STAR-D provides a framework for a plant diagnostic laboratory to implement a quality management system in their day to day operations in order to foster accurate, reliable, consistent and repeatable diagnostic results. Accreditation to STAR-D is a voluntary process through which a plant diagnostic laboratory's quality management system is periodically reviewed in detail to ensure that a laboratory has met essential requirements and standards of quality for laboratory management, facilities, equipment, and trained personnel. Their dedication to the STAR-D program is apparent. Sheila is training to become a STAR-D External Auditor, Kevin attended the original QMS workshop in 2011 and in April of 2017, two other TPDDL staff members, Corinne Rhodes and Mandy Little, attended the newly created-STAR-D based, Introduction to Quality Management workshop. Sheila reported that her fellow lab members are really starting to integrate the STAR-D system into their laboratory. They've said things to her such as "Let me fill out a PAR [preventive action report] for that." when they see something that they think needs to be changed in the lab. She also noted in regard to document formatting "It's easier to find things when everything is consistent." The audit team consisted of Shouhua Wang of the Nevada Department of Agriculture (lead auditor), Judy O'Mara of Kansas State University, and Sharon Dobesh of Kansas State University. The audit team met with Sheila and Kevin, as well as other staff of the TPDDL. They hosted external auditors for three days for an intensive review of their procedures and materials. The NPDN STAR-D Board met to review the extensive, very detailed, External Audit Team report and based on that information provided, granted STAR-D accreditation to the TPDDL as of August 11, 2017. The term of accreditation is for a five year period with required written annual updates. As we've mentioned before we couldn't have a viable STAR-D system without the STAR-D external auditors who play a critical role in the success of the STAR-D program. The audit team members dedicate a lot of time to ensure they conduct a very complete and comprehensive external audit. We would like to thank ALL of the STAR-D external auditors for their dedication and commitment ensuring that STAR-D is a quality program! Future STAR-D training opportunities will be advertised in the NPDN News, on NPDN's website and through postings to the regional listservs. If you haven't, please consider attending (or sending someone to) a future training workshop and learning more about how STAR-D can benefit your laboratory. Congratulations again to the Texas Plant Disease Diagnostic Laboratory!

Graduate students examine field plots comparing methods to treat Huánglóngbìng (HLB) with Dr. Femi Alabi in Weslaco, TX.

Comparison of Faculty Salaries

Data provided to the unit showed the department's faculty salaries at the rank of professor, associate Professor and assistant professor compared to Peers, Texas A&M University-wide, and the College's salaries for the years 2012 to 2016.

2012 Average Salary

	PLPM	Peer	TAMU	COALS	Diff*	Diff**
Professor	99,608	111,058	121,799	106,473	6%	18%
Assoc Prof	69,976	82,170	88,116	73,737	5%	21%
Assist Prof	64,712	71,071	77,012	65,549	1%	16%

2013 Average Salary

	PLPM	Peer	TAMU	COALS	Diff*	Diff**
Professor	107,099	111,955	130,405	114,315	6%	18%
Assoc Prof	75,038	90,250	91,223	76,043	1%	18%
Assist Prof	NA	NA	NA	NA		

2014 Average Salary

	PLPM	Peer	TAMU	COALS	Diff*	Diff**
Professor	105,186	113,543	138,481	116,405	10%	20%
Assoc Prof	78,240	87,689	94,494	78,732	1%	17%
Assist Prof	NA	NA	NA	NA		

2015 Average Salary

	PLPM	Peer	TAMU	COALS	Diff*	Diff**
Professor	107,290	120,684	140,838	118,621	10%	14%
Assoc Prof	83,459	89,599	98,486	82,254	0%	15%
Assist Prof	NA	NA	NA	NA		

2016 Average Salary

	PLPM	Peer	TAMU	COALS	Diff*	Diff**
Professor	110,737	123,771	144,559	125,686	12%	23%
Assoc Prof	83,246	91,401	100,585	87,241	5%	17%
Assist Prof	NA	NA	NA	NA		

*Difference (%) between PLPM faculty salaries and those of the rest of the College.
** Difference (%) between PLPM faculty salaries and those of the rest of Texas A&M.
NA Not provided.

- **The data show that PLPM faculty have lower salaries than their peers, other COALS faculty, and the rest of the University.**

18 Characteristics Relevant to Faculty

Also see Appendix E

9	# Core Faculty				16	17	17
10	Student/Core Ratio				1.0	1.4	1.4
11	Core Fac Publications				65	71	nd
12	Core Fac Ext Grants	Core Fac Rec				Ave. Funds/Core			Tot Ext Funds		
		14-'15	15-'16	16-'17	14-'15	15-'16	16-'17	14-'15	15-'16	16-'17
		8.33	8	nd	377285	351807	nd	9432132	8443376	nd
13	Faculty Teaching Load	14-'15	15-'16							
		14.6	18.5							
14	Faculty Diversity		14-'15		15-'16		16-'17		
			Male	Female	Male	Female	Male	Female	
		Wh	10	2	10	2	10	2	
		Blk	0	0	0	0	0	0	
		His	2	0	2	0	2	0	
		Other	2	1	2	1	2	1	

16	Date of last APR	2011
17	Ext. Prog. Accred.	NA

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Faculty Productivity

Since 2012, Texas A&M has used software provided by Academic Analytics, LLC as a method of ranking departments across the country. This is being used to compare how well we are doing against our peers in the U.S.

From their website (https://academicanalytics.com/Public/About):

Academic Analytics was founded in 2005, the product of a research project started by Dr. Lawrence Martin in response to universities' needs for business intelligence techniques.

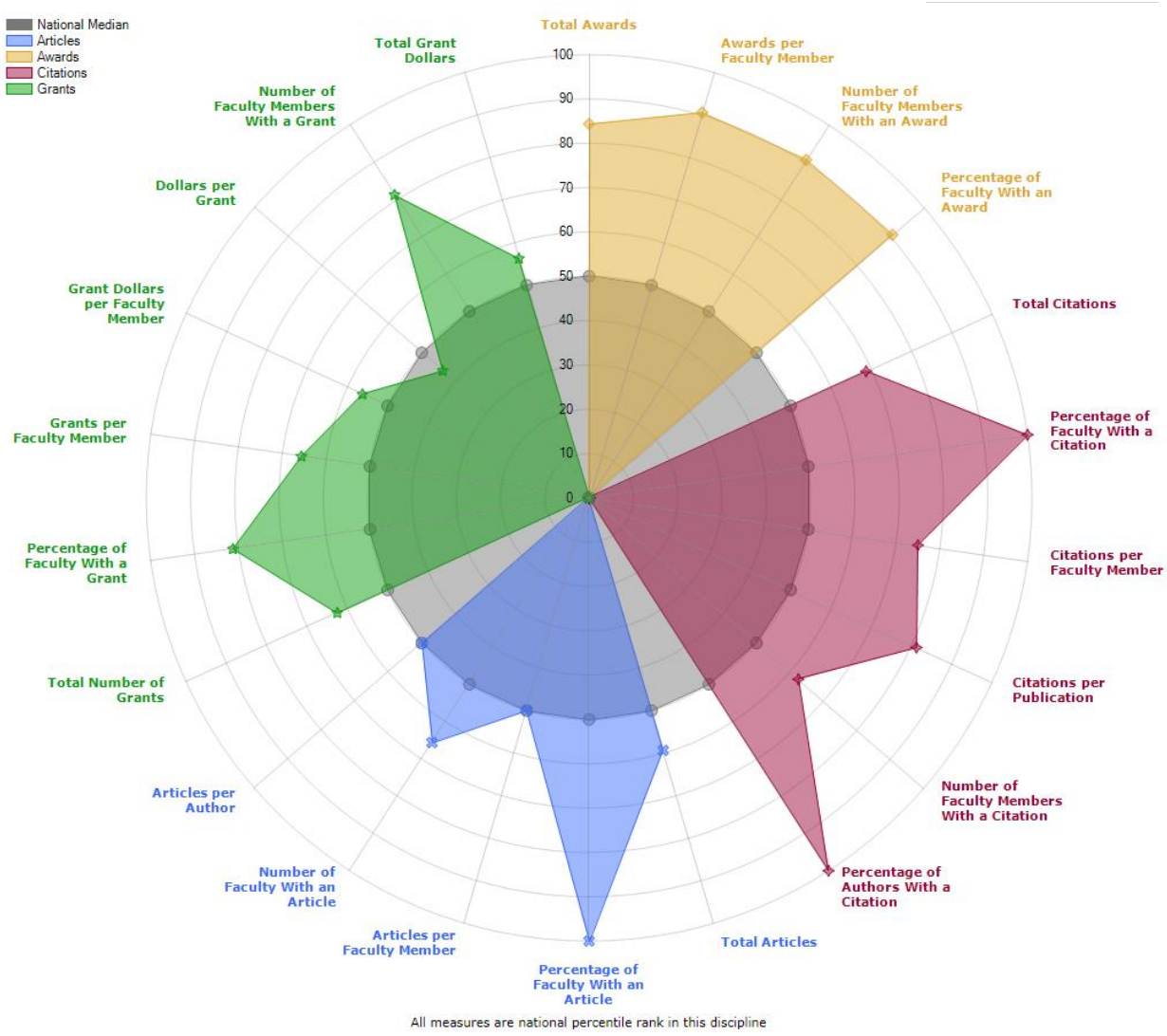
Academic Analytics' data are designed to support university leaders as they strive for excellence. Our data are a useful tool to guide them in understanding strengths and weaknesses, establishing standards, allocating resources, and monitoring performance. Our product continues to evolve to meet the needs of our clients, often a result of requests and feedback we receive.

The difficulty of comparisons among plant pathology-focused departments are that many are combinations of departments with expertise outside plant pathology, so faculty numbers may not accurately reflect effort in the field. The following data was compiled using 31 comparable departments at 30 institutions with a total faculty of 662. Academic Analytics just released their latest database Oct. 2017 (AAD2016.00.788).

The following sections show screenshots of the Academic Analytics data with a brief explanation.

Overall Productivity Radar

The Productivity Radar presents percentile placements for all metrics relevant to the taxonomic classification of the unit. The grey circle indicates the median of all metrics across all 31 departments as of 2017.

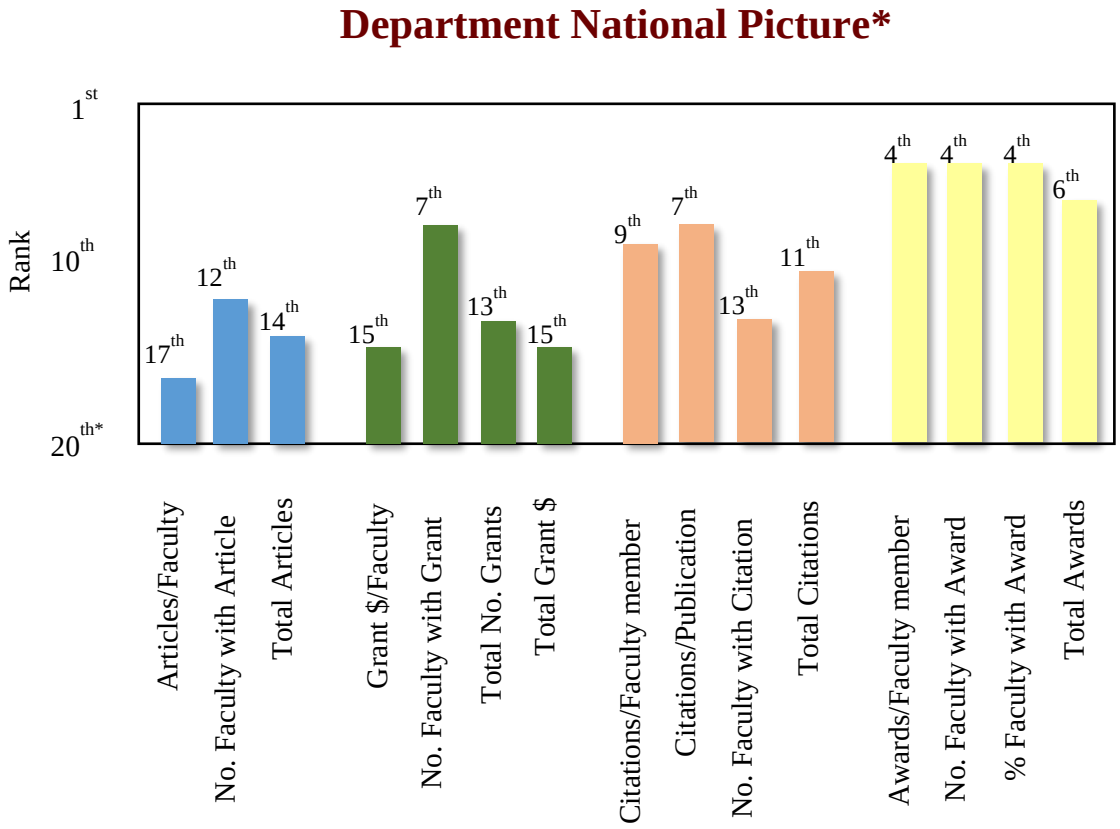


Metrics used for comparison of Plant Pathology and Microbiology at Texas A&M with other plant pathology departments across the U.S. include articles, awards, citations and federal grants (other sources of funding such as state, local or industry funding is not included).

Academic Analytics also performs a Strengths and Weaknesses assessment of the department relative to the other 31 in the comparison.

The Department National Picture function presents the ranking of the department relative to each of the other 31 departments included in the comparison. Academic Analytics does not permit

specific departments to be listed, but the figure below indicates our ranking of the 31 comparisons across variable metrics.



*Modified from the output of Academic Analytics. *For brevity, only the top 20 departments of the 31 included in the comparison are indicated.

Grant Productivity: Research

For FY 2017, PLPM ranked 6th/14 departments in the college. Totals are based on $ reported through the Sponsored Research Services (SRS) portal.

- **The department has consistently ranked in the upper half of the departments in the college.**

Department	Total ($)
A	8,041,375
B	7,125,502
C	6,830,295
D	5,347,969
E	5,079,944
PLPM	4,527,460
G	4,325,086
H	2,388,541
I	2,264,808
J	2,056,564
K	1,096,186
L	869,420
M	786,341
N	388,164

Research Productivity ($ per Year) for PLPM from 2011- 2017.
Totals obtained from SRS portal only. Totals do not include funding from state initiatives and other funding sources that do not utilize the SRS portal.

- **Summary:** PLPM continues to succeed at garnering competitive grants. However, not all funds are focused specifically on plant pathology or plant-microbe interactions.
  A concern is many grants have relatively small budgets. This partially reflects lower quality infrastructure with which to compete for larger competitive grants.

Year	Total ($)
2017	4,527,460
2016	2,151,312
2015	1,888,089
2014	4,665,063
2013	2,790,085
2012	3,580,261
2011	2,297,304

Grant Productivity: Extension

For FY 2017, PLPM ranked 6th/12 departments in the college (2 departments lack extension).

Department	Total ($)
A	8,067,055
B	2,787,240
C	1,737,245
D	1,690,380
E	1,490,503
PLPM	810,153
G	704,999
H	668,978
I	203,565
J	176,188
K	20,000
L	7,800

Extension Productivity ($ per year) for PLPM from 2011- 2017.

- **Summary:** Our extension specialists are doing an excellent job considering the few FTEs (6.84) PLPM has in extension compared to many other departments in the college.

Year	Total ($)
2017	810,153
2016	676,239
2015	1,280,332
2014	832,503
2013	974,049
2012	551,135
2011	738,397

Faculty Awards (2012 – 2017)

2017

Marty Dickman: Noel Keen Award, American Phytopathological Society
Brian D. Shaw: Association of Former Students Teaching Excellence Award- College
Joshua Yuan: Excellence in Innovation Award, Texas A&M University System

2016

Kevin Ong: Texas A&M AgriLife Extension Service Superior Service Team Award 2016. The Texas Strawberry Project.
Karen Beth Scholthof: Elected Fellow, American Association for the Advancement of Science
Heather Wilkinson: Association of Former Students Teaching Excellence Award- College
Tom Isakeit: Outstanding Plant pathologist Award- APS Southern Division
Sam Murdock (staff): Dean's Outstanding Advising and Student Relations Award

2015

Charles Kenerley: Elected APS Fellow
Karen-Beth Scholthof: Elected APS Fellow
Sandy Pierson: Elected APS Fellow
Heather Wilkinson: Critical Thinking Academy
Marty Dickman: Texas A&M University Distinguished Professor
Joshua Yuan: First Place Award for SynShark LLC, Ag Biotech Entrepreneurial Showcase, North Carolina Biotechnology Center

2014

Kevin Ong: The American Society for Horticultural Science – Southern Region Extension Communications Award for Earth-Kind Landscape Management
Brian Shaw: Elected Fellow, Mycological Society of America
Marty Dickman: Elected Fellow, American Society for Microbiology
Libo Shan: Charles Albert Shull Award, American Society of Plant Biologists
Joshua Yuan: Squaliform from SynShark LLC, National and Global Innovation Award, Techconnect
Joshua Yuan: BMC Bioinformatics All Time Most Viewed Article 2012 – 2014, Second Most Viewed article: https://old.biomedcentral.com/bmcbioinformatics/mostviewed/alltime

2013

Carlos Gonzalez: Legend Award from the National Society for Minorities in Agriculture, Natural Resources and Related Sciences during its recent annual meeting in Sacramento, Calif. The

award, created in 2007, honors those "who have made extraordinary strides in the name of MANRRS."

Carlos Gonzalez: American Phytopathological Society Teaching Award.

Erik Mirkov: Texas A&M Office of Technology Commercialization Patent & Innovation Award.

Herman Scholthof: Texas A&M Office of Technology Commercialization Patent & Innovation Award.

Greta Schuster: Senior Teaching Award from TAMU Kingsville.

Jim Starr: Texas A&M Office of Technology Commercialization Plant Variety Protection Award.

Libo Shan: Dean's Outstanding Achievement Award for Excellence in Early Career Research.

Won-Bo Shim: Neuhaus-Shepardson Faculty Development grant.

Heather Wilkinson: Faculty Fellowship, Office of the Provost and Vice-President.

Dan Ebbole: Minjiang Scholar Award, Fujian Agricultural and forestry University, Fafu, China.

Linda Brochu (staff): Vice-Chancellor's Staff Excellence Award.

Tom Isakeit: Special Service/Recognition Award

2011

Mike Kolomiets:, Outstanding Young Faculty Award, Faculty of Molecular and Environmental Plant Sciences, TAMU

Brian Shaw: SLATE Award (Student Led Award for Teaching Excellence), Texas A&M

Dr. Marty Dickman receiving the Noel Keen Award for Outstanding research from Dr. Sally Miller and Dr. Tim Murray at the 2017 APS annual meeting in San Antonio, TX.

Dr. Kranthi Mandadi, Assistant Professor:

Texas researcher receives Foundation for Food and Agriculture Research Award

December 6, 2017

Award presented for Early-Career Innovation in Plant Pathology

Media contact: Blair Fannin, 979-845-2259, b-fannin@tamu.edu

Writer: Kathleen Phillips

Contact: Dr. Kranthi Mandadi, 956-969-5634, kkmandadi@tamu.edu

WESLACO — Scientists are closing in fast on a problem threatening to destroy the world's orange juice and potato supplies as well as many other foods with a possible solution coming from the root of the issue — hairy roots, to be exact.

"The biggest challenge has been that the pathogens that cause citrus greening and potato zebra chip disease belong to a group of similar pathogens 'fastidious' because scientists have not been able to culture them in the lab. That poses a big problem to study them and to come up with timely solutions," said Dr. Kranthi Mandadi, assistant professor in the department of plant pathology and microbiology at the Texas A&M AgriLife Research and Extension Center-Weslaco. "Fastidious pathogens are crazy. They can infect almost all plants."

Dr. Kranthi Mandadi, assistant professor in the department of plant pathology and microbiology at the Texas A&M AgriLife Research and Extension Center-Weslaco. (Texas A&M AgriLife Research photo)

Scientists have devoted careers attempting to find ways to culture and study fastidious plant pathogens in the lab using specialized media and expensive apparatus to little success, he said. The lack of a simple and broadly applicable laboratory method means researchers must resort to traditional methods that require a lot of time and money.

"For example, we had identified new resistance genes with a potential for combating citrus greening disease, but I thought, 'How can we test them? It takes forever to test,'" Mandadi said, noting that his collaborator, Dr. Erik Mirkov, professor of plant pathology and microbiology at AgriLife Research-Weslaco, had already spent two years testing two genes in citrus.

"The current way to test disease resistance genes is to make a transgenic plant expressing a gene that might resist a pathogen, then grow the transgenic plant until it is old enough to be challenged by a pathogen, then observe whether the plant is affected or not," Mandadi said. "It takes a year or more."

Not only does it take time, but producing enough plants to verify tests is costly and labor intensive, he said.

"I wondered how long it would take to test 25 genes. That is when I came upon the concept of using hairy roots as an alternative approach to propagate fastidious pathogens, as well as test many of these genes faster," Mandadi said.

Dr. Kranthi Mandadi, assistant professor in the department of plant pathology and microbiology at the Texas A&M AgriLife Research and Extension Center-Weslaco, has received the New Innovator award from the Foundation for Food and Agriculture Research. (Texas A&M AgriLife Research photo)

Hairy roots are plant tissues created by briefly treating a plant with a naturally occurring soil bacterium that causes plant tissues to grow lots of hair-like roots. They have long been used by biologists to study plant genetics, as well as to produce high-value compounds.

Mandadi set out to explore using a hairy root system to propagate fastidious pathogens from already infected plants, as well as to determine if the system can be used to screen potential treatments.

"This is the first time anybody has tested hairy roots to culture fastidious pathogens," Mandadi said. "Also, this will provide a simpler way to test disease resistance genes and antimicrobial molecules effective against the fastidious pathogens."

His lab worked for about two years to develop a proof-of-concept for this "microbial hairy root bioassay" to propagate fastidious pathogens and test different antimicrobials that may work against the fastidious pathogen.

His novel approach has been boosted by an approximately $600,000 New Innovator award from the Foundation for Food and Agriculture Research, 50 percent of which was matched by Southern Garden Citrus of Florida to test treatments on citrus greening.

"The Foundation for Food and Agriculture Research is pleased to support Mandadi's research as part of our work to catalyze innovation and foster a strong scientific workforce for the future," said Sally Rockey, executive director of FFAR. "I look forward to seeing the impact of the New Innovator in Food and Agriculture Research award not only on Mandadi's career, but also on advancing agriculture."

According to foundation, the new innovator awards are intended "to support and promote the future generation of exceptionally talented and creative new faculty who are conducting critical research and establishing research programs that will lead to expanded availability of food and facilitate the global practice of sustainable agriculture as the world's population grows to more than 9 billion people by the year 2050."

Citrus greening and potato zebra chip will be the foremost diseases tackled by the research, but Mandadi said his work with hairy roots lends itself to most other plant diseases that can cause sharp declines in yields and take an equal bite out of what's available to feed the world's growing population.

This simple yet powerful microbial hairy root technology, he said, can be scaled-up and potentially used to perform large-scale screening of therapeutics and/or active ingredients effective against diverse fastidious pathogens.

"Currently, to screen for efficacy of any chemicals against citrus greening, they are either sprayed or injected into a mature infected citrus tree, grown in soil, to find out what will kill the pathogen inside the trees," he said. "Imagine how many trees are needed to spray a chemical in a test. As an alternative approach, we can switch to microbial hairy root bioassays in vitro that will allow screening a large number of molecules or chemicals rather easily. This also gives us an opportunity to save a lot of time and come up with solutions faster."

Mandadi said this will also have a huge impact on the plant pathology community, given that it can be used to utilize the same technology for other crop maladies such as those caused by fastidious viruses, viroid's, phytoplasmas, mycoplasmas and fungi.

Hairy roots can be produced from most, if not all, plants.

After the citrus and potato trials, Mandadi, with the support of Southern Garden Citrus, plans to expand the platform to evaluate many other fastidious pathogens that adversely affect food crops such as on grapes and olives.

The second annual set of New Innovator awards bring the total FFAR investment in the program to more than $5 million. New Innovators are also required to demonstrate a commitment to mentoring and supporting the foundation's interest in inspiring future generations of agricultural and food scientists.

Reflections: Faculty Productivity

PLPM faculty are committed to research and extension excellence. This statement is supported by Academic Analytic data over the past several years. PLPM faculty are research productive at a consistently high level in all areas of measurement. However, two areas are of grave concern to the department:

- We would like to improve on 'grant dollars per faculty member' and 'low dollars per grant' as reported by Academics Analytics. One contributing factor are outmoded facilities that puts our faculty at a competitive disadvantage compared to our aspirational peer institutions. This includes the LF Peterson Building, but is a greater reflection of the need to replace aging equipment and greenhouses. For example, of the 13 growth chambers in the basement of the building, only five are operational, primarily because of age. Additionally, greenhouse space (and affordable greenhouse space) is very limited. Our previous greenhouses on Lubbock Street were in such disrepair that they were sold to engineering by the college (engineering remodeled them into introductory classrooms).

In this regards, the new PLPM Building on west campus is a wonderful opportunity. The movement of faculty from Peterson to the new building will greatly improve the physical aspects of the department (labs, offices, classrooms), but will not improve our competitive abilities in research unless all 'Add Alternates 1-8' are completed, including growth rooms and greenhouses). The department appreciates the college and agency decision to build a growth chamber facility (19 growth chambers) in the IPGB. However, as these are tightly packed in a single room and shared across college and agency faculty. Due to the nature of many plant pathogens, the mixing of plant pathogens with general plant growth is not optimal. A high throughput greenhouse is being planned, but will support an extremely limited number of users. There remains a need for additional high quality greenhouse space for college and agency faculty. Having these facilities would put us more in line with contemporaries like UC Davis, NCSU, Cornell, Ohio State, and Michigan State and enhance our ability to compete for higher dollars per grant.

- The lack of junior level faculty positions. Junior to mid-level faculty are essential in driving new technologies and opportunities. They bring a wealth of new technologies and techniques. Of the department's 17 TT faculty, 15/17 (88%) are full professors and only 2/17 (12%) are junior rank [Chappell (TT) and Stoddard (AT)].

Faculty Type:	**TT***	**Research**	**Extension**
No. Assistant Professors	1	1	2
No. Associate Professors	1 (30%)	2	1
No. Full Professors	15	3**	3

*TT =tenured/tenure track; AT = Academic track.

**4 counting Dr. Verchot, who is being considered for TOA.

This lack of junior faculty is especially concerning due to the upcoming retirement of ~ 5-6 faculty. Loss of this number of faculty within a short timespan will have severe impacts on our research, teaching and service missions.

- The hiring of Dr. Tom Chappell is a real benefit for the department and is the first hire to support the strategic plan designed in 2013. The approval to hire a TT assistant professor in the area of the plant microbiome also supports the strategic plan. We currently lack nematology expertise which is needed to fulfill the breadth of expertise needed for plant pathology teaching, research and service.

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Section 5.0

Teaching

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Section 5.1

Undergraduate Education: Bioenvironmental Sciences

Definition and scope of Teaching:

As of spring 2017, we have 35 graduate students, 42 undergraduate researchers, and 13 post-doctoral fellows. Graduate students gain knowledge through lecture and laboratory experiences, including a series of intensive instruction modules. Since 2011, we graduated 19 M.S. and 24 Ph.D. students. We have the largest undergraduate program (BESC) among plant pathology departments in the U.S. These students benefit from the integrated and coordinated efforts of our faculty and the expertise of our 26-member BESC Professional Board composed of established environmental professionals across Texas. For many years, all BESC majors participate in high impact experiential internships.

Undergraduate: Bioenvironmental Sciences (BESC)

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

Background

The increasing importance of environmental issues is 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. For examples of the need for environmental professionals, one need look no farther than Hurricane Harvey, Hurricane Irma, etc. The Bioenvironmental Sciences curriculum (BESC) was designed in consultation with numerous industry representatives in order to comply with the needs for tomorrow's environmental fields. Students prepare 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 cleanup of hazardous wastes; with environmental advocacy and educational groups. In addition, the strong STEM 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 Bioenvironmental Sciences major, initiated in 1990, currently offers the following degrees:
B.S. Bioenvironmental Sciences (BESC). This degree educates students to identify and deal with threats to the environment, from those popular in mainstream media and less publicized but

equally dangerous environmental hazards such as microbial threats and toxic waste to the impact of man's activities on fragile ecosystems. Solutions to these threats require innovative perspectives and technologically intensive approaches. The Bioenvironmental Sciences degree is designed for those who are passionate about change.

B.S. in Environmental Studies (ENST), which represents a unique curriculum with a fusion of courses from liberal arts and technical courses in biological sciences, natural resources, and assessment of the environment.

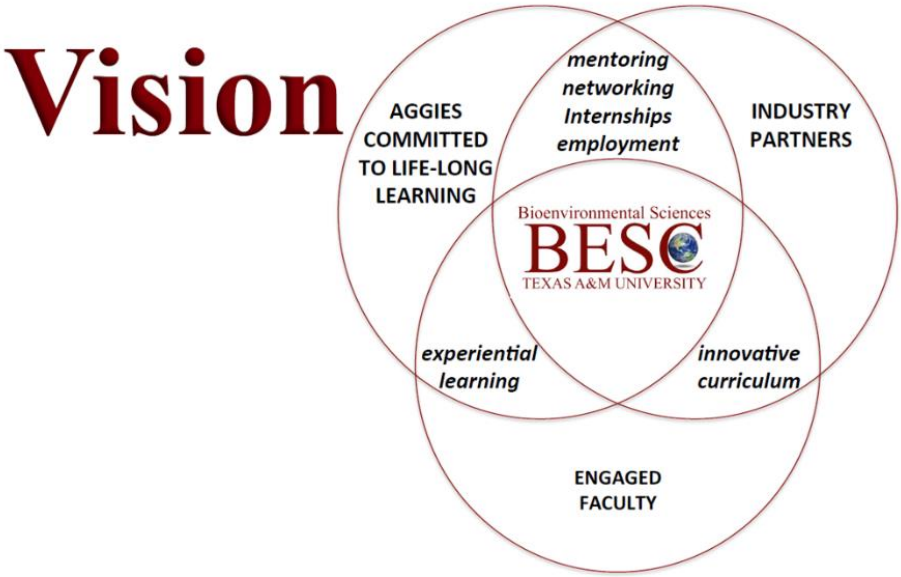
University Studies Degree (USAL). This degree is different from a traditional "major" because it consists of a concentration of 21-24 hours and two minors of 15-18 hours each. The student's diploma lists "University Studies." The area of concentration and the two minors are listed on their transcript. The degree offered with the plant pathology department is Environmental Business as the area of concentration and minors in (A) Rangeland Ecology & Management and (B) Business. The Environmental Business concentration draws from the Bioenvironmental Sciences degree, but it lacks the larger number of foundational life science courses. The result is a well-rounded and marketable degree with an overview of environmental issues and business administration principals.

For convenience, all three degree programs are generally referred to as the BESC program. BESC, ENST and USAL student numbers total 301 currently. Since 2011, 613 students have graduated.

- **In 2009 the BESC major at Texas A&M was ranked the second most popular environmental sciences program in the country by StateUniversity.com**

Vision:

Provide environmental professionals optimally trained to ensure environmental sustainability while promoting economic development in Texas and beyond.



Mission:

To prepare excellent environmental professionals responsive to industry needs in the 21st century.

Outcomes:

BESC graduates will:

- Master Concepts
- Demonstrate Critical Thinking
- Communicate Effectively
- Practice Personal and Social Responsibility
- Demonstrate Social, Cultural, and Global Competence
- Work Collaboratively
- Engage in Lifelong Learning

See the section on assessment for more details.

Curriculum and Teaching Improvement

Undergraduate Bioenvironmental Sciences major: As stated by the 2011 APR team, "*the BESC/PLPM partnership is nationally unique*." The BESC program is comprised of a B.S. in Bioenvironmental Sciences, Environmental Sciences (ENST), and the Environmental Business major. As of 2016, the BESC program has 306 majors. All of our majors have been required to have high impact learning experiences through our internship program long before Provost Watson instituted this rule. Various environmental agencies and companies in Texas sponsor most internships, while several students opt to do internships in our research laboratories, which we utilize as a recruitment tool for our graduate program.

The BESC Professional Board: We initiated a professional board in 2012 to support the BESC major. Currently the board consists of 26 dedicated environmental professionals from across Texas. The board has 3 functions: Financial Development, Curriculum Enhancement, Professional Development. We established a BESC Excellence Fund and are currently working to increase the size of this fund while pursuing other development opportunities. In 2015 the Donald and Melba Ross Graduate Scholarship in Microbiology was established. PLPM faculty members have taken the lead in improving the curriculum for our majors, including the development of a course on environmental health and safety compliance. In 2015, we hired Dr. Kati Stoddard as an instructional assistant professor (academic track). Drs. Wilkinson, Stoddard and Shaw have received teaching technology grants that are expanding our BESC course offerings online as well as in the classroom. In 2013, Dr. Dan Ebbole and Dr. Won-Bo Shim initiated a study abroad program in collaboration with Fujian Agricultural and Forestry University in Fujian, China. This effort has led to enhanced exposure to environmental issues in China. Currently, Drs. Ebbole, Shim, and Shaw and Kolomiets have participated in the study abroad program. We are also exploring the feasibility of expanding this effort with Ocean University in China as they develop a new campus for environmental issues. Another result of this effort is to date ~20 Chinese students have attended TAMU over the summers as international non-degree seeking students supported by the Chinese Government.

BESC Professional Board

The BESC Professional Board consists of 26 members from across Texas and across a variety of environmental fields, from law to compliance to remediation. Visit the BESC Professional Board's website for more details (https://bescboard.tamu.edu/) or visit their Facebook site (https://www.facebook.com/BESCboard).

Doug Anderson
President/Owner, Gruene Environmental Construction

Samantha Best
Deputy Director at BVSWMA Inc.

Candice Boeck
Senior Compliance Specialist, Cvera Strategies

Jamie Lavergne Bryan
Environmental Lawyer, Winstead PC

Coy Crain
Project Manager
TRC Companies, Inc.

David Edge
Executive Vice President
Environmental Business Unit, RPS

Beth Everage
Policy Director, HBW Resources LLC

Laura Fiffick
Director of Environmental Compliance, BNSF Railway

Jim Formby
Project Manager, Texas Commission on Environmental Quality

Bryan Gay
President,
ESE Partners, LLC

Christina Higgenbotham
Senior Environmental Specialist
Targa Resources

Randall Hodo
Criminal Investigator, Texas Commission on Environmental Quality

Craig Holloway
Project Chemical Engineer,
URS Corporation

Harrison Ireland
EPSCM Strategy Specialist at BP

Michael Jochum
Chief Scientist, AlgEternal Technologies, LLC

Juan Ludwig
Project Engineer at CDS.Muery Services

Lisa Murphy
Principal Consultant, EORM ,
Olson ventures, LLC

Heather Podipny
Project Manager
TCEQ

John Sorkness
Project Manager, Air Measurements
AECOM

Dawn Steph
Environmental Manager,
City of Sugar Land, TX

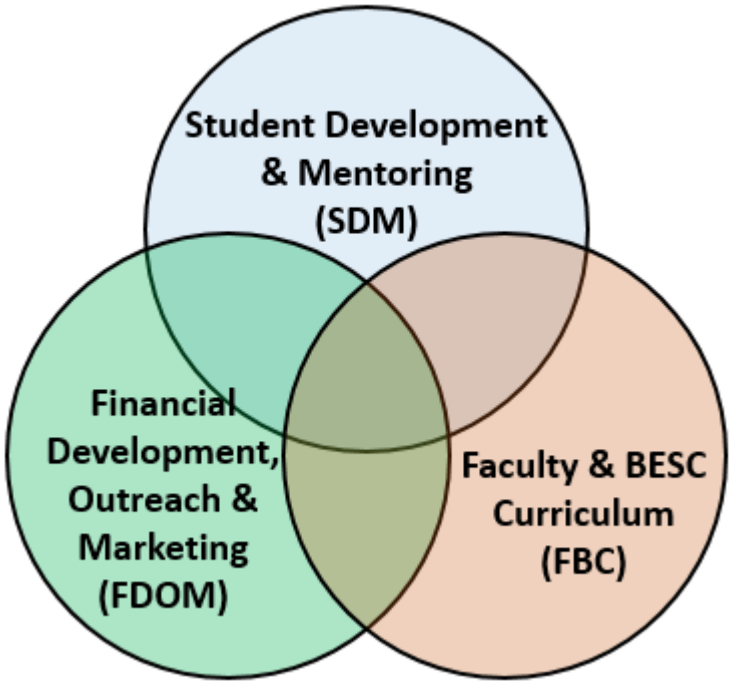
Kenneth Tramm
Founding Principal at Modern Geosciences, Adj.Professor, UT Arlington

Joel Trouart
Environmental Manager at North American Coal

Jeffrey Truss
Safety Manager,
Environmental Health & Safety, Texas A&M University

Troy Vickers
Director, HSE at C & J Energy Services, Inc

Board Activities



The Board organized and aligns its members into one of 3 sub-committees: Student Development & Mentoring, Faculty and BESC Curriculum, and Financial Development, Outreach a& Marketing.

Faculty and BESC Curriculum Committee (FBC)
The FBC Committee serve to provide input and support to both the Board and BESC Faculty regarding potential topics and training that can enhance the current academic curriculum and further the professional development of BESC undergraduates.

Financial Development, Outreach, & Marketing Committee (FDOM)
The FDOM Committee shall coordinate, develop, and seek fundraising efforts with the University in order to support the BESC Program and its mission as well as promote and encourage interaction between and among the BESC Program, its former students, and its current and future partners. In carrying out these general responsibilities, the Committee shall recommend to the Board needed action or policies relating to the following matters: 1. Financial development activities to support the BESC Program. (e.g., identifying financial needs, establishing endowments, fundraising for specific needs, soliciting one-time-gifts, soliciting corporate partnerships, coordinating with the Texas A&M Foundation, etc.) 2. Former student outreach activities to support the BESC Program by connecting former students to the Department to facilitate sustainable financial development and other forms of support. (e.g., establishing a newsletter, establishing an e-mail/contact list of former students, organizing tailgate opportunities, organizing social and networking opportunities, etc.) 3. Activities aimed to benefit the BESC Program internally and externally while enhancing industry awareness of the

BESC Program. (e.g., soliciting corporate partnerships, developing and distributing marketing literature, etc.) 4. Efforts to garner and solidify external partnerships with the BESC Program. (e.g., corporations, municipalities, and other environmental industry partners, etc.) The Committee shall report to the Board to provide any recommendations.
See **Appendix C** for Development brochures.

Student Development and Mentoring Committee (SDM)
The SDM Committee will develop student mentoring strategies and programs on behalf of the BESC board and deliver opportunities for potential internships, externships and employment for students. In carrying out these general responsibilities, the Committee shall recommend to the Board needed action or policies relating to the following matters: 1. Student Mentoring with respect to professional development. 2. The identification of potential internship, externship, and employment opportunities for students. 3. Development of systems and programs that facilitate opportunity for students to connect with the public, private, educational, and non-profit sectors. The Committee shall report progress regarding the development of these efforts and make recommendations to the BESC Professional Board at BESC Executive Committee meetings.

Undergraduate Student Advising

All BESC undergraduate students are advised by Mr. Sam Murdock, the department's Senior Academic Advisor. Mr. Murdock is an outstanding academic advisor:

- Received the President's Award for Academic Advising 2010
- Is past President of the TAMU Academic Advisors and Councilors Group
- Was elected as the national chair of the Advisor Training & Development Commission in the national Academic Advising Association
- Was recently nominated for the Ed Guthrie Advising Award

The department is very fortunate to have Mr. Murdock's expertise.

Bioenvironmental Sciences (BESC) Major Requirements

Appendix G has complete course lists

Major Field Requirements (14 hours)

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

Bioenvironmental Group (Choose any 18 hours)

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

Science Requirements (28 hours)

Course Number	Title	Units
BIOL 111	Introductory Biology I	3.0
BIOL 112	Introductory Biology II	3.0
CHEM 101/111	Fundamentals in Chemistry I	3.0
CHEM 102/112	Fundamentals in Chemistry II	3.0
CHEM 222/242	Organic Chemistry	3.0
RENR 205/215	Fundamentals of Ecology	3.0
SCSC 301	Soil Science	3.0

Math & Logical Reasoning (9 hours)

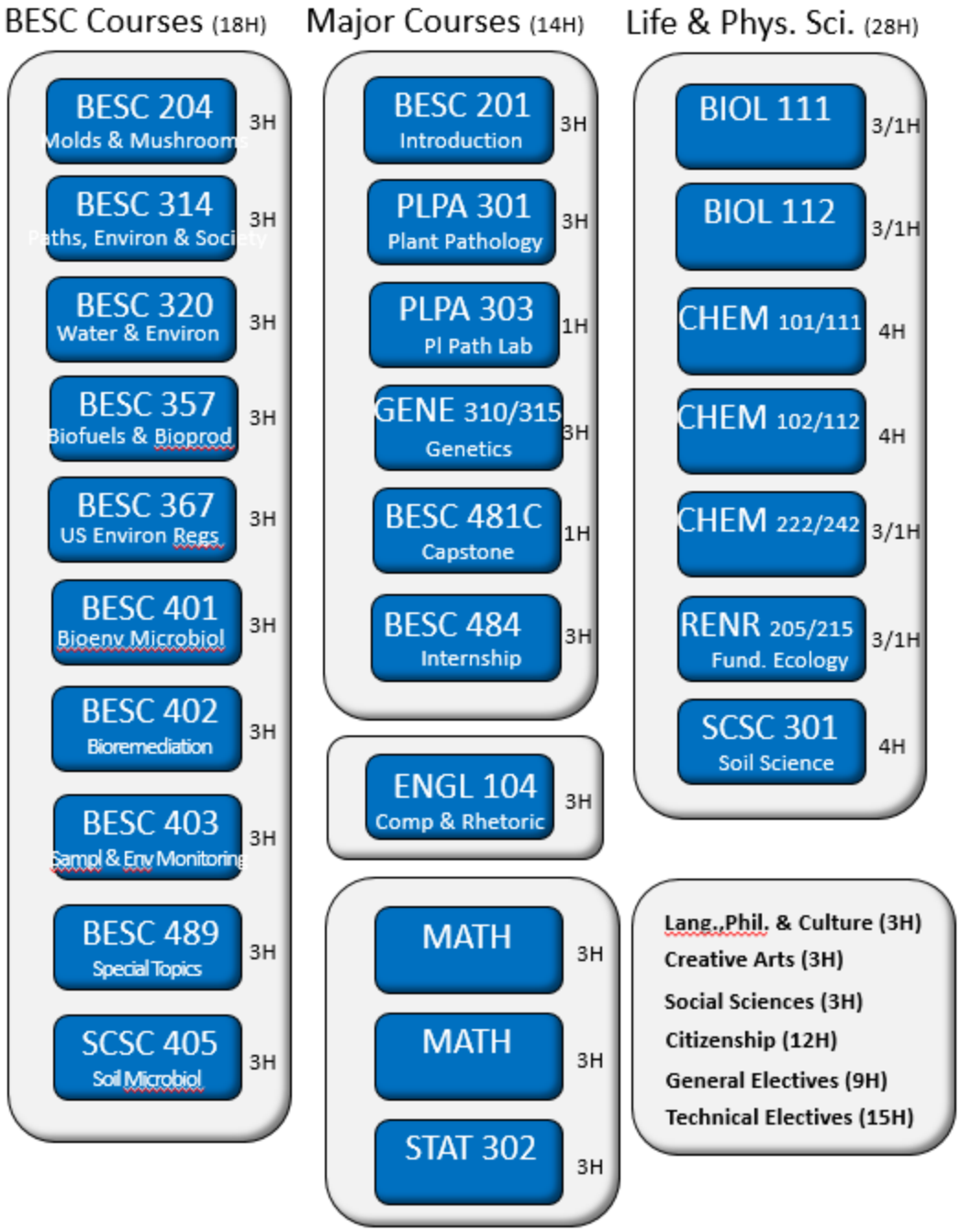
Course Number	Title	Units
MATH 141	Business Mathematics	3.0
MATH 131	Mathematical Concepts- Calculus	3.0
STAT 302	Statistical Methods	3.0

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.

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. The figure on the following page is a schematic of the BESC course structure.

BESC students attending a career workshop sponsored by the BESC Professional Board.

BESC students in BESC 403 'Environmental Monitoring and Sampling' in Hazmat suits learning proper sampling techniques.



Graphical Schematic of courses required for the BESC degree

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 367-200: US Environmental Regulations (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

Approved 8/2009; Modified 11/2010.

Dr. Brian Shaw
2017 AFS Teaching Excellence Award in the College

High Impact Experiences

The BESC program offers two levels of high impact practices for our students. Some enable students to earn BESC 484W course credit. These high impact experiences directly contribute to the preparedness of our students to compete in the professional environment. They serve to expose students to a professional experience or research laboratory related to Bioenvironmental Sciences. All BESC majors must complete at least one BESC 484W experience in order to graduate. This is a writing-intensive program. We required these experiences long before the university mandated them.

Students applying for BESC 484W course must have a junior or senior classification, or instructor approval.
STEP 1 | Students identify an internship or research opportunity from the following:

- Examples from previous students
- Speakers from NAEP meetings
- Facebook pages for TAMU, BESC, and NAEP
- BESC Professional Board
- TAMU Career Center, and Jobs for Aggies

STEP 2 | Students apply for BESC 484 approval
For the semester associated with the internship or research experience
Visit the department website to fill out the BESC 484 Approval Form
Applications are due two (2) weeks before the start of the semester
Review is done by BESC 484W approval committee

STEP 3 | Students watch their official TAMU email for course instructions
One to two weeks before the academic term begins, the academic advisor will register students with approved experiences into appropriate sections for BESC 484 and assign faculty
Once approved and registered, students must pay required tuition/fees for the course.
Students are instructed to contact their assigned faculty members for course syllabus, outline course expectations, and due dates.

STEP 4 | Students engage in the BESC 484 course
Communicate 484 expectations to supervisor, and complete work as assigned by instructor.

We offer two types of internship experience:

- Bioenvironmental Sciences Undergraduate Research Scholars (BURS) Program
- Undergraduate Internships

1. Bioenvironmental Sciences Undergraduate Research Scholars (BURS) Program

The Bioenvironmental Sciences Undergraduate Research Scholars (BURS) program has been offered each year since 2012 for a total of 6 years. The goal of the program is to provide undergraduates with high impact experiential learning opportunities while giving them direct experience in 1) proposal writing; 2) conducting primary research; 3) presentation of their data at the program poster symposium. An ideal participant is a student who is considering applying for graduate school in agriculture, life sciences or environmental sciences. By participating in the program students will be empowered to make decisions about post graduate opportunities based on firsthand knowledge. The program is intended to support undergraduate research in laboratories of faculty who teach in BESC or have appointments in PLPM. Awards are competitive, limited, and support student pay at $10/hour; 9 hours/week for the summer session and provide a small amount of research support to the sponsoring professor.

Applications are assembled by the undergraduate researcher with sponsorship from a BESC/PLPM Principal Investigator. Eligible students are pursuing a degree in the BESC, COALS-ENST, or USAL-EB majors. Students who need BESC 484W internship credit will be favored. Students must be registered for BESC 484 or BESC 491 for the summer semester while conducting the research project and are required to present a poster describing their research results at the BURS/BESC Poster Symposium in the Fall semester.The proposal template can be found at the following link http://plantpathology.tamu.edu/undergraduate-research-scholars-grant/.

- Since 2012, 66 Undergraduate students have participated in the BURS program: Allison Donovan, Andrew Gustafson, Andrew Horgan, Angela Orr, Angie Hilton, Ashley Brake, Austin Butler, Avery Smith, Briana Hankinson, Briana Lindsley, Brisa Guerra, Chris Scully, Christopher Roberts, Collin Douglas, Cooper Goodman, Daisy Moncada Monsivais, Daniel S. Jones, Edgar Vega, Gabriel Contreras, James Taylor, Jesse Pyle, Jessie Gwinn, Joel Andrews, Joel Garcia, John Rocha, Jonathan Vance, Jose Cantu , Jose Macias, Joseph Foster, Joseph Vesselli, Katrina Benwell, Kaylee Pickwell, Kellie Votion, Kelly Kusak, Kelly Spaulding, Kriti Gaur, Lauren Gayre, Leika Rushing, Lindsey Farrell, Lorenzo Washington, Makenzie Menchaca, Marvin Benitez, Mary Rodriguez, MaryAnn Yonamine, Megan Crocker, Migel Segoviano, Mohammed Syed, Morgan Everitt, Nicole Donhauser, Oksana Fatcheva, Pierce Jamieson, Preet Sidhu, Rebecca Arbuthnot, Ross Potter, Sean Castillo, Sophia Murphy, Stephon Warren, Tomas Johanson, Tracy Hawk, Trent LeMaster, Tri Tran, Tyler Johnson, Vanessa Padron, Victoria Berkowitz, Wendy Burdick, Will Porter

2. BESC Undergraduate Internship Experiences

All BESC majors are required to have at least one internship experience prior to graduation. These internships can last from one to several semesters. Since 2011, a total of 611 undergraduate students have completed at least one semester of internship either with a company, an agency, or in a laboratory (**Appendix H** has a complete listing).

Examples of companies and agencies that offer internships include:

Texas Transportation Institute, College Station, TX
Morris Underground Construction, Victoria, TX
USA Environmental Company
Terrabon– MixAlco
NASA/JSC/Bioastronautics Contract, MEI Tech
Sand Hill Wildlife Ranch, Estellin, TX
Natural Composites Inc., Dominican Republic
Sumsaren Wildlife Education Program, South Africa
City of Bryan Geographic Info. Svcs. (COBGIS), Bryan, TX
Navy Laboratory Technician School, San Antonio, TX
Skanksa USA Building Inc. LEED, Houston, TX
Trinity River Authority, water quality, Livingston, TX
Nucor Steel, environ monitoring, Jewett, TX
TCEQ: Air Permits Division, Austin, TX
College Station Water Services Department, College Station, TX
Turbomachinery Laboratory
Texas Water Resources Institute, CS, TX
Howland Engineering & Surveying Co
Terracon, Geotechnical & Environmental Services, Houston TX
Monument Chemical, Advanced Aromatics (solvents), Baytown, TX
US Army Corps of Engineers - Fort Worth, TX
Chromatic Industries Inc., Conroe, TX
Barbers Hill ISD, Energy Management & Sustainability
Global Steel and Flame Cutting Services Houston, TX
Titanium Environmental Services, LLC Longview, TX
Global Alternative Fuels, El Paso, TX
Gruene Environmental Companies, Austin, TX
Lower Colorado River Authority (Water Resource Mgmt) Austin, TX
Silver Creek Materials, Ft. Worth, TX
Oasis Petroleum, Natural Gas contracts Houston, TX
Geochemical & Environmental Research Group (GERG)
Texas Parks & Wildlife Washington on the Brazos
Sabine River Authority, Environmental Services Lab
New York State Department of Environmental Conservation

NYATI Conservation Corps, South Africa
Evergreen Recycling, Ft. Worth, TX
Antonio Water Systems
Akurate Dynamics, insulation environ. Impact
Terracon Consultants, Inc.
TAS Environmental Services, Longview, TX
Geo Environmental Consultants, Inc. Houston, TX

Examples of BESC student internship experiences

Kyle Honnerlaw: 'Urbanization and Stormwater Pollution', City of Killeen Environmental Services Department

Adam Thane: 'Storm, Drinking and Wastewater Oversight', City of Cedar Park Water Utilities

Colleen Kreek: 'Environmental Compliance', Sunoco Logistics, Inc.

Anais Barnes: 'Compliance Testing of Public Water', Texas Center for Environmental Quality.

3. Study Abroad Experiences

Drs. Ebbole and Shim lead a study abroad program in Sustainability, Environment, and Agriculture focused primarily for BESC students, however, students from other departments have traveled in this program. The program travels to China for one-month and is based at Fujian Agriculture and Forestry University (FAFU). FAFU is one of the top Universities in China for Plant Protection and faculty at FAFU and TAMU have research collaborations. The first trip was in Summer 2013 and has traveled each year since then. FAFU provides dormitory and dining hall access, lecture rooms, special cultural activities, arranges field trips, and provides support for teaching at low cost.

BESC 311 (International Perspectives on Environmental Issues) is taught be Dr. Ebbole and focuses on key sustainability themes of global importance: food security, access to clean water, population and demographic transitions, biodiversity, energy, and global governance. Major Conferences of the UN dealing with the environment and development and major UN treaties are discussed. The current status of sustainable development and possible futures during expected student lifespans are considered.

PLPA301 (Plant Pathology Lecture) is taught by Dr. Shim and uses the APS Press book Hungry Planet: Stories of Plant Pathology to introduce students to key concepts in plant pathology and the importance of plant protection to human health and sustainable agriculture. Students read the book outside of the classroom (and are encouraged to do so before we travel) and the key scientific concepts and societal impacts of plant pathogens are discussed.
To promote cultural interactions, FAFU students attend lectures in both classes to discuss economic, societal, and governance issues surrounding environmental issues of global importance with the TAMU students. A unique aspect of the program is that several FAFU students who have met the TAMU students during the summer have received funding from China to attend a year of studies at TAMU, extending the networking between FAFU and TAMU students over the course of an entire year. Since 2013, 45 FAFU students have visited TAMU and five of them transferred to TAMU and three have already graduated. In addition to the undergraduates, 22 FAFU graduate students have visited TAMU since 2013 for visits of one to two years to participate in research programs of TAMU faculty.

For more information on study abroad programs, visit:

- BESC Study Abroad Program Overview
- China Faculty-led Study Abroad
- Korea Reciprocal Exchange Study Abroad
- Texas A&M University Study Abroad
- College of Agriculture & Life Sciences Study Abroad

- **To date 61 students have experienced this opportunity (2013-2017).**

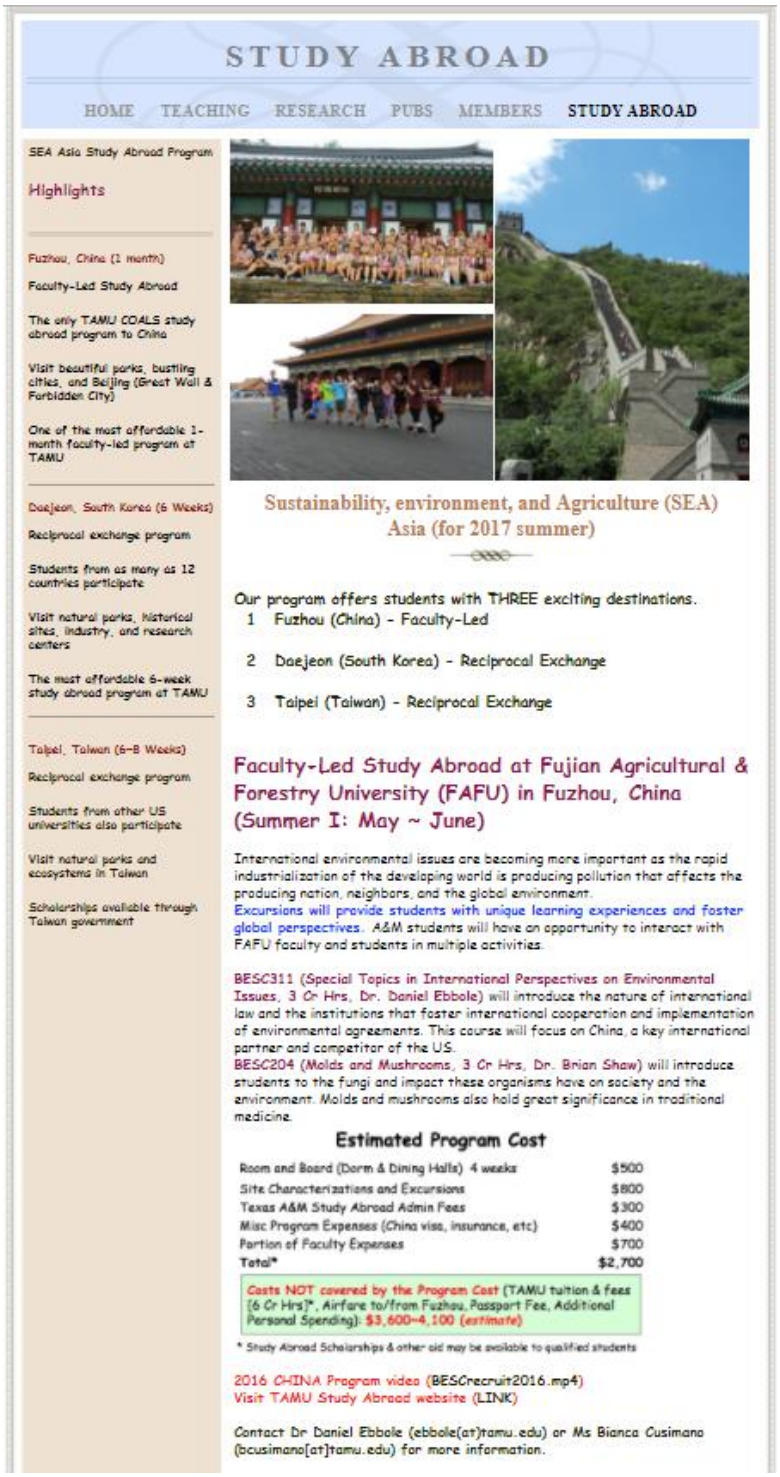
Ethnicity	Total (5 years)
Hispanic	25
White	22
Black Only + 2 or more/1 Black	5
2 or more excluding Black	2
Asian	2
Chinese citizen	2
Black	1
Amer. Indian /Alaskan Native	1
Asian International (Malaysian)	1
Total	61

2013 -	**Major**
Arcibar, Maria Soledad	BESC
Biaggi Ondina, Camila	BESC
Butchers, Nikki Jean	BESC
Cardenas, Ana	BESC
Cisneros, Rosaerlinda	GEOS
Eureste, Elani	BESC
Garcia, Victor	RPTS
Gonzalez, Jacqueline	BESC
Gustafson, Andrew	BESC
Ooi, Jane	BESC
Williamson, Christopher	BESC
2014 -	
Beall, James Colton	BESC
Flores, Jessica	BESC
Stephanie Garza	BESC
Gwinn, Jessica Kay	BESC
Herron, Chamin Lakei	BESC
Johnson, Zaira Christina	BESC
Midkiff, Caitlin	BESC
Moeller, Katharina	ENST
O'Donnell, Brett	BESC
Pozo, Lilian	BESC
Presswala, Mustafa	BESC
"Quiroga, Samantha	BESC
Schwope, Whitney	BESC
Smith, Chastity	BESC
Winata, Andrew Shou	BIMS
2015 -	
Barajas, Gabriela	BESC
Bracamontes, Gaston	BESC
Brant, Shelby	BESC
Cecil, Scott	BESC
Cruz, Priscila	BESC
Gonzalez, Luz	BESC
Lira, Aaron	ENGS
Liu, Wenting	BESC
Quinto, Laurel Miranda	BESC
Scruggs, Courtney	BESC
Tabor, Shane	ENST
Vecera, Mason	BESC
Wang, Zhenglu	BESC
Washington, Lorenzo	BESC
2016 -	
Brookshire,Brandon	BESC
Lidyard,Zowey	BESC
Hernandez, Leticia	BESC
Porter, William	BESC
Salcedo, Marco	BESC
Martinez, Carina	ENST
(GEOS)	
Martinez, Lilly	BIMS
Stover, Samantha	BESC

Taube, Caleb	ENGS
Fanning, Aaron	BESC

2017 -

Rando, Matt (Philip)	BESC
Davis, Alanna	BESC
Kelly, Austin	ESSM
Ferreira, Jasmin	BESC
Trevino, Victoria	WFSC
Little, Alexis	BESC/WFSC
Stanislaus, Tara Marie	ENST (PLPA)
Murphy, Sophia	BESC
Calahan, Douglas	BESC
Patterson, Austin	USAL ENBZ
Kerns, Brandon	ENST (PLPA)



STUDY ABROAD

HOME TEACHING RESEARCH PUBS MEMBERS STUDY ABROAD

SEA Asia Study Abroad Program

Highlights

Fuzhou, China (1 month)

Faculty-Led Study Abroad

The only TAMU COALS study abroad program to China

Visit beautiful parks, bustling cities, and Beijing (Great Wall & Forbidden City)

One of the most affordable 1-month faculty-led program at TAMU

Daejeon, South Korea (6 Weeks)

Reciprocal exchange program

Students from as many as 12 countries participate

Visit natural parks, historical sites, industry, and research centers

The most affordable 6-week study abroad program at TAMU

Taipei, Taiwan (6-8 Weeks)

Reciprocal exchange program

Students from other US universities also participate

Visit natural parks and ecosystems in Taiwan

Scholarships available through Taiwan government

Sustainability, environment, and Agriculture (SEA) Asia (for 2017 summer)

Our program offers students with THREE exciting destinations.

1 Fuzhou (China) - Faculty-Led

2 Daejeon (South Korea) - Reciprocal Exchange

3 Taipei (Taiwan) - Reciprocal Exchange

Faculty-Led Study Abroad at Fujian Agricultural & Forestry University (FAFU) in Fuzhou, China (Summer I: May ~ June)

International environmental issues are becoming more important as the rapid industrialization of the developing world is producing pollution that affects the producing nation, neighbors, and the global environment.
Excursions will provide students with unique learning experiences and foster global perspectives. A&M students will have an opportunity to interact with FAFU faculty and students in multiple activities.

BESC311 (Special Topics in International Perspectives on Environmental Issues, 3 Cr Hrs, Dr. Daniel Ebbole) will introduce the nature of international law and the institutions that foster international cooperation and implementation of environmental agreements. This course will focus on China, a key international partner and competitor of the US.
BESC204 (Molds and Mushrooms, 3 Cr Hrs, Dr. Brian Shaw) will introduce students to the fungi and impact these organisms have on society and the environment. Molds and mushrooms also hold great significance in traditional medicine.

Estimated Program Cost

Room and Board (Dorm & Dining Halls) 4 weeks	$500
Site Characterizations and Excursions	$800
Texas A&M Study Abroad Admin Fees	$300
Misc Program Expenses (China visa, insurance, etc)	$400
Portion of Faculty Expenses	$700
Total*	$2,700

Costs NOT covered by the Program Cost (TAMU tuition & fees (6 Cr Hrs)*, Airfare to/from Fuzhou, Passport Fee, Additional Personal Spending): $3,600-4,100 (estimate)

* Study Abroad Scholarships & other aid may be available to qualified students

2016 CHINA Program video (BESCrecruit2016.mp4)
Visit TAMU Study Abroad website (LINK)

Contact Dr Daniel Ebbole (ebbole(at)tamu.edu) or Ms Bianca Cusimano (bcusimano[at]tamu.edu) for more information.

4. BESC Fall Poster Symposium

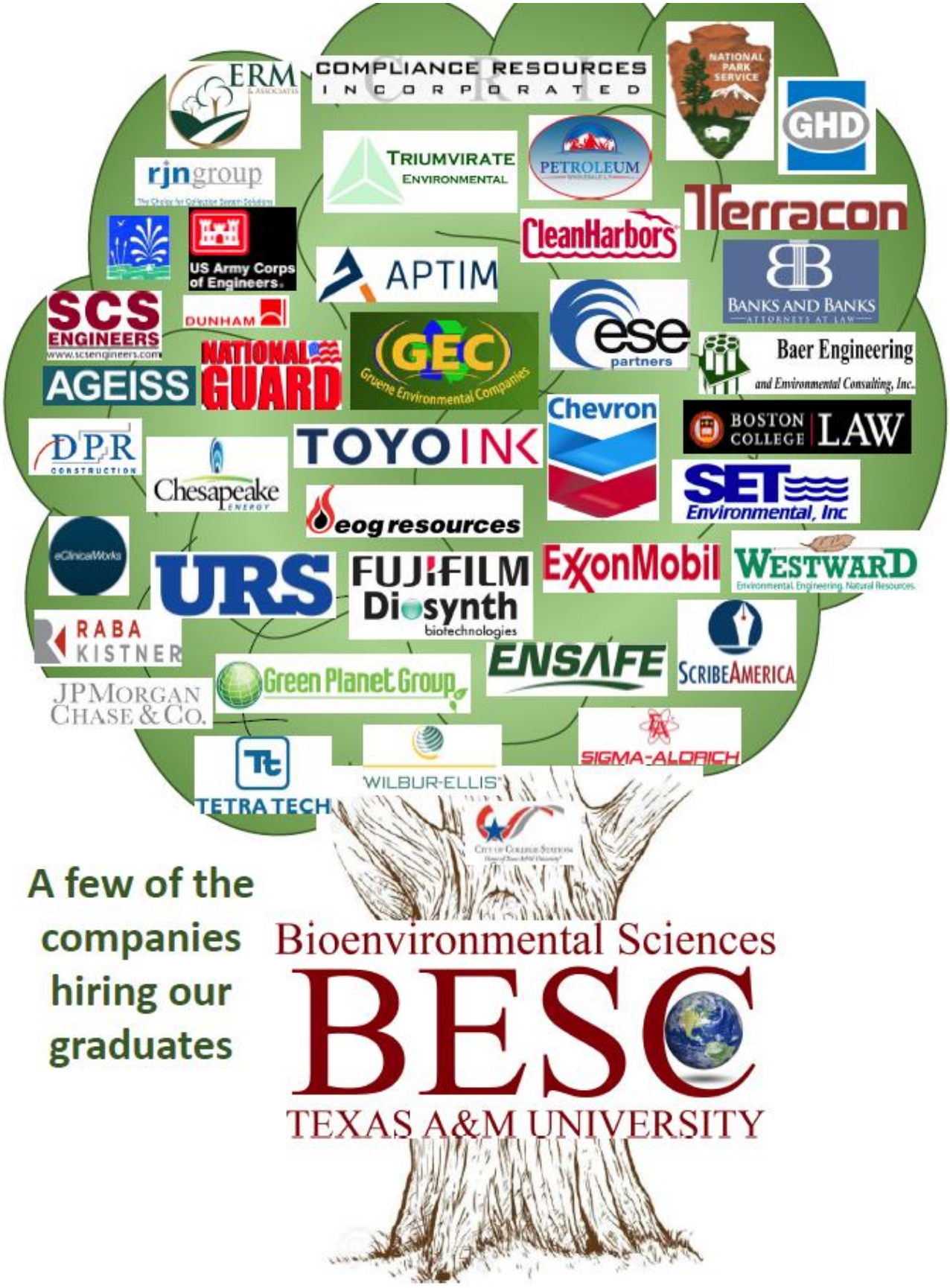
Since 2012 the BESC Board has co-sponsored a Fall BESC Symposium. This event is coordinated with the annual fall BESC professional Board meeting held on campus. During the 2-3 day meeting the itinerary includes:

- Board Executive Committee pre-meeting the evening before the Board meeting followed by a welcome reception for the entire board
- All-day Board meeting
    - New member welcome
    - Review and approval of previous minutes
    - BESC program overview
    - Reports from each BESC Board subcommittee (FDOM, SDM, FBC)
    - Visit from College representative
    - Visit from Development Officer
    - Visit from Nat'l Assoc. Environmental Professional (NAEP) Officers
    - BESC Student Poster presentation
    - BESC Student Award presentation
    - Keynote address by an invited distinguished environmental or government expert
    - BESC tailgate Bar-B-Q outside the Peterson Building
- Aggie football game

Faculty and Board members listening to the 2017 BESC keynote speaker

2016 BESC career fair

2017 BESC tailgate comradery



A few of the companies hiring our graduates

Bioenvironmental Sciences

BESC

TEXAS A&M UNIVERSITY

Data and Research Services (DARS)

Student Enrollment

In 2002, the first year data is reported, there were 153 BESC majors. As of 2017, there are 220 BESC, 59 ENST, and 22 USAL majors totaling 301 students. Enrollment in the BESC degree has remained constant over the past 5 years. We believe this is because the additions of the ENST degree (now 59 majors) and USAL degree (now 22 majors) represent the expected increase that would have occurred if we still offered only the BESC degree.
Enrollment overall peaked in 2014 and is currently at 220 for the BESC major (5 year average of 239).

The BESC program has historically depended on students changing their majors as a source of students. One of the areas we have tried to improve on since the last Program Review was the enhancement of first year students in to the program. As of 2015-2016, 38/52 (73%) of female and 37/56 (66%) of male majors are freshmen. So the identity of the major is growing as we hoped. From 2011-2017 485 students have graduated from BESC, 54 of which graduated with honors (Cum laude, Magna Cum Laude, or Summa Cum Laude).

Student Demographics

The BESC degree is heavily female oriented. In our analysis of the data, 48% of female students were first generation while 23% of the male students were first generation.

Male	120	39.87%
Female	181	60.13%

Total Students	**301**	100.00%

Black	15	4.98%
Hispanic	86	28.57%
Indian	0	0.00%
Oriental	9	2.99%
Mixed	12	3.99%
International	4	1.33%
White	175	58.14%

First-Gen	72	23.92%	of undergrads

Freshman	24	7.97%
Sophomore	59	19.60%
Junior	76	25.25%
Senior	140	46.51%
NDS	2	0.66%

BESC	220	73.09%
ENST	59	19.60%
USAL-ENB	22	7.31%

Study Abroad	31	10.30%	of undergrads have participated

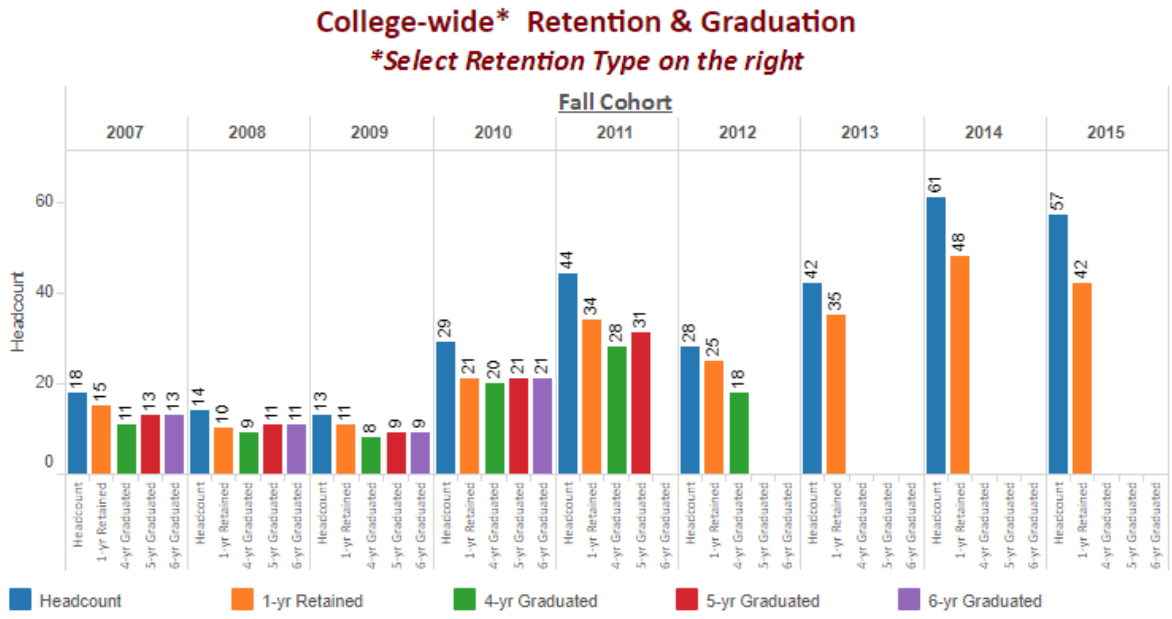
During 2016, 96 female and 102 male students enrolled in our courses as non-PLPM majors.

Number of BESC Graduates Per Year

The number of graduates per year has gone from a low of 78 in 2011-2012 to 102 in 2015-2016 (5 year average of 91). Specifically for BESC 201, our introductory course, over the past 5 years enrollment in this 3 unit course has ranged from 174 to 269 with an average of 239 students per year.

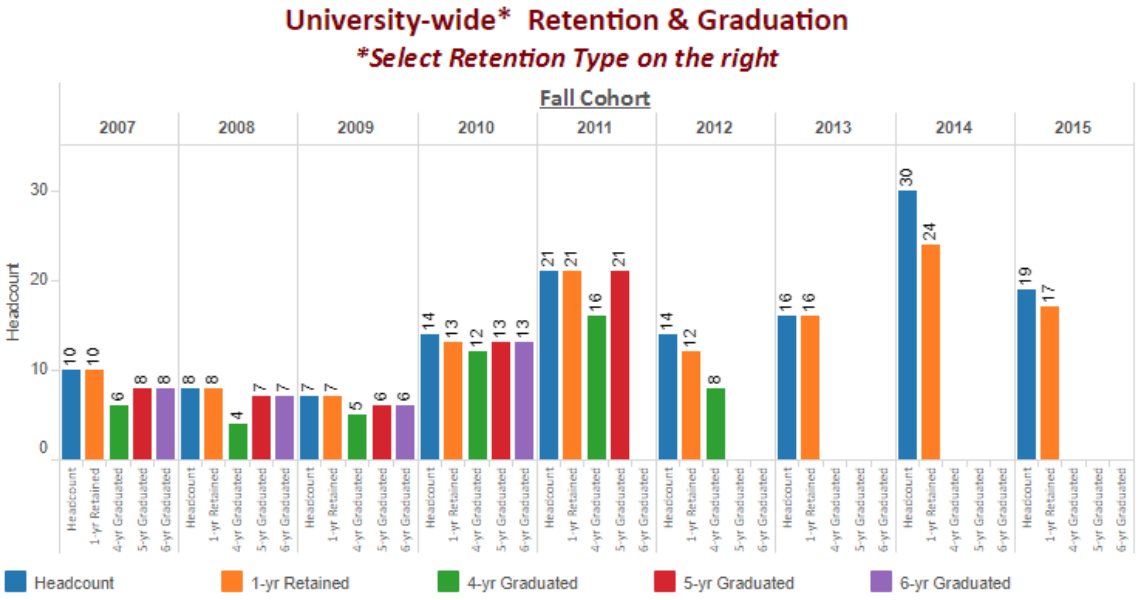
1-Yr Retention and Average Time to Degree

<u>All Students</u>:
The data indicates that as of 2012, of 28 students, 89% were retained after 1-yr and of those 64% of our majors graduated in 4-yrs. This compares with the 2012 data for all majors university-wide with a 91% 1-yr retention and 60% graduating in 4-yrs. A comparison of BESC university-wide showed 90% 1-yr retention and 68% graduating in 4-yrs. The data also reflects the fact that the number of students enrolling in the BESC program has increased to an average of 59 for the past 2-yrs of available data.



Fall Cohort	Headcount	% 1-yr Retained	% 4-yr Graduated	% 5-yr Graduated	% 6-yr Graduated
2007	18	83.3%	61.1%	72.2%	72.2%
2008	14	71.4%	64.3%	78.6%	78.6%
2009	13	84.6%	61.5%	69.2%	69.2%
2010	29	72.4%	69.0%	72.4%	72.4%
2011	44	77.3%	63.6%	70.5%	
2012	28	89.3%	64.3%		
2013	42	83.3%			
2014	61	78.7%			
2015	57	73.7%			

First Time in College (FTIC) Students:
The data indicates that the major retained 80-100% of FTIC students between 2013 – 2015.



Fall Cohort	Headcount	% 1-yr Retained	% 4-yr Graduated	% 5-yr Graduated	% 6-yr Graduated
2007	10	100.0%	60.0%	80.0%	80.0%
2008	8	100.0%	50.0%	87.5%	87.5%
2009	7	100.0%	71.4%	85.7%	85.7%
2010	14	92.9%	85.7%	92.9%	92.9%
2011	21	100.0%	76.2%	100.0%	
2012	14	85.7%	57.1%		
2013	16	100.0%			
2014	30	80.0%			
2015	19	89.5%			

Average Student Institutional Support

None of our undergraduate students that we know of have institutional support.

Percentage of Students with Institutional Financial Support

0% of our undergraduate majors have institutional financial support.

SCH/Faculty FTE and Student/Faculty FTE Ratio (2012-2016)

	SCH per FTE			Student FTE/Faculty FTE		
	UG	MS	PhD	UG	MS	PhD
2012	406.4	63.5	60.3	27.1	5.3	6.7
	539.3	45.5	78.1	38.6	3.8	8.7
2013	424.3		71.2	45.7		6.9
	508.3	72.5	76	37	6	8.4
2014	454.6	14	75.3	30.3	1.2	8.4
	546.1	40.1	76.9	38.9	3.3	8.5
2015	362.5	92.1	45.8	73.5	11.5	6.3
	523.8	84.9	46.8	37.2	7.1	5.2
2016	287.8		43.4	59.2		7.6
	529.5	17	61	37.1	1.4	6.8

PLPM/BESC Program Teaching Assessment

Current Assessment Program

Background: As part of the response to the previous academic review and to demographic factors in our faculty population our department underwent a large-scale restructuring across our academic programs, resulting in a complete revision of the PLPM graduate curriculum to drastically reduce the numbers of credit hours required for graduate students, in favor of guided content and research hours with the student's graduate advisor. Many of the subject matter courses were reduced to 1 credit overview courses. The effects and consequences of these changes included making some faculty more available to teach in our grading intensive, required undergraduate courses (e.g. BESC 484W – Field Experiences (meets university writing intensive requirement), BESC 481C – Seminar (meets university communication intensive requirement)). After restructuring the departmental committees associated with academics, we now have a single Curriculum and Assessment Committee (CAC), instead of 4 committees (Assessment, Undergraduate Programs Committee (UPC), Graduate Programs Committee (GPC), and Graduate Recruiting). Graduate Recruiting remains a subcommittee reporting to the CAC. As of September 2014, the CAC began meeting the 2nd Tuesday of each month to address teaching and learning matters in the department. While there are faculty assigned to the committee as voting members, all teaching faculty are invited to the CAC meetings. Minutes, handouts, and presentations are maintained in an eCampus community named "BESC and PLPM teaching faculty", accessible by all teaching faculty (September 2014 to present).

Subsequent to the curriculum and faculty committee rearrangements, we hired an Instructional Assistant Professor, Dr. Kati Stoddard, who began in June 2015. The main focus for her position is providing pedagogical and online implementation expertise across all our academic programs, teaching in our growing undergraduate majors, and assisting in the development of technology enhanced and online courses. One aspect of Dr. Stoddard's service role to the department includes working directly with Dr. Wilkinson, chair of the CAC, to oversee, facilitate, and improve our assessment program. This includes assisting us in implementing mechanisms within eCampus to improve data collection, and acting as a liaison/facilitator/in-house expert for faculty to the university learning management system, eCampus.

The following assessment plan is the one put in place subsequent to instituting the Curriculum and Asssessment Committee and the new graduate curriculum (ie. Academic Year 2015 to present).

Institutional Context:

At Texas A&M we have two institutional level guidelines upon which we base alignment of program level outcomes. The institutional student learning outcomes for graduate or undergraduate degrees and the twelve imperatives for TAMU identified in the Vision 2020 Strategic Plan.

Institution-level Student Learning Outcomes

Graduate:

1. Master degree-program requirements, including theories, concepts, principles, and practice; develop a coherent understanding of the subject matter through synthesis across courses and experiences; and apply subject matter knowledge to solve problems and make decisions.
2. Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.

3. Communicate effectively.
4. Develop clear research plans, conduct valid, data-supported, theoretically consistent, and appropriate venues to a range of audiences.
5. Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.
6. Teach and explain the subject matter in their discipline.
7. Choose ethical course of action in research and practice.

Undergraduate:

1. Master the depth of knowledge required for a degree
2. Demonstrate critical thinking
3. Communicate effectively
4. Practice personal and social responsibility
5. Demonstrate social, cultural, and global competence
6. Prepare to engage in lifelong learning
7. Work collaboratively

Vision 2020 Twelve Imperatives:

1. Elevate Our Faculty and Their Teaching, Research, and Scholarship
2. Strengthen Our Graduate Programs
3. Enhance the Undergraduate Academic Experience
4. Build the Letters, Arts, and Sciences Core
5. Build on the Tradition of Professional Education
6. Diversify and Globalize the A&M Community
7. Increase Access to Knowledge Resources
8. Enrich Our Campus
9. Build Community and Metropolitan Connections
10. Demand Enlightened Governance and Leadership
11. Attain Resource Parity with the Best Public Universities
12. Meet Our Commitment to Texas

Bioenvironmental Sciences (BESC) Associated Programs

All the courses in our assessment plan are required in at least two of our three undergraduate majors (BESC, ENST, and USAL-EB). Figure 1 reveals the relationship of all the undergraduate BESC and PLPA courses to each of the majors. Figure 2 illustrates the relationship between the student learning outcomes in the BESC program and the institutional contexts, the BESC program goals, and the measures in the assessment plan.

Mission

Prepare capable, creative, and competent environmental scientists who practice critical thinking, scholarship, and integrity skills in preparation for leadership roles in either 1) entry level-positions in environmental project management, EHS compliance, or fundamental environmental research or 2) continued graduate education for professions such as law, engineering, public health or academia.

Goals

1. **Obtain Technical Competency** - Students in the environmental programs associated with Bioenvironmental Sciences will exhibit core competency in this field of science. This goal of core competency includes students acquiring the fundamental knowledge, expertise, and skill sets associated with work in environmental professions. In particular, students will be familiar with the major environmental issues, their history, and the current state of policy associated with each issue.
2. **Communicate Effectively**- Students will learn to communicate effectively using the language and conventions associated with environmental professions.
3. **Think Critically** - Students will develop the ability to apply evidence based decision making to complex environmental issues by developing their critical thinking skills.
4. **Integrate and Apply Learning -** Students will connect academic knowledge to complex problems posed in the classroom and in field experiences. Further, students will synthesize facts, theories or perspectives and place experiences in context of the synthesis. (adapted from Integrative and Applied Learning VALUE rubric).

Outcomes

1. **Develop technical competency -** Students in environmental degree programs associated with Bioenvironmental Sciences (BESC) will develop technical competency in subject matter essential to environmental professions.
2. **Effective oral presentation -** Students in the environmental degree programs associated with Bioenvironmental Sciences (BESC) will be able to articulate an effective oral presentation using the language and conventions of STEM professionals in environmental fields.
3. **Effective visual communication -** Students in the environmental degree programs associated with Bioenvironmental Sciences (BESC) will be able to demonstrate both effective visual presentation and also, effective interpretation of visuals used commonly (e.g. tables, graphs, infographics, heatmaps, maps, conceptual models, etc) within STEM professionals in environmental fields.
4. **Effective written communication -** Students in the environmental degree programs associated with Bioenvironmental Sciences (BESC) will be able to demonstrate effective written communication using the language and conventions of STEM professionals in environmental fields.

5. **Argument development and critical thinking skills -** Students in environmental degree programs associated with Bioenvironmental Sciences (BESC) will practice critical thinking and the development and expression of evidence based and well-reasoned arguments.
6. **Connect technical knowledge, experiences and self-knowledge to the discipline -** Students in environmental degree programs associated with Bioenvironmental Sciences (BESC) will be able to integrate information, data, experiences, or different perspectives and use that integrated synthesis to refine their knowledge or perspective.

Analysis

Assessment of the undergraduate programs for the last three cycles has revealed patterns and triggered a variety of new actions to promote continuous improvement. Below is a brief summary organized based on our program goals, which map to student learning outcomes as indicated in Figure 2.

1. Obtain technical competency

Pattern and Interpretation: We set reasonably ambitious targets for content mastery assignments within our early and midway courses involved in the assessment and across all the years they were only partially met. Whereas, the later summative assignment associated with the student research or internship experience has consistently met our targets for technical competency. Our interpretation of these patterns has been that the assessments in the earlier courses and/or the quality of materials to support learning needed improvement. Further, we recognized that the latest assignment was either showing 1) students who had matured, improved, or were intrinsically more interested in the specific project, or 2) the grading of the assignment was somehow less discerning.

Actions: For the two earlier courses we have implemented several approaches to improve content mastery. First of all, we have more specifically mapped the assessments directly to materials in the course (e.g. mini-lectures, videos, games, case studies, reusable learning objects). We have improved the quality of the pools of questions in the quizzes. We promote practice with the questions, allowing for multiple opportunities to take the quizzes, with deep pools of randomized questions. These same pools are used to create practice exams students can take as interleaved practice, with all chapters available at once in a timed format. Finally we have created more scaffolding within the course to support student success, including modules to demonstrate best practices in notetaking, notes guidance documents that directly align to the lectures to assist students in understanding the level of detail it is important to capture, and review questions for exams.

Additionally, for the later field experience course all the involved faculty have met on multiple occasions (at CAC meetings) to discuss and improve summative poster assignment and associated rubric to ensure we are directly evaluating all the intended learning outcomes. Thus, ensuring the fact that students meet the goals is performance rather than non-discerning grading.

2. Communicating effectively

Pattern and interpretation: This goal is associated with multiple learning outcomes (Figure 2). Generally
speaking students meet the targets we set for this goal. The only target that was problematic had to do with student peer evaluations not discriminating well relative to those of the instructor. Thus, we recognized the need to conduct better peer review training with the students.

Actions: We invited Dr. Valerie Balester, Executive Director of the Writing Center, an expert in peer review, to meet with our Curriculum and Assessment Committee and teaching faculty. She presented best practices and fielded questions from faculty who oversee the BESC 481 communication capstone. Subsequently we have seen more discerning scoring from the students across those faculty who were trained. We plan to create an online training module for all faculty to use to train students in their peer review approach.

3. Think Critically

Pattern and interpretation: Across the various learning outcomes associated with this goal (Figure 2) students tend to meet our targets. Nonetheless we recognize that practice at the skills associated with critical thinking and also the quality of the assignments can improve. Thus, these tend to be targeted for improvements each year.

Actions: All the critical thinking assignments have undergone changes including revisions of the rubrics to more directly measure multiple elements of critical thinking (e.g. analysis, synthesis, evaluation of viewpoints, taking positions, approaches to conclusions). We are transparent with these rubrics and with the instructions for assignments, thus through this we expect we are encouraging student metacognition around what constitutes critical thinking and lifelong learning.

All work to promote peer review within assignments, especially those in which students express a perspective or a synthesis, is also promoting critical thinking. We have moved toward greater peer review by adopting the Peerceptive application across several assignments. It allows for multiple peers reviewing each other and providing feedback, and then back reviews. Students are scored for the review aspects.

Finally, in more than one instance we have taken single critical thinking assignments within the semester and divided them up, so as to allow for practice with both the assignment and with the skills associated with critical thinking.

4. Integrate and Apply Learning

Pattern and interpretation: Based on assignments designed to encourage students to apply their discipline specific knowledge to experiences or perspectives, the students have met targets for this goal. Nonetheless, like the critical thinking assignments these assignments are also frequently undergoing improvements.

Actions: All the integrative learning assignments have undergone changes including revisions of the rubrics to more directly measure multiple elements of integrative learning (e.g. connecting knowledge to experiences; using experiences to broaden perspectives; synthesis of facts, theories, and perspectives; places experience in the context of this synthesis; articulates self growth associated with experiences or learning). We are transparent with these rubrics and with the instructions for assignments, thus through this we expect we are encouraging student metacognition around what constitutes integrative learning.

Further, like with the critical thinking assignments, one of our measures of integrative learning has been divided up into multiple assignments in order to encourage practice with the assignment and with the skills.

Undergraduate Student Awards

2017

Alyson Miranda, Senior Merit Award, COALS Nominee for University-Level Brown Foundation-Earl Rudder Memorial Outstanding Student Award

2016

Alexandria Payne, Senior Merit Award
Andrew Gustafson, Senior Merit Award
Erin Adkison, Senior Merit Award
Jessica Gwinn, Senior Merit Award
Monique Kolander, Senior Merit Award

2015

Jessica Fleming, Senior Merit Award
Tyler Johnson, Senior Merit Award

2014

Jacob Alpuerto, Senior Merit Award
Patrick Kelly, Senior Merit Award
Miranda Reinhard, Senior Merit Award
Shelby Rhodes, Senior Merit Award

2013

Jesse Pyle, Texas A&M University/Association of Former Student Graduate Merit Fellowship

Victoria Berkowitz, Jesse Pyle, Sarah Butler, Angelyn Hilton
Senior Merit Award Winners:

Jesse Pyle
Gamma Sigma Delta Senior Outstanding Achievement Award

Morgan Scott
ANRP Internship Program, Austin, TX. Rep. Dawnna Dukes

Nicole Weist
TCEQ Micky Leland Internship Program

2012

Jesse Pyle
American Society for Plant Biology (ASPB) Summer Undergraduate Research Fellowship (SURF). American Society for Microbiology Undergraduate Research Fellowship in May 2012. 1st place BESC symposium poster award.

Jacquelyn Campbell (BESC)
2012 Texas A&M Undergraduate Research Scholar Award.

Analee Mattice
NSF STEM Scholarship & Recipient
TAMU System Louis Stokes Alliance for Minority Participation (TAMUS LSAMP).

Casey Richards (BESC)
2012 Texas A&M Louis Stokes Alliance for Minority Participation (LSAMP) Undergraduate Researcher.

Jacquelyn Campbell and Casey Richards (BESC) presented their research at the American Phytopathological Society Caribbean Division Meeting, April 2012.

Senior Merit Award Winners:
Ilse Barrios-Perez
Lauren Farris
Gretta Sharp
John Sorkness

Gamma Sigma Delta Senior Outstanding Achievement Award:
Lauren Farris (BESC)
Tyler Fossett (ENST)

ANRP Internship Program:
Eugenia Wagner (Austin, TX. Rep. Rick Hardcastle)

TCEQ Micky Leland Internship Program:
Gita Nallapati

Cornell University Summer Research Scholars Program:
Jessica Wachel

Angelyn Hilton
$1K Scholarship recipient.
2nd place BESC symposium poster award.

Mathew Zedek
$1K Scholarship recipient.

Patricia Larsen
$1K Scholarship recipient.

Preston Kocian
1st place BESC symposium poster award

Julian R Avila

1st place Graduate Student Oral Research Presentation, Atlanta GA
Joshua Santelises
1st place Undergraduate Student Poster Research Presentation, Atlanta, GA

2011

Pedro Ismael Pesquera Sloan Award, Regent's fellow and an Hispanic Leaders in Agriculture and the Environment (HLAE) scholar

Abria Haynes Sloan award

Eli Borrego (MANRRS) Monsanto Travel Award

Jonathan Gramann (MANRRS) Monsanto Travel Award.

Cassandra Warren
2nd place, Texas Cluster Workshop Contest

Margie Salinas
MANRRS magazine cover photo contest winner, Atlanta, GA
.
Analee Mattice
1st place Student Research Week Competition.3rd place LSAMP Conference Poster Competition, Corpus Christie, TX

Jesse Pyle
2nd place Student Research Week Competition (Microbiology, Molecular Biology & Biochemistry section)

Eugenia Wagner
ANRP Internship Program (Austin, TX. Rep. Rick Hardcastle)

Gita Nallapati
TCEQ Micky Leland Internship Program

Jessica Wachel
Cornell University Summer Research Scholars Program

Montanna Moeller, Catherine Kobylinski, Meghan Srubar, Ilse Barrios-Perez,
2011 Senior Merit Award Winners

Tyler Fossett (ENST)
Gamma Sigma Delta Senior Outstanding Achievement Award.

Dr. Pierson and Sam Murdock flank Lauren Farris, Jessica Wachel, John Sorkness, and Gretta Sharp, 2012 Senior Merit Awardees

Recent Graduates

Appendix I lists recent BESC graduates.

Reflections: Undergraduate Teaching

The Bioenvironmental Sciences major initiated in the 1990s has grown into a popular and successful is enjoying continued success and growth.

Over the past few years, we have implemented several changes to the program and its support that are and will pay huge dividends for the program:

- **Establishment of a BESC Professional Board.** The board was started five years ago primarily through the efforts of Dr. Wilkinson as an offshoot of her serving as the faculty liaison to the College Station chapter of the NAEP. The board has grown to twenty six members and has three subcommittees supporting the major.
- **Fall BESC Symposium.** This annual event coincides with the fall board meeting and includes student poster showcase, a keynote speaker, and a tailgate sponsored by Mr. Doug Anderson of Gruene Environmental Companies, Inc.
- **BESC career fair.** Members of the board present advice and answer student questions relating to all aspects of the pursuit of a career in the environmental sciences. One highlight is the availability of mock job interviews with board members during which they provide the student advice and suggestions for improving these critical skills.
- **BESC 484W internships.** These have previously been described and are focuse don research or hands-on experiences. As part of these courses, again taught by several faculty members, students prepare cover letters, resumes, learn how to prepare a poster on their topic, and write a report on their experiences. Several posters are selected for the student authors to present during the career fair.
- **BESC 481C Capstone courses.** These senior capstone courses are taught by several faculty members and each focuses on a different issue in environmental sciences. During these courses, students are taught how to select, organize and present a talk on an environmental topic. Students also write a technical report on their topic.
- **Dr. Kati Stoddard, Instructional Assistant Professor.** Dr. Stoddard was hired three years ago, and teaches several of the BESC core courses and has developed distance versions of these courses.

In spite of this success, the BESC major faces several challenges:

- **Name confusion.** Texas A&M has multiple programs that include 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) that recently was transferred to PLPM. Recently, the university incorporated a school of public health. This program has an environmental health curriculum that overlaps with some of the core topics in BESC. A result of this acquisition was that the school's curriculum was not vetted by the normal TAMU mechanisms to avoid course duplication. The presence of yet another environmental major has added to student confusion. A means of strengthening the BESC major would be to make it known as THE environmental major.
- **New student unfamiliarity.** All freshmen must enroll with a declared major. Freshmen recruitment is largely a college and university-admissions driven process and focuses primarily on engineering and increasingly on medicine. Hence, students do not learn

about the BESC major until their 2nd or 3rd year. Many of our majors initially enrolled in other fields, but discover the BESC program fits their career goals better. This is in spite of the efforts of our academic advisor who keeps Texas A&M's Prospective Student Centers across the State supplied with our major information. We simply do not have the person-power to reach out.

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

	Actual*	**Target****
Total Students:	189	220
Freshmen:	8 (4%)	33 (15%)
Sophomores:	22 (12%)	44 (20%)
Juniors:	56 (30%)	66 (30%)
Seniors:	103 (54%)	77 (35%)

*The 'Actual' heading shows that 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.
**The 'Target' heading shows the percentage splits we would like to see for BESC student distribution. This distribution would still take into account our appeal to change of majors and transfer students.

- **Student quality and scholastic timeline.** Most BESC majors transfer into BESC during their 2nd or 3rd years. 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 here, 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 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.
- **Large numbers of majors in communication and writing courses without sufficient graders.** 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 2004 and the option of a second 'W' course or a 'C' course emphasizing communications was implemented. '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.

- **Most faculty are not teaching their primary expertise.** The faculty who teach BESC courses teach outside their primary 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. PLPM has 13 TT faculty with teaching responsibilities and 1 AT faculty member. Of these 14, 12/14 (86%) are full professors and only 2/14 (14%) are junior rank [Chappell (TT) and Stoddard (AT)].

Faculty Type:	**TT***	**AT***	**Research**	**Extension**
No. Assistant Professors	1	1	1	2
No. Associate Professors	1 (30%)		2	1
No. Full Professors	15		3**	3

*TT =tenured/tenure track; AT = Academic track.

**4 counting Dr. Verchot, who is being considered for TOA.

Future Goals:

- **Establish a Bioenvironmental Sciences Endowed Chair.** The establishment of such a chair would increase the visibility of the program and serve as a solid base for the major. The department is working jointly with the Development Office to pursue this avenue. The head is making multiple trips to establish and develop connections in pursuit of this.
- **Establish communication with the School of Public Health.** As the school recently became part of Texas A&M, the department will initiate discussions to determine the best approach towards offering an integrated major, with the school focused on students pursuing public health degrees and BESC focusing on environment oversight, monitoring, and remediation.

Our goal is to produce the next generation of environmental leaders that will benefit industry and the citizens of Texas and the U.S.

TEXAS A&M University®

Section 5.2

Graduate Education: Plant Pathology and Microbiology

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, nematode, mycoplasma 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. All curricula revisions and changes are submitted to the Curriculum Assessment Committee (CAC), which discusses the proposed changes and forwards possible changes to the full faculty for discussion, vote, and implementation.

Response to the previous academic program review. The curricular structure of our graduate program has undergone a major revision over the past several years. Previously, graduate students were expected to take 10 semester courses and 2 half-semester courses which meant their first 2 years were locked in classrooms with little time for research and the opportunity to take other courses germane to their specific research area. In response to this need to reduce course time as pointed out during our last program review, and in response to the reduction in the number of teaching faculty in the department, we revised the curriculum to require 4 semester courses and 2 half-semester courses.

These revisions will (a) reduce student time in class, providing (b) additional time for research that will (c) reduce time to graduation. These changes also promote (d) integration of plant pathology-specific and non-specific materials that are directly applicable to our students' research. Since many incoming graduate students do not have a plant pathology background, we are assessing the success of the module format. One outcome we are pursuing is the development of Reusable Learning Objects (RLOs) to bridge knowledge gaps to enable all our students to fill their own gaps in an efficient manner. This is in alignment with the tenet of Continuous Learning at Texas A&M University.

Change in Graduate Student Stipends. Our graduate student support is dependent primarily on competitive grant funding. Hence, only a limited number of students can be mentored by each faculty member. In addition, support available through the college or university is limited and linked to specific requirements, making consistent graduate student funding challenging. Although we have had a reasonable number of domestic and foreign applicants each year, we felt that we were not competitive with our peer departments due to 1) low graduate stipends and 2) our offers are guaranteed only for one year. We do cover graduate tuition ($5,900) separately from the stipend. PLPM low in graduate student stipends at $19,600 (Ph.D.) and $19,000 (M.S.). To combat this, the faculty voted in 2016 to raise graduate stipends to $24,000 (Ph.D or M.S.). In addition, this past year our graduate recruitment committee headed by Dr. Dan Ebbole brought in a number of potential applicants for a campus visit. This resulted in our acceptance of 10 new graduate students into the program this past year. The issue of multiple years of support is continuing and we hope to be able to address that in the future.

Graduate Program Degrees

The Department of Plant Pathology and Microbiology offers a M.S. and Ph.D. degree in Plant Pathology and Microbiology. The PLPM Ph.D. program requires a minimum of 96 hours while the M.S. program requires 32 hours. The current plant pathology curriculum was modified based on the recommendations of the previous academic program review conducted in 2012 and 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 graduate course must have a minimum enrollment 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.

Graduate Degree Requirements

I. Course Requirements

All students are expected to fulfill University requirements as outlined in the TAMU Graduate Catalog and to complete the degree requirements of the Department of Plant Pathology and Microbiology as outlined in the Graduate Student Handbook (**Appendix J**). Students need to be aware that our curriculum is constantly evolving, so that changes may occur and be implemented prior to being altered in this Handbook. Therefore, you are encouraged to consult with the Graduate Advisor, your Major Advisor, the Associate Department Head for Academics, and the Office of Graduate and Professional Studies (OGAPS) during the preparation of degree plans, thesis or dissertation proposals, and other important stages of your academic career.

Helpful links regarding Graduate courses:

- http://catalog.tamu.edu/

The Graduate Catalog has detailed course descriptions.

- http://ogs.tamu.edu

The Office of Graduate and Professional Studies is the site for forms that are required for various phases of your graduate career.

- http://plantpathology.tamu.edu

PLPM departmental website:

- https://plantpathology.tamu.edu/

All incoming students, regardless of previous background or experiences, are required to take the following courses. The courses are designed to be taken in sequential order to prepare students for a modern understanding of plant pathology.

Fall Semester
PLPA 601 (3) Introduction to Plant Pathology
PLPA 613 (1) Advanced Plant Pathology Laboratory
PLPA 616 (2) Methods in Molecular Biology of Plant-Microbe Interactions
PLPA 681 (1) Seminar in Plant Pathology
PLPA 685 (variable credit) Special Topics, for rotating students

Spring Semester
PLPA 604 (1) Fungal Pathogenesis
PLPA 605 (1) Bacterial Pathogenesis
PLPA 606 (1) Viral Pathogenesis

Summer Semester
PLPA 626 (2) or Diagnosis of Plant Disease
or
PLPA 623 (3) Diseases of Field Crops

Fall Semester
PLPA 607 (1) Pathogen Strategies
PLPA 608 (1) Signaling and Resistance
PLPA 609 (1) Plant Biochemical Defenses

A graduate student (domestic or international) is considered full-time if he or she is registered for a minimum of:
• 9 credit hours during a fall or spring semester
• 6 credit hours in a 10-week summer semester;
or
• 3 credit hours in each five-week summer term

Additional Course Options
NOTE: In addition to the above courses, all students are required to enroll in:

- PLPA 690 (1) for two semesters and a second PLPA 681 (1) for their exit seminar (see Graduate Student Handbook)

The Department also offers additional in-class courses:

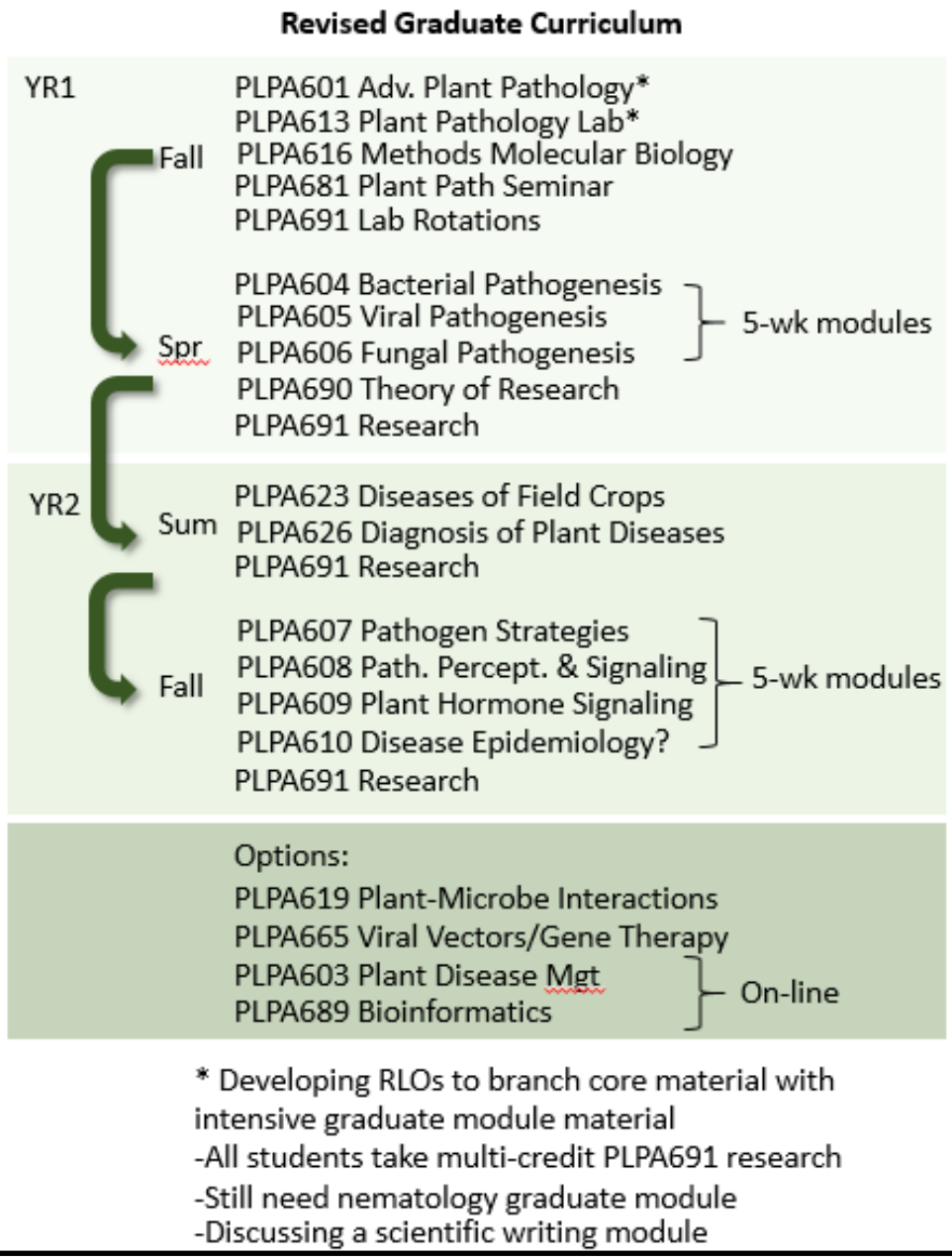
- PLPA 665 (3) Viral Vectors and Gene Therapy
- PLPA 619 (3) Plant-Microbe Interactions
- MEPS 618 (3) Root Biology

The Department offers two online courses:

- PLPA 603 (3) Plant Disease Management
- PLPA 657 (3) Bioinformatics

Research credits are taken as PLPA 691. Special topics courses (PLPA 685), such as a rotation in the Plant Disease Diagnostic Clinic are also available. **Fig. 4** provides a visual schematic of the graduate course timeline.

Fig. 4. Revised Graduate Curriculum that incorporates intensive 5-week graduate course modules.



II. Department Seminar Requirements

- PLP A 681. Seminar, 1 credit hour

The intent is to provide instruction in the presentation of formal seminars (abstract preparation, visual aids, etc.) that reflect a critical review of current literature and original research in plant pathology and microbiology.

Requirements:

Seminar I. A class designed to discuss the techniques for preparation and presentation of formal seminars. This seminar is required of all entering graduate students. .

Seminar II. Original research in plant pathology and microbiology. M.S. and Ph.D. candidates are required to present a seminar on the original research conducted for their degrees upon

completion of the degree program. This seminar will be scheduled as a presentation in the Department's weekly seminar series.

Deadlines for Completion of Degree Requirements

The Associate Department Head for Graduate Programs will be responsible for tracking student progress through the degree program and will provide timely notices of approaching deadlines. Failure to comply with degree program requirements may result in blocked registration. A student may request an extension of a deadline by written request from the student and Major Advisor to the Associate Department Head for Graduate Programs and the Department Head.

REQUIREMENT	COMPLETION SEMESTER ¥	
	M.S.	**Ph.D.**
Identify Major Professor	1st	1st
Committee Formation ♪	2nd	3rd
Degree Plan ☼	2nd	4th
Research Proposal Submitted	3rd	4th
Preliminary Exam	-	6th
Exit Seminar	Last Semester	Last Semester
Final Exam	Established by Major Advisor, and Committee	Established by Major Advisor, and Committee

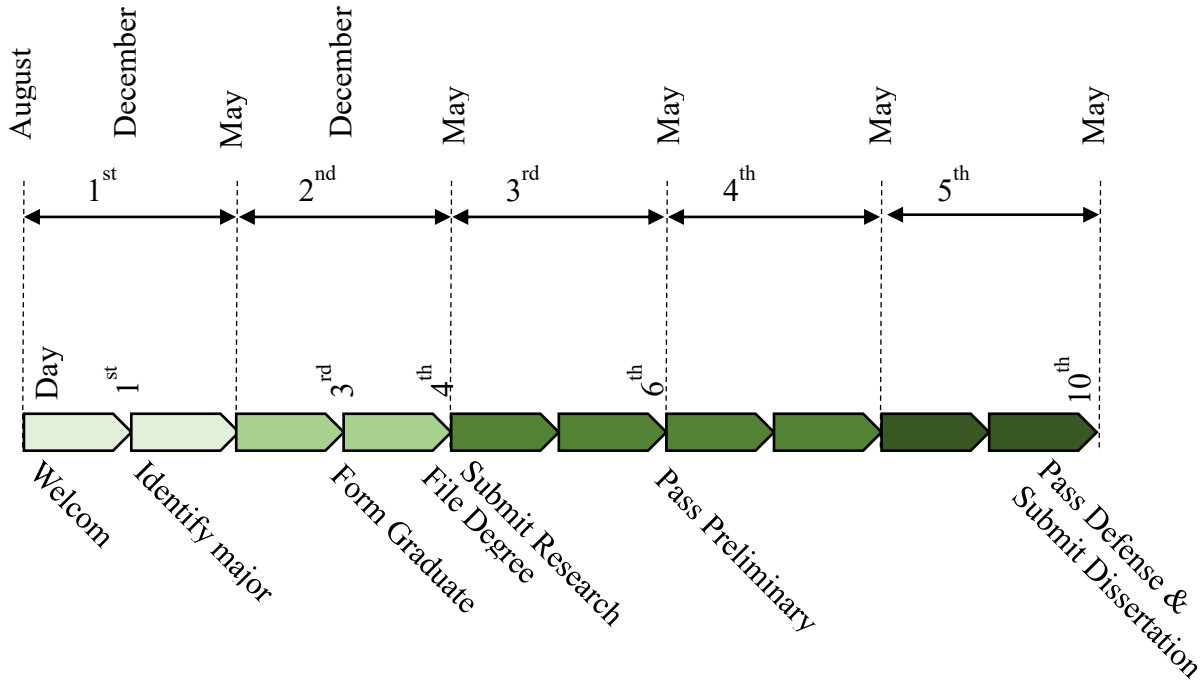
¥ *Times are semesters after first enrollment and include summer semesters.*

☼ *This requirement is mandated by the College of Agriculture and Life Sciences and non-compliance will result in blocking from registration.*

♪ *Annual Committee meetings are expected to ensure appropriate student progress toward degree. These requirements will be monitored via graduate annual reports to the ADH.*

Fig. 5 shows a schematic of the Ph.D. and M.S. degree completion timelines. We initiated this visual timeline this year to help empower our students to take ownership of their degree programs.

PLPM Ph.D. Student Graduation



PLPM M.S. Student Graduation

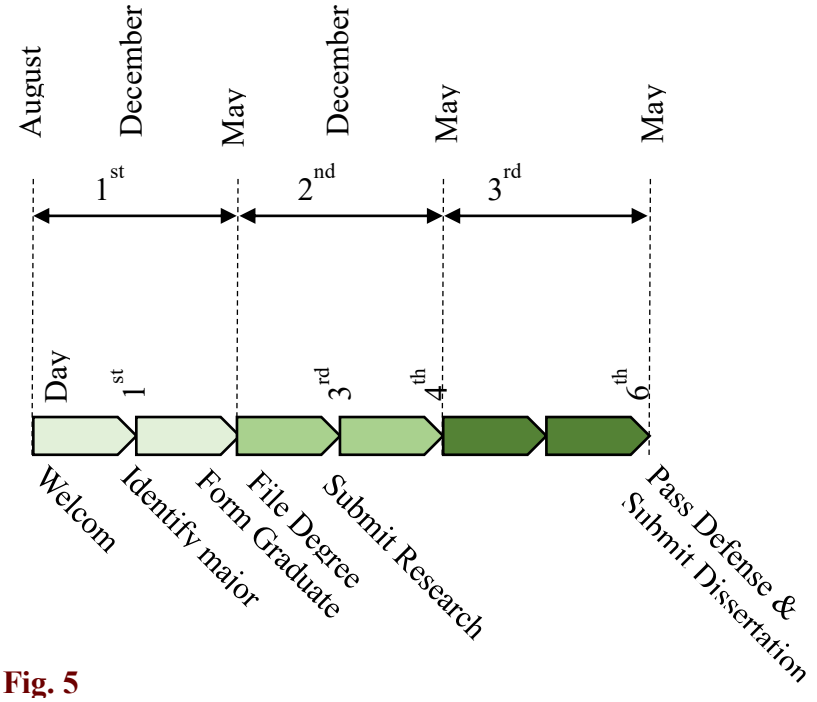


Fig. 5

PLPM Graduate Admissions

The Department of Plant Pathology and Microbiology considers the following student information, each with roughly equal weight, for graduate admission decisions:

- Professional Statement of purpose and career goals
- Quality of Letters of Recommendation
- Leadership and Life Experience
- Quality and Depth of Research and/or Teaching Experience
- Academic Performance as an Undergraduate.
- Graduate Record Examination (GRE) Performance.
- Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) scores are REQUIRED for International Students. Official Scores must be sent directly to TAMU (School code: 6003). Please visit the Office of Graduate and Professional Studies (OGAPS) website for a list of requirements, exemptions, and other useful information regarding the TOEFL/IELTS exams.
- Alignment of Interests with Faculty Research

Recent Graduate Student Applications

Year	Completed Applications		Offers made	Accepted
2014	23		5	5
2015	22		6	5
2016	25		9	6
2017	24		13	9
2018 (to date)	3	30 inquiries		1 (Brazil)

Over this period we have had 93 domestic inquiries that we did not encourage to submit applications and an additional 102 inquiries from mainly international students where we obtained additional information, such as transcripts, GRE scores, TOEFL scores, but informed the applicants not to apply.

Assessment of the Plant Pathology and Microbiology Graduate Program

We implemented course modules as a response to the previous APR that said students were spending too much time in the classroom. We designed our graduate assessment to focus on holistic measures of whether the graduate experience in our program is preparing students to be competent scientists, rather than a course embedded measures model. Thus, our assessment focusses on student competencies across multiple experiences that serve both as formative (early feedback) and more summative (completing milestones). Figure 3 illustrates the relationship between the graduate student learning outcomes and the institutional contexts, the program goals, and the measures we use in the assessment plan.

Mission

To foster creative, scholarly, and ethical plant pathologists and microbiologists who serve as research, outreach and service leaders for academia, biotechnology industries, governmental and non-governmental laboratories, particularly those protecting the environment, feeding a growing world population, and enhancing public health.

Goals

1. **Obtain core competency -** Students are competent in core skills essential to be successful research scientists including: an ability to learn and implement modern technology, a capacity to teach others, and an inclination to make timely progress through the program (i.e. across milestones within the program)
2. **Develop hypotheses -** Students develop the ability to take robust positions on complex issues by developing their critical thinking and hypothesis building skills
3. **Communicate effectively -** Students learn to communicate effectively as scientists using field specific language of the fields of Plant Pathology, Microbiology and Plant Health.

Outcomes

1. **Comprehensive Knowledge -** Graduate students exhibit a comprehensive knowledge of the fundamental concepts of plant pathology, genetics, and/or microbiology.
2. **Research Project Design and -** Graduate students conceive and implement a research project with the mentorship by a committee composed of members of the graduate faculty.
3. **Publish research findings -** Graduate students prepare publication quality manuscripts and other texts (e.g. thesis, dissertation, book chapters) to demonstrate their research findings.
4. **Oral Communication Skills** - Graduate students demonstrate oral communication skills appropriate for the dissemination of research results to their peers and the scientific community.

Analysis

Assessment of the graduate program for the last three cycles involved development and implementation of systems to track graduate student milestones and ask graduate students to plan and reflect about their performance. This includes development of an annual graduate student report form (self-reported data); evaluations implemented during committee meetings, preliminary exams, seminars (formative and at exit), thesis or dissertation defenses. Figure 3 shows how these measures in our assessment map across our student learning outcomes.

Additionally, we created and recently formalized an annual graduate student poster symposium in which the students are all required to present. We chose to focus on enforce these milestone events with the graduate students, the faculty and the graduate assessment program to incentivize student progress, project quality, and to minimize time to degree. Below is single summary for each the patterns we see for all the student learning outcomes and the actions we have taken since the beginning of the current plan.

Pattern and Interpretation: We track the progress of students to form their committee and establish their degree plan, hold committee meetings, and pass their preliminary exams (PhD only) across an expected timeline. Rather than micromanage what our students, with diverse interests might need to know, we leave that to their graduate committees. We enforce with the students and their PI that they meet these milestones. Figure 3 illustrates how these measures map relative to all the graduate student learning outcomes. Generally this approach has been successful. Students have met expectations for forming the committee, holding committee meetings, and creating the degree plan. We have not met our targets yet for students taking and passing their prelims on time, however, we have seen great improvement since we have begun tracking this and providing feedback (% of PhD students completed by end of 3 year increasing over time 46% AY2015, 54% AY2016, 75% AY2017; target is 90% or better). Our graduate students tend to meet the targets we've set for their exit seminars. We have seen variable success with respect to graduate students meeting the publication targets we set. Our graduate students meet targets for oral communication skills as well.

Actions: Creating and refining the systems to capture student performance across milestones was not been a minor endeavor. Shifting expectations and habits takes time, and for people to take responsibility for their roles in the system. Thus our continuous improvement has required both consistent communication (e.g. sending responses and feedback to students and their PIs after the student submits their annual report) and improved onboarding of new students (description of the expectations and reporting at both our recruiting visit and at new student orientation). Further, each year as we established the patterns from our various measures they were presented to the faculty at Curriculum and Assessment Committee meetings, allowing everyone to appreciate how the systems have improved student progress toward their milestones. Further the Department Head began discussing student progress toward student milestones during faculty evaluations.

Our newest action, a mandatory annual graduate student poster symposium, is targeted at helping students develop their research projects, practice their writing and presentation skills, and interpret their results. All of these ought to 1) improve their confidence for taking their preliminary exams and 2) help them prepare publications, which are the two areas where we are not consistently meeting our targets.

Figure 1. Relationship between PLPA and BESC courses and the three undergraduate environmental majors available from PLPM.

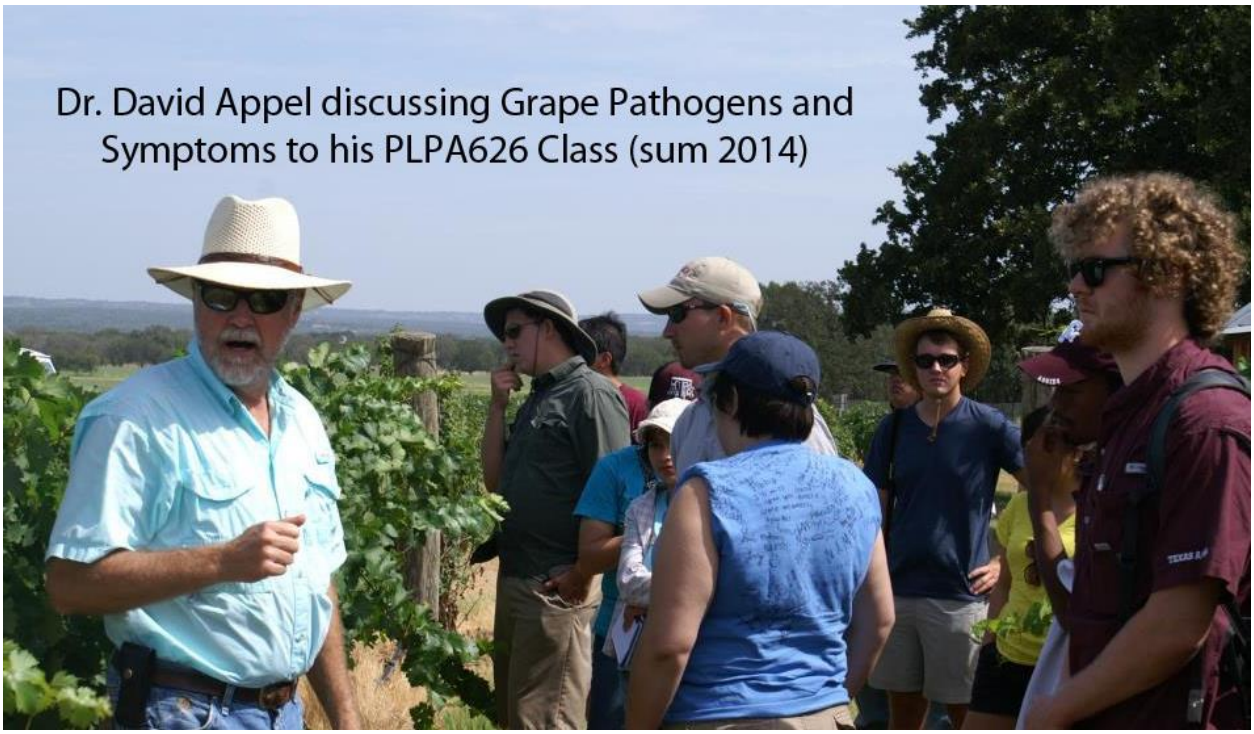
			Credits	Designation	Assessment	MAJOR		
						BESC	ENST	USAL
BESC	201	**Introduction to Bioenvironmental Sciences -**A broad survey of environmental science with an emphasis on scientific literacy, current events, global and international issues and historic context. (available online and face to face)	3	CC	*	Required	Required	Required
BESC	204	**Molds and Mushrooms: The Impact of Fungi on Society and the Environment -** Introduction to the fungi and the impact these organisms have on society and the environment; includes life cycles of fungi; classification schemes, pathogens of plants, animals and humans, fungi in food production; toxic fungi and the law, and others.	3	CC		BESC Elective	Natural Resource Elective	BESC Elective
PLPA	301	**Plant Pathology -**Introduction to fundamental principles of plant pathology; diagnosis, cause and control of plant diseases.	3			Required		BESC Elective
PLPA	303	**Plant Pathology Laboratory -** Isolation, identification of plant pathogens and clinical diagnosis and control of plant diseases.	1			Required		BESC Elective
BESC	314	**Pathogens, the Environment and Society -** The impact of microorganisms (bacteria, fungi and viruses) on the development of modern culture and society; the role pathogens played in the history of mankind and the influence of the changing environment on emerging diseases.	3			BESC Elective	Environmental Policy Elective	BESC Elective
BESC	320	**Water and the Bioenvironmental Sciences -** Critical understanding of salient issues relating to fresh water as a limited and important bioenvironmental resource.	3			BESC Elective	Natural Resource Elective	BESC Elective
BESC	357	**Biotechnology for Biofuels and Bioproducts -** Biotechnology issues in developing bioenergy as a renewable energy source; emphasis on the three generations of bioenergy and enabling technologies; special topics include recent advances in bioenergy research, government policy, and industrial development.	3			BESC Elective	Environmental Policy Elective	BESC Elective
BESC	367	**US Environmental Regulations -** Investigation of the legal infrastructure of the U.S. associated with regulating environmental impacts; examination of major U.S. environmental statutes associated with air and water quality, toxic substances, waste and hazardous substance release, energy and natural resources; review the relationship between U.S. policy and international environmental regulations. (available online and face to face)	3		*	BESC Elective	Required	Required
BESC	401	**Bioenvironmental Microbiology -** The interactions of microorganism in diverse environments; applied aspects of microbial interactions in the environment, their effects on the environment, and potential use to solve environmental problems.	3			BESC Elective		
BESC	402	**Microbial Processes in Bioremediation -**Metabolic pathways of microbes involved in the biodegradation of hazardous materials will be presented; ecological requirements for biotreatability of contaminated sites will be discussed emphasizing factors affecting microbial growth; strategies for in situ bioaugmentation will be presented.	3			BESC Elective		
BESC	403	**Sampling and Environmental Monitoring -** Metabolic pathways of microbes involved in the biodegradation of hazardous materials will be presented; ecological requirements for biotreatability of contaminated sites will be discussed emphasizing factors affecting microbial growth; strategies for in situ bioaugmentation will be presented.	3			BESC Elective	Natural Resource Elective	
BESC	411	**Environmental Health and Safety Compliance -** Investigation of various Environmental Health and Safety (EHS) practices necessary for compliance with state and federal regulations; reinforcement of real-world understanding; tour several regulated facilities on campus and learn about the particular TAMU-EHS compliance management strategies for each (utilities, underground storage tanks, wastewater treatment and hazardous waste facility).	3			BESC Elective	Environmental Policy Elective	BESC Elective
BESC	481	**Seminar -** Capstone course for topics in bioenvironmental sciences; critical analysis of environmental issues through written themes and presentations. May be taken three times for credit.	1	C	*	Required	Required	Required
BESC	484	**Field Experience -** An on-the-job supervised experience program conducted in the area of the student's specialization.	3	W	*	Required	Required	Required
BESC	485	**Directed Studies**	3					
BESC	489	**Special Topics -** Selected topics in an identified area of bioenvironmental sciences. May be repeated for credit.	3			BESC Elective		BESC Elective
BESC	491	**Research**	3					
Co-curricular Programming : (BESC Annual Symposium, Study Abroad, BESC Undergraduate Research Scholars (BURS) Program, NAEP, Sciences Career Fair, Career Panel, BESC Professional Board Career Panel, Keynote Speaker @ Fall BESC Professional Board Meeting, BESC Tailgate)			Opportunities and events promoted in all BESC courses.					

Figure 2. Relationship between the BESC Associated Program (Undergraduate) Learning Outcomes and the institutional contex, BESC Program Goals, and the measures we use in program assessment. There are four courses central to our assessment plan. BESC 201: Introduction to Bioenvironmental Sciences (Stoddard), BESC 367: US Environmental Regulations (Wilkinson), BESC 481: Capstone Communication Course (Communication Intensive Designation) (most faculty), BESC 484: Field Experience (Research or Internship; Writing Intensive Designation) (most faculty).

		BESC Associated Program Learning Outcomes					
		1. Develop technical competency	2. Effective Oral Communication	3. Effective Visual Communication	4. Effective Written Communication	5. Argument development and critical thinking skills	6. Connect technical knowledge, experiences, and self-knowledge to the discipline
Vision 2020	1. Elevate Our Faculty and Their Teaching, Research, and Scholarship						
	2. Strengthen Our Graduate Programs						
	3. Enhance the Undergraduate Academic Experience		■	■	■	■	■
	4. Build the Letters, Arts, and Sciences Core	■		■		■	
	5. Build on the Tradition of Professional Education						
	6. Diversify and Globalize the A&M Community						
	7. Increase Access to Knowledge Resources						
	8. Enrich Our Campus						
	9. Build Community and Metropolitan Connections						
	10. Demand Enlightened Governance and Leadership						
	11. Attain Resource Parity with the Best Public Universities						
	12. Meet Our Commitment to Texas						
TAMU Institutional Undergraduate Student Learning Outcomes	1. Master the depth of knowledge required for a degree	■	■	■			■
	2. Demonstrate critical thinking		■	■	■	■	■
	3. Communicate effectively		■	■	■	■	
	4. Practice personal and social responsibility						
	5. Demonstrate social, cultural, and global competence						
	6. Prepare to engage in lifelong learning						■
	7. Work collaboratively						
BESC Associated Programs Goals	1. Obtain Technical Competency	■					■
	2. Communicate Effectively		■	■	■	■	
	3. Think Critically				■	■	■
	4. Integrate and Apply Learning						■
Measures Used	Quizzes and Exams Embedded in BESC 201	■					
	Worldview reflection embedded within BESC 201			■			
	Empirical and Quantitative Skills Problems (EQSP) within BESC 201					■	
	Quizzes and portions of Exams embedded within BESC 367	■					
	Integrative Essay Assignment embedded within BESC 367					■	■
	Serial presentations and peer-review embedded in BESC 481		■			■	
	Poster Assignment embedded within BESC 484	■		■	■	■	■

Figure 3. Relationship between the PLPM Program (Graduate) Learning Outcomes and the institutional contex, PLPM Program Goals, and the measures we use in program assessment.

		PLPM Learning Outcomes			
		1. Exhibit comprehensive knowledge	2. Design and implement a research project	3. Publish research findings	4. Demonstrate effective oral communication
Vision 2020	1. Elevate Our Faculty and Their Teaching, Research, and Scholarship				
	2. Strengthen Our Graduate Programs	■	■	■	■
	3. Enhance the Undergraduate Academic Experience				
	4. Build the Letters, Arts, and Sciences Core			■	
	5. Build on the Tradition of Professional Education	■	■	■	■
	6. Diversify and Globalize the A&M Community				
	7. Increase Access to Knowledge Resources			■	
	8. Enrich Our Campus				
	9. Build Community and Metropolitan Connections				
	10. Demand Enlightened Governance and Leadership				
	11. Attain Resource Parity with the Best Public Universities				
	12. Meet Our Commitment to Texas			■	
TAMU Institutional Undergraduate Student Learning Outcomes	1. Master degree-program requirements, including theories, concepts, principles, and practice; develop a coherent understanding of the subject matter through synthesis across courses and experiences; and apply subject matter knowledge to solve problems and make decisions.	■	■	■	
	2. Apply a variety of strategies and tools, use a variety of sources, and evaluate multiple points of view to analyze and integrate information and to conduct critical, reasoned arguments.		■	■	
	3. Communicate effectively			■	■
	4. Develop clear research plans, conduct valid, data-supported, theoretically consistent, and appropriate venues to a range of audiences.		■	■	
	5. Use appropriate technologies to communicate, collaborate, conduct research, and solve problems.	■	■	■	■
	6. Teach and explain the subject matter in their discipline.	■		■	■
	7. Choose ethical course of action in research and practice.		■	■	
PLPM Program Goals	1. Obtain Core Competency	■	■	■	
	2. Develop Hypotheses		■	■	
	3. Communicate Effectively		■	■	■
Measures Used	PLPM Annual Graduate Student Report	■	■	■	
	Annual Committee Meeting Evaluation		■		
	Preliminary Exam (PhD students only)	■			
	Exit Seminar Evaluation				■
	Final Seminar	■	■	■	■
	Annual Graduate Student Poster Presentation	■	■	■	■

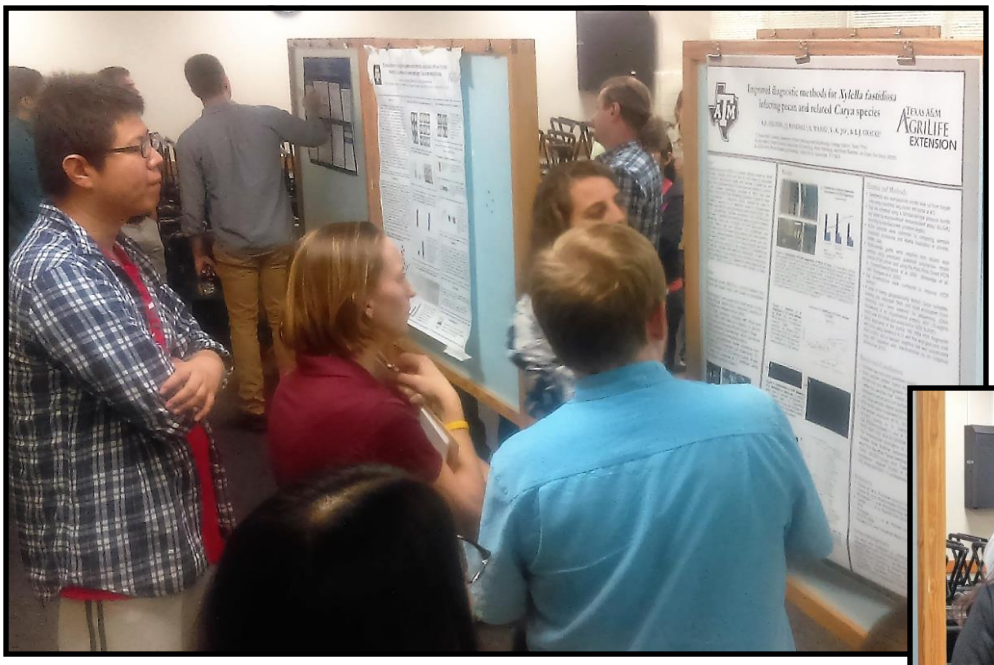

Dr. David Appel discussing Grape Pathogens and
Symptoms to his PLPA626 Class (sum 2014)

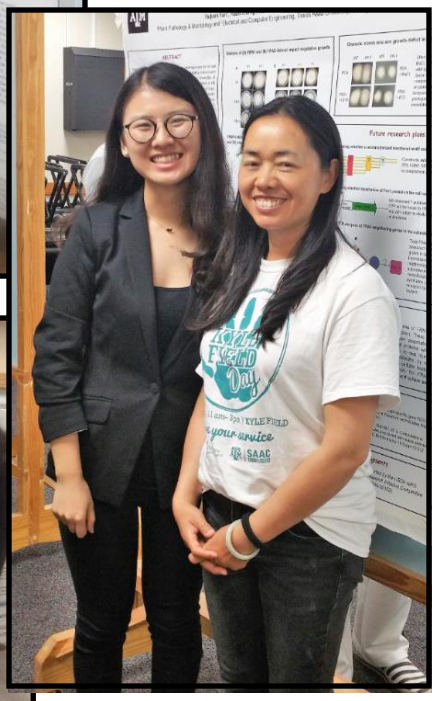
Graduate Student Spring Poster Symposium

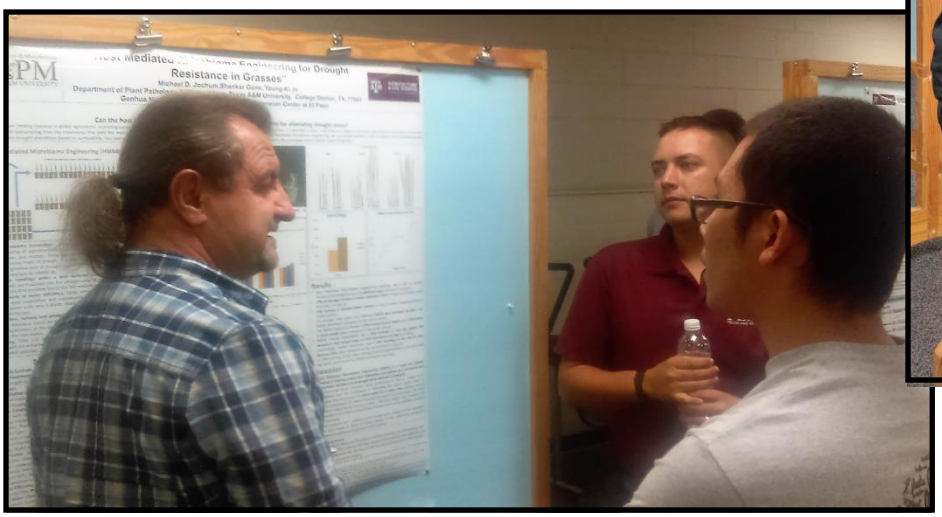
In 2016 the department initiated a Spring Graduate Student Poster Symposium to:

- Facilitate interactions and communication among the students and departmental faculty
- Provide additional opportunities for students to enhance their presentation skills
- Bring graduate students together from across campus to share findings

The event was well attended by faculty, students and staff members and provided a great opportunity to learn about the diversity of research ongoing in the department and enable our staff to better understand the work being done across the department. Since then, the department has purchased new easels to modernize the look and feel of the event.







Graduate Student Peer Mentoring Program

Our graduate students comprise a group of professionals motivated to becoming successful plant pathologists. One issue that affects most departments is the number of incoming graduate students. Each year PLPM usually admits ca. 5-9 students of which 5-6 enroll at Texas A&M. Due to the nature of the plant pathology field being primarily at the graduate level, many students enter the program with little or no detailed knowledge of the field. Add the new challenges faced by graduate students (e.g. courses, laboratory rotations, selecting a major advisor and committee, plus seminars and journal clubs) the first year can be daunting.

A group of our graduate students initiated a **Graduate Student Peer Mentoring Program** in August 2017. In this program, senior graduate students are matched to first year students by interest and location, with the goal being to have them meet monthly to discuss issues. In this way, the mentors who have successfully navigated the process, can assist newer students adapt to the demands of graduate school and navigate the process more efficiently. The department fully supports this initiative, and provides the approved mentors coupons for coffee at Starbucks. For more information on the program, see **Appendix K**.

Current mentors include:

Last Name	First Name	Phone Number	What is your favorite microbe?					
Borrego	Eli		Aspergillus					
Taylor	Jim		*Trichoderma virens*					
Cox	Kevin		Xanthomonas					
Gorman	Zack		Colletotrichum					
Jochum	Michael		*Bacillus thuringiensis*					
Bennett	John		*Phialemonium inflatum*					
Dorosky	Robert		*Pseudomonas aeruginosa*					
Jamieson	Pierce		*Cordyceps sinensis*					
Vasselli	Joseph		Anything that doesn't want to kill me is a favorite of mine.					
DeMell	April		Viruses					
McWilliams	Kelsey		*Fusarium oxysporum* f.sp. cubense					
Davis	Roy							

Current peer groups:

Group	Mentor 1	Mentor 2	Mentee	common interests
1	Eli Borrego	Pierce Jamieson	April Demell	Signaling mechanisms;Molecular biology;Genetics
2	Jim Taylor	Michael Jochum	elsey McWilliam	Microbiome;Molecular biology; Biocontrol;
3	RJ Dorosky	Kevin Cox	Joe Vasselli	Basic research;Genetics;Bioinformatics
4	Jon Bennet	Zack Gorman	Roy Davis	Fungi;Plants;Applied research

Graduate Student Awards

2018 (to date)

- **Blake Commer,** Edward E. Butler Mycological Society of America Mentor Student Travel Award

2017

- **Kevin Cox,** USDA-NIFA AFRI-ELI Pre-doctoral Fellowship
- **Michael Jochum**, 1st Place poster award, Phytobiomes Journal, American Phytopathological Society Annual Meeting, San Antonio, TX.
- **Michael Jochum**, 1st Place, Dupont Plant Sciences Series Texas A&M Plant Breeding Poster Symposium
- **Michael Jochum**, APS Office of International Programs (OIP) Global Experience Award
- **Michael Jochum**, AGEP Professional Development Award
- **Michael Jochum**, Alliance for Graduate Education and the Professoriate (AGEP) student mini-grant awardee, research funds for microbiome next generation sequencing
- **Cheng Zhao**, OGAPS Travel Grant for presentation at the 39th Symposium on Biotechnology for Fuels and Chemicals, May 1-4, 2017
- **Robert Dorosky**, OGAPS Graduate Student Travel Award

2016

- **Brendan Mormile**, ASM Conference Poster Presentation
- **Michael Jochum,** 1st Place, Plant Pathology and Microbiology Department Poster Symposium
- **Michael Jochum,** Texas Rice Research Foundation Grant, First Round
- **Kevin Cox**, Presentation at the International Conference of Plant Biotic Interactions, Xiamen, China
- **Kevin Cox**, Texas Plant Protection Association Graduate Student Award
- **Kevin Cox**, Department of Plant Pathology & Microbiology Graduate Student of the Year
- **Kevin Cox**, Institute of Plant Genomics and Biotechnology Most Outstanding Graduate Student Award
- **Robert Dorosky**, Outstanding Student Abstract Award, American Society for Microbiology, Microbe Meeting, June 16-20, Boston, MA

2015

- **Michael Jochum**, Texas A&M Agrilife Graduate Extension Assistantship
- **Michael Jochum**, Bioenvironmental Sciences Professional Board Service Award
- **Kevin Cox**, Texas A&M University Office of Graduate and Professional Studies Presentation Grant

2014

- **Zachary Schultzhaus,** National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Fellowship.
- **Christopher W. P. Lyons,** elected to serve as President of the Texas A&M University Graduate Student Council (GSC)
- **Luis P. Moncayo**, H. J. Dubin Student Travel Award in honor of the Peace Corps
- **Luis P. Moncayo,** APS Travel Award, Minneapolis, MN.
- **Kevin Cox**, 2nd place in Poster Presentation at Texas Plant Protection Association Conference

2013

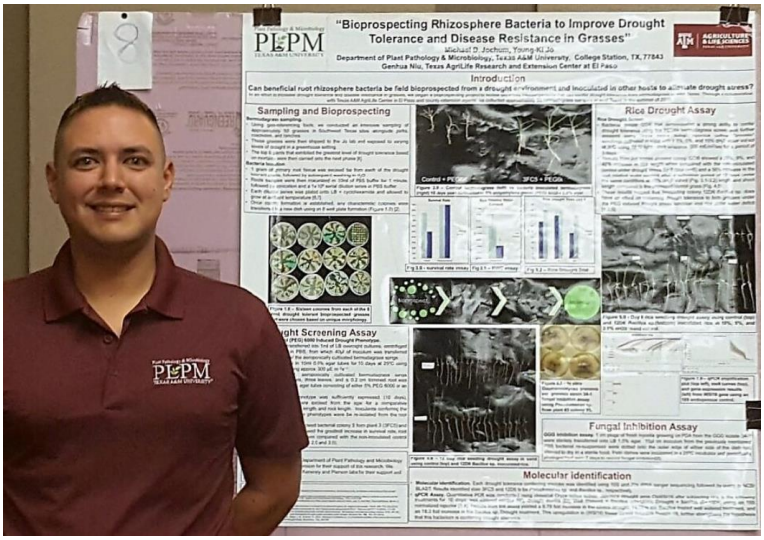
- **Kevin Cox**, Texas A&M University Graduate Student Diversity Fellowship
- **Kevin Cox**, 2nd place in Poster Presentation at Texas Plant Protection Association Conference
- **Robert Dorosky**, Excellence Fellowship, College of Agriculture and Life Sciences, Texas A&M University

2012

- **Julia Cope,** 1st place, poster session, Student Research Week, Microbiology, Molecular Biology/Biochemistry.
- **Christopher Lyons,** Conoco-Phillips Energy Institute Fellowship, (only COALS awardee).
- **Myoung Jun Yu,** 1st place, research poster, 50th Ann. Meeting, International Korean Society of Plant Pathology.
- **Martha Malapi-Wight,** Texas A&M Academic Excellence Award.
- **Carlos Ortiz,** SLOAN Fellowship Award AND 2012 USDA Fellowship Award.

2011

- **Pedro Ismael Pesquera,** Sloan Award,Regent's fellow and an Hispanic Leaders in Agriculture and the Environment (HLAE) scholar.
- **Abria Haynes**, Sloan award.
- **Eli Borrego** (MANRRS), Monsanto Travel Award.
- **Jonathan Gramann** (MANRRS), Monsanto Travel Award.
- **Cassandra Warren,** 2nd place, 2011 Texas Cluster Workshop Contest.
- **Julian R Avila**, 1st place 2012 Graduate Student Oral Research Presentation, Atlanta GA.



Michael Jochum standing by his poster on 'Bioprospecting Rhizosphere Bacteria' that received the 1st Place poster award from the Phytobiomes Journal at the 2017 American Phytopathological Society Annual Meeting, San Antonio, TX.

Note regarding Michael Jochum's OIP Award to Ecuador

2017 APS OIP GLOBAL EXPERIENCE

Awardees Focus on Bioprospecting Beneficial Microbes for Increasing Stress Tolerance and Disease Control

Michael D. Jochum, Texas A&M University (TAMU), jochum00@tamu.edu, Luis Moncayo, Instituto Nacional de Investigaciones Agropecuarias, email, Young-Ki Jo, TAMU, ykjo@tamu.edu

With financial support from the APS Office of International Programs (OIP) Global Experience Award, **Michael Jochum**, a graduate student at Texas A&M University (TAMU), was able to travel to Joya del Sachas, Ecuador, and conduct a two-day classroom and field workshop at the Estación Experimental Central de la Amazonía, Instituto Nacional de Investigaciones Agropecuarias (INIAP).

On the first morning, Jochum instructed a classroom-based lecture in Spanish focusing on the following topics: the fundamentals of plant-microbe interactions, defining and understanding the phytobiome, an introduction to bioprospecting plant growth-promoting microorganisms (PGPM), different methods for isolation and screening PGPM for biocontrol applications, and providing examples of commercially inoculating PGPM in the field.

The second day consisted of a field workshop in which the scientists at INIAP conducted a field day demonstration of their experiments in conventional and organic agricultural production of various tropical crops, including cacao, coffee, and banana. Jochum demonstrated proper sampling of different leaf, root, and soil samples from these various crops for disease diagnosis. During the afternoon, INIAP technicians transported the samples back to the lab for the microbial isolation hands-on workshop. Jochum demonstrated and supervised INIAP technicians on the proper methods for conducting a serial dilutions series, microbial isolation of bacteria and fungi, in vitro identification of antibiosis by bacteria and fungi, and seed coating with beneficial microbes for greenhouse and field trials.

This collaborative workshop and exchange of information set a precedent and laid the foundation for fostering a future international collaboration between TAMU and INIAP for research on the discovery of new technology for microbiome biocontrol, future exchange of students, and pursuit of international collaborative funding opportunities. Most of all, this experience fostered Jochum's interest in his future career toward plant pathology and disease management.

We would like to thank **Young-Ki Jo** in the Department of Plant Pathology and Microbiology at TAMU, APS, OIP, and INIAP for their support of this incredible international experience. ■

Recent PLPM Graduate Numbers

MS and PhD Degrees (2011-2016)

	Female		Male		Total	
	MS	PhD	MS	PhD	MS	PhD
2011-12	0	1	2	0	2	1
2012-13	2	4	2	2	4	6
2013-14	1	2	0	3	1	5
2014-15	0	2	3	1	3	3
2015-16	5	0	0	4	5	4
	8	9	7	10	15	19

From 2011-2016 graduated 15 MS and 19 PhD students (8 female and 7 male MS; 9 female and 10 male PhD). Chart does not include degrees expected by Dec. 2017, which raised the totals to 19 M.S. and 24 Ph.D. graduates.

Reflections: Graduate Teaching

The field of plant pathology continues to be central to most aspects of successful agricultural production. Scientists contribute to a broad range of plant growth issues, from germination, development, maturation, yield, and the effects of abiotic and biotic stresses on plant traits.

Teaching faculty. The department has 14 faculty with some teaching responsibility (13 FTEs). We average between 30-35 graduate students, with almost equal numbers of post-doctoral students and visiting scientists.

Seminars:
The department has a strong weekly seminar program that serves as the social and scientific center for faculty, students, staff, post-doctoral fellows and visiting scientists. Usually attendance each week is 50-80. However, as the registrar only counts the 4-5 graduate students who register each semester when assigning rooms, we are always scrambling to find a room to fit our audience. This has resulted in different locations and use of sub-optimal rooms that do not encourage discussions. We would like to provide seminar access to listen and present to our off-campus faculty to encourage interactions and collaborations. However, our current facilities do not facilitate this. It is even difficult for faculty from across campus to attend seminar every week due to parking issues (takes 20-40 minutes to get across campus, park and walk to the room).

Opportunity
Upon completion, the new PLPM building on west campus will have a seminar room dedicated to the department that we are also planning to make available to other departments on west campus to stimulate cross-disciplinary interactions.

Graduate Student Mentoring and Support:
Currently, 11 (and 1 adjunct) faculty serve as major advisors to every graduate student in the department. Ideally, each faculty member would serve as major advisor for at least two students on average. Some faculty also serve as major advisors to interdisciplinary program (IDP) students such as MEPS. However, the department gets no credit for these IDP majors although they occupy lab space, use lab supplies, and attend many courses. The department also has 7 100% Texas A&M AgriLife Research and 5 100% Texas A&M AgriLife Extension faculty. However, since their appointments often preclude them from participation in teaching, we lose their expertise in our student in-classroom training. In the past it was difficult for these faculty to get approval as graduate mentors from the Graduate School. This was simplified recently, but we still are not taking full advantage of the expertise of these faculty. Also, these faculty are discouraged from teaching as it detracts from their primary responsibilities. They do not receive credit at promotion time for these efforts.

Obstacles
Distance. Texas is a big state, and driving to many of the Ag Stations is a commitment of time. Examples:

College Station to:	Hours
Amarillo	9
Beaumont	3.5
Corpus Christi	5
Dallas	3.5
Lubbock	7
Weslaco	7
Uvalde	5

Since it is difficult to do one-day trips, lodging must be included in costs. Ideally, students would work at the Ag centers for multiple days or weeks, especially for field-directed work. However, a lack of housing at the centers and the locked in 1-year contracts for student housing in College Station make this impractical.

One area that we have pursued is the development of cross-disciplinary research efforts such as the Root/Rhizosphere Interface. This Grand Challenge project is critically important to agriculture but the battle is the common one of shared recognition versus individual PI and department recognition combined with distance and lack of quality IT capacity at centers for video meetings. This works against faculty as they are evaluated primarily on their programs and grant successes.

Graduate Student Recruitment:
PLPM department faces similar graduate student issues as other plant pathology departments across the U.S.
Recruitment:
While the importance of plant pathology to worldwide agriculture continues to increase, fewer qualified students apply to plant pathology departments in general due to lack of exposure to the field. A corollary result of this is the fact that many of the qualified students who apply have never taken plant pathology and begin their graduate careers with very little knowledge. This is challenging from the viewpoint of how much classroom time it will take to give them the necessary knowledge to be successful.

Funding: This is historically been the major concern. The department has extremely limited assistantships (GRE and GAT/GANT) and competitive grant funding is unpredictable. We use our GREs as a recruitment tool so each graduate student has one year of funding. We also apply for centrally provided under-represented student and achievement funding each year.

Graduate Student Stipends:
Another issue is graduate student stipends. We recently raised our stipends from $19,000 (M.S.) and $19,600 (Ph.D.) to $24,000 to enhance our competitiveness. This still does not enable us to compete with schools offering multiple years of guaranteed support. Also, our core funding is shifting from USDA applied fundamental research to NSF and NIH fundamental research that does not garner commodity or industry support in Texas.

Concerns:

- Continued limitations to competitive funding, potential student tuition taxation.

- Disconnect between university administration restriction of university-suppled funding only for Ph.D. support (for SACS reporting) and the agricultural job market.
- Limited number of teaching faculty. The number of faculty in the department has increased by only three since 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.

Opportunities:

- Cross communication with research and extension faculty and with other departments for brainstorming, teaching, sharing support and mentoring.
- Commit specific seminar time slots to addressing pertinent and timely plant pathology issues in Texas to students and faculty.
- Development of more entrepreneurial projects, think-tank with other disciplines – host discussion/social with nutrition/horticulture/SCSC etc. public health, etc. on research and teaching collaboration.

Recent Graduates and Titles

Name	Dissert./Thesis Title	Maj. Professor	Degree	Grad. Date	After Graduation
Chandraesekar, Saravanan		Dickman, Marty	MS	2012	India
Duarte, Iris	Characterization of a broad host range tailocin from Burkholderia	Gonzalez, Carlos	PhD	2012	Adjunct professor at Tarrany county College
Torres, Cruz	Differentiation and Analysis of *Xylella fastidiosa* Subspecies fastidiosa Cultures Isolated from a Single Texas Vineyard using Simple Sequence Repeat Markers	Appel, David	MS	2012	Works at NASA in Houston
Odokonyero, Dennis	Identification of ARGONAUTES Involved in Antiviral RNA Silencing in *Nicotiana benthamiana*	Scholthof, Herman	MS	2012	Research Assistant and Laboratory Manager in Reproductive Neuroendocrinology, Texas A&M
Hassan, Ghada	Molecular Comparison and DNA Fingerprinting of *Sporisorium reilianum* and *Peronosclerospora sorghi* Relating to Host Specificity and Host Resistance	Magill, Clint	PhD	2013	Professor at Mount Saint Vincent College
McLachlan, Juanita	A Study of *Nicotiana Benthamiana* Protein Interactions with Tomato Bushy Stunt Virus	Scholthof, Herman	MS	2013	Research associate at Washington State University
Britt, Robert		Shan, Libo	MS	2013	Monsanto
Chen, Xin		Shan, Libo	MS	2013	Regional manager, Qide Education, Beijing, P.R China

de la Garza, Laura	Actin dynamics in *Aspergillus nidulans*.	Shaw, Brian	MS	2013	Research Assistant at UT Health Sciences Center in San Antonio
Ortiz, Carlos	Molecular Characterization of MADS-BOX Transcription Factors and Analysis of Field Population Diversity in the Maize Pathogen *Fusarium verticillioides*	Shim, Won-Bo	PhD	2013	Program specialist, USDA NIFA,Institute of Youth, Family, and Community, Washington DC
Malapi-Wight, Martha	The role of Cys-His Zinc finger transcription factors in carbon metabolism, asexual development and fumonisin biosynthesis in *Fusarium verticillioides*	Shim, Won-Bo	PhD	2013	Lead plant pathologist, USDA-APHIS-PPQ-FO, Beltsville, MD
Del Rio, Sonia	Identification of Root-knot Nematode Resistance Loci in *Gossypium hirsutum* Using Simple Sequence Repeats	Starr, Jim	PhD	2013	Assistant Research Scientist at AgriLife Research Weslaco
Cope, Julia	Microbial communities from extreme environments and their potential as inocula in a carboxylate platform for biofuel production from cellulosic biomass	Wilkinson, Heather	PhD	2013	Director Science Ops Diversigen
Uzuner, Ugur	Structure Dynamics Guided Enzyme Improvement of ENDO-BETA-1, 4-XYLANASE I	Yuan, Joshua	PhD	2013	

Ahern, Stephen	Novel Virulent Phages for *Xylella fastidiosa* and Other Members of the Xanthomonadaceae	Gonzalez, Carlos	PhD	2013	Post Doc at University of Copenhagen
Vaughn, Vanessa	Characterization of *salA*, *syrF*, and *syrG* Regulatory Networks Involved in Plant Pathogenesis by *Pseudomonas syringae* pv. syringae B728a	Gross, Dennis	PhD	2014	Unknown
Haynes, Abria	Characterization of Extremophilic Bacteria for Potential in the Biofuel and Bioprocess Industries	Wilkinson, Heather	PhD	2014	Research Development Specialist at The University of Texas Medical Branch at Galveston
Lundy, Donna		Dickman, Marty	MS	2014	Peace Corps
Borrego, Eli	Unraveling Reciprocal Lipid-Mediated Communication between Maize Seed and *Aspergillus flavus*	Kolomiets, Mike	PhD	2014	Postdoc at TAMU
Zhang, Yixian		Yuan, Joshua	PhD	2014	
Handiseni, Maxwell	Brassica Biofumigation for Management of Rice Sheath Blight caused by *Rhizoctonia solani* AG 1-1A	Xin-Gen (Shane) Zhou, Young-Ki Jo (co-chair)	PhD	2015	Worked as a post-doctoral associate in PLPM , 2015-2017
Zidek, Matt	Population Diversity and Fungicide Sensitivity of *Gaeumannomyces graminis* var. graminis from St. Augustinegrass in Texas	Jo, Young-Ki	M.S.	2015	Employed at ESE Partners, 2016

Moncayo, Luis	Disease management and microalgal biofertilization for rice production	Jo, Young-Ki	M.S.	2015	Research scientist in Estación Experimental Central de la Amazonía, Instituto Nacional de Investigaciones Agropecuarias, Cantón Joya de los Sachas, Provincia de Orellana, Ecuador, 2015
Nissen, Lorna	Detection, Monitoring and Management of *Rhizoctonia solani* AG 2-2 LP That Causes Large Patch in Zoysiagrass in Texas	Jo, Young-Ki	PhD	2015	Working as a researcher at University of Georgia since 2015
Pyle, Jesse	Molecular Pathogenesis of viral and subviral agents in model and crop grasses	Scholthof, Karen-Beth	M.S.	2015	Ph.D. student in the Virology Program at Harvard Medical School
Jiang, Shan	Plant Defense Signaling Mechanisms and Evolution	Shan, Libo	PhD	2015	Senior scientist Sigma, Shanghai, P.R. China
Lin, Wenwei		Shan, Libo	PhD	2015	
McBride, Sheila	Strategies for Managing Cotton Root Rot (CRR) Disease in Texas Wine Grapes	Appel, David	M.S.	2016	TPDDL
Laughlin, David	Environmental and Developmental Aspects of Sorghum Downy Mildew with Particular Emphasis on Oospores	Isakeit, Tom	PhD	2016	

Yu, Junmyoung	Regulation and Ecological Roles of Phenazine Biosynthesis in the Biological Control Strain *Pseudomonas chlororaphis* 30-84	Pierson, Betsy	PhD	2016	Postdoc Research Associate at TAMU Horticulture
Mendoza, Maria	Argonaute 2 and Antiviral Silencing in Plants	Scholthof, Herman	M.S.	2016	Research Assistant at TAMU
Hilton, Angie	Investigation of Fusarium stalk and kernel rot diseases in field crops	Shim, Won-Bo	M.S.	2016	PhD student, Department of Plant Pathology & Microbiology, Texas A&M University
Brown, Albre	Trunk Disease of Grapevines in Texas	Appel, David	M.S.	2016	PhD. Program UC Davis
Britian, Emma	Sequencing, pipeline development and select comparative analysis of 64 high quality draft genomes of extremophilic bacterial isolated from communities in carboxylate platform fermentations.	Wilkinson, Heather	M.S.	2016	Research Assistant and Laboratory Manager in Reproductive Neuroendocrinology , Texas A&M
Xie, Shangxian	Biological and Chemical Design for Lignin Conversion	Yuan, Joshua	PhD	2016	Post Doc at TAMU Plant Pathology and Microbiology
Syrenne, Ryan	Autotrophic Production of Limonene in Engineered Microalgae *Chlamydomonas reinhardtii*	Yuan, Joshua	M.S.	2016	
Bomer, Brigitte	*Aspergillus nidulans swoQ* Plays an Important Role in Polarized Hyphal Growth	Shaw, Brian	M.S.	2016	Research Scientist at Agilent Technologies, Austin Texas.

Schultzhaus, Zachary	Endocytic Recycling Pathways in *Aspergillus nidulans*	Shaw, Brian	PhD	2017	Post Doctoral Research Associate at the Naval Research Laboratory, Washington DC
Constantino, Nasie	Pathogen Triggered Plant Volatiles Induce Systemic Susceptibility in Neighboring Plants	Kolomiets, Mike	PhD	2017	Postdoc at North Carolina State University
Zhang, Huan	Characterization of Far-1 interacting complex and its downstream pathogenic subnetwork modules in *Fusarium verticillioides*	Shim, Won-Bo	PhD	2017	Postdoctoral scientist, Department of Biology, Texas A&M University

Current and Recent Post-doctoral Students

Dr. Marty Dickman:

Dr. Mehdi Kabbage Tenure track Assistant Professor University of Wisconsin
Dr. Brett Williams Queensland University of Technology, Australia, Associate Professor
Dr. Meray Basturkmen Location?
Dr. Kyoungsu Kim Seoul National University- Associate Professor
Dr. Itay Miyara Syngenta Tel Aviv Israel Research Group Leader
Dr. Selva Veluchamy Research Professor Research Park Raleigh, North Carolina
Dr. Su Young Shim Seoul National University- Associate Professor
Dr. Julissa Ramos (Somewhere in Mexico) Professor
Dr. Maofeng Jing Nanjing Agricultural University China Associate Professor
Dr. Steven Wang RTP, North Carolina

Dr. Chuck Kenerley:

Dr. Maria Eugenia Moran-Diez was a postdoc in my lab. Her current position is Research Associate at the University of Salamanca, Salamanca, Spain.

Michael Kolomiets:

Yan, Yuanxin, 2008-2013 – Now Professor at Nanjing Agricultural University, China
Christensen, Shawn, 2010-2012 – Now Research Fellow at USDA ARS research station at University of Florida.
Borrego, Eli, 2014-2017 – Now Assistant Research Scientist at Texas A&M University.

Dr. Clint Magill:

Dr. Carlos Ortiz, was funded via a USDA cooperative agreement. As of November 2016, he is a Biological Science Specialist with the USDA National Institute of Food and Agriculture
Dr. Tanya Wagner is currently a 1/2 time post-doc.

Dr. Kranthi Mandadi:

2016-current, supervisor, Dr. Renesh Bedre
2016-current, supervisor, Dr. Manikandan Ramasamy.
2015-current, supervisor, Dr. Shankar Pant.
2015-2016, supervisor, Dr. Carol Vargas. Currently working as Postdoctoral Administrative Fellow, Interdisciplinary Program in Genetics, Texas A&M University

Dr. Charles Rush:

Rodolfo Acosta-Leal – Went to KSU for another post doc.
Don Henne – Texas A&M AgriLife Research, Weslaco, Assist. Prof.
Madeleine Smith – University of Minnesota, Crookston, Assist. Prof.
Arash Rashed – Univ. of Idaho, Aberdeen, Assist. Prof.

Dr. Karen-Beth Scholthof:

Kranthi Mandadi (November 2010-2015). Currently: Assistant Professor, AgriLife Research, Plant Pathology and Microbiology, Weslaco, TX

Dr. Herman Scholthof:

Dr. Veria Alvarado (2008-2012) Director of Plant Health, Stoller Enterprises Inc. USA
Dr. Shuga Manabayeva (2008-2011) Senior Scientist. National Center for Biotechnology, Astana, Kazakhstan

Dr. Joshua Yuan:

Xing Wang, Assistant Professor, Miami University
Hong Ma, Postdoc, NC State
YongKyoung Kim, Scientist, Korean Agriculture Academy???
Chunlai Li, PI and Researcher (Equal to Professor), Chinese Academy of Sciences
Zhuo Xing, Fellow, Roswell Park Cancer Institute

Dr. Libo Shan:

Dr. Bo Li, Postdoctoral fellow, January 2012-December 2016
Current position: Professor, Huazhong Agricultural University, Wuhan, China.
Dr. Fanhong Meng, Postdoctoral fellow, June 2013-May 2015
Dr. Fuhao Cui, Postdoctoral fellow, January 2014- May 2015.
Current position: Associate Professor, China Agricultural University, Beijing, China.
Dr. Fangjun Li, Postdoctoral fellow, June 2014-July 2016
Current position: Associate Professor, China Agricultural University, Beijing, China.
Dr. Taotao Wang, Visiting Scholar, September 2014- September 2016
Current position: Professor, Huazhong Agricultural University, Wuhan, China.
Dr. Shujing Wu, Postdoctoral fellow, Spring 2009-Summer 2011,
Current position: Professor, Shandong Agricultural University, TaiAn, China.
Dr. Xiquan Gao, Postdoctoral fellow, Spring 2012-Spring 2013,
Current position: Professor, Nanjing Agricultural University, Nanjing, China.
Dr. Humberto Henriquec, Postdoctoral fellow, August 2013-July 2015.
Current position: Associate Professor, Federal University in Fortaleza, Brazil.

Dr. Qingyi Yu:

Anupma Sharma, May 2013-present, currently working in my lab
Fangfang Wang, May 2013-present, currently working in my lab
Ratnesh Singh, Jan. 2012-present, currently working in my lab
Xiaoen Huang, Feb. 2014-Jul. 2015, currently working at University of Florida as a postdoc
Jiangbo Zhou, Sep. 2011- Sep. 2012, currently a faculty member at Kaili University, China.

Dr. Joshua Yuan:

Xing Wang, Assistant Professor, Miami University
Hong Ma, Postdoc, NC State
YongKyoung Kim, Scientist, Korean Agriculture Academy???
Chunlai Li, PI and Researcher (Equal to Professor), Chinese Academy of Sciences
Zhuo Xing, Fellow, Roswell Park Cancer Institute

Dr. Xin-Gen (Shane) Zhou

Dr. Sai Seee Uppala, still working in my lab

Dr. Zhifu Guo, still working in my lab
Dr. Guangjie Liu, still working in my lab

18 Characteristics Relevant to the Graduate Program

Characteristic								
		12-'13	13-'14	14-'15	15-'16	16-'17	12-'15	13-'16
1	# Degrees/Yr	6	5	3	4	nd	4.7	4
							3-Yr Average	
		03-'05	04-'06					
2	Grad. Rate (10 yrs)	90%	66.7%					
		03-'05	04-'06					
3	Time to Degree (PhD)	5.1	4.9					
		12-'13	13-'14	14-'15	15-'16	16-'17		
4	Employment	6	5	3	4	nd		
5	Admission Criteria	Section 5.0						
		FY12	FY13	FY14	FY15	FY16		
6	% FT Students	100%	100%	95.6%	96.2%	nd		
7	Ave. Instit Support*			19067.8	20041.3	*Student stipend		
8	% FT w/ Instit Support**			100%	95%	**% Tuition paid by dept.		

15	Student Diversity		14-'15		15-'16		16-'17	
			Male	Female	Male	Female	Male	Female
		Wh	7	3	3	2		
		Blk	1	0	0	0		
		His	2	0	1	0		
		Other	9	4	8	2		

		12-'13	13-'14	14-'15	15-'16	16-'17
18	Student Publications	20	24	22.1	25.1	nd

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Section 6.0

Affiliated Programs

Norman Borlaug Center
Institute for Plant Genomics
and Biotechnologies
IPGB
Texas A&M University®

CENTER FOR
PHAGE
TECHNOLOGY

MEPS

TEXAS A&M UNIVERSITY
AGRICULTURE & LIFE SCIENCES

TEXAS A&M
AGRILIFE
RESEARCH | EXTENSION

Section 6.0 Affiliated Programs

Introduction

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 and Biotechnology (IPGB)
- Molecular and Environmental Plant Sciences (MEPS)
- Center for Phage Technology (CPT)
- Intercollegiate Faculty of Virology (IFOV)
- Intercollegiate Faculty of Genetics (FOG)

Institute for Plant Genomics & Biotechnology (IPGB)

https://ipgb.tamu.edu/

Mission

The mission of the Institute is to develop plant biotechnology, genomics, and related life science technologies and to foster technology utilization and crop improvement through multidisciplinary research activities on model plant systems, field, forest, and horticultural crops.

Research topics

Institute research topics include fungal-plant interactions, programmed cell death, signal transduction, genetic manipulation of various crops, gene discovery, bioseparations, bioprocess design and simulation, nutrition improvement, environmental stress tolerance, insect-plant interactions, plant immune response, bioenergy, and bioinformatics. The Institute provides student and postdoctoral trainees opportunities for productive collaborations in a good environment in which to conduct research.

About us

The Institute for Plant Genomics & Biotechnology is a multi-unit, multi-disciplinary organization with participating faculty, students, and scientists from fourteen units affiliated with Texas A&M University, Texas A&M AgriLife Research, and the USDA-ARS. The Borlaug Center provides the Institute for Plant Genomics and Biotechnology with a base of operations including specialized research laboratories, infrastructure, and equipment for the plant science community at Texas A&M University.

- The Borlaug Center is located at
- 498 Olsen Blvd.
- College Station, TX 77843
- on West Campus south of the Horticulture building. See the campus map for Bldg 1513.

Molecular and Environmental Plant Sciences (MEPS)

https://meps.tamu.edu/

Introduction

Experience the excitement and intellectual stimulation of study and original research in Molecular and Environmental Plant Sciences (MEPS) at Texas A&M University, the largest research university in the Southwest! The MEPS program prepares professionals for careers at academic institutions, government agencies, and private companies. Students can pursue research ranging from molecular to ecosystem levels for species as diverse as algae, agronomic, and horticultural crops, native plants, and trees.

Ph.D. and M.S. degrees are offered by a 50+ member faculty located in two colleges and nine departments. This diverse group provides academic training and research experiences beyond those offered by traditional departments.

Join the Revolution in Plant Biology! Our intercollegiate faculty is seeking to understand the behavior of plants and the molecular basis for their functions in natural environments.

History

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, Marty Dickman, Libo Shan, and Clint Magill. One adjunct faculty member, Elizabeth Pierson, is also in the MEPS program.

Center for Phage Technology (CPT)

Phages for Health, Industry, and Agriculture

https://cpt.tamu.edu/

Perspective

Throughout history, bacterial infections have been one of the most frequent causes of death in humans. Bacterial pathogens also cause a number of economically important diseases affecting both animal and plant agriculture. For more than 50 years, we have kept pathogenic bacteria at bay in both human medicine and agriculture with cheap, mass-produced chemical antibiotics. However, antibiotic-resistant bacteria are reaching epidemic proportions worldwide. For example, antibiotic-resistant Staphylococcus aureus killed more people than HIV in the United States in 2005. At the same time, there has been an alarming trend towards few new antibiotics under development. There is growing concern that we may be entering a post-antibiotic era. Moreover, it is only recently that the bacterial microbiota has become recognized as an important organ of the human body. Thus even if new broad-spectrum antibiotics could be developed, it is clear that each use of such chemicals can be highly deleterious to the microbiota and thus to health. Both of these trends have served to re-energize interest in bacteriophages, or phage, the viruses that infect bacteria.

Establishment and Mandate of the CPT

Coupled with modern DNA-based biotechnology, phage have enormous potential as "green" anti-bacterial agents. In May 2010, the Texas A&M University System Board of Regents established The Center for Phage Technology, – the CPT – , with the mandate to position the Texas A&M University System as a 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 industry.

Over the next three years, four CPT faculty positions were filled. There are now 8 tenured or tenure-track faculty that form the core faculty group of the CPT. The CPT staff provides phage expertise, research services, and collaborative opportunities to faculty, research enterprises and companies who have phage-related research interests. The CPT website, now under development, aims to provide a complete suite of bioinformatic tools for phage genome annotation, as well as protocols for all sorts of phage-related research.

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, Dan Ebbole, Charles Kenerley, Brian Shaw, Heather Wilkinson and Herman Scholthof are also members, but do not teach GENE courses.

TEXAS A&M University®

Appendix A: University, College, Agency Strategic Plans

Appendix A- University, College and Agency Strategic Plans

Vision 2020: Creating a Culture of Excellence

http://vision2020.tamu.edu/

Action 2015: Education First

http://provost.tamu.edu/Provost/media/Assets/pdfs-initiatives/pdfs-initiatives-SACS-COC/QEP Action2015.pdf

College of Agriculture and Life Sciences Strategic Plan

https://agrilifecdn.tamu.edu/wp-content/uploads/ALS_Strategic-Plan_2015.pdf

College of Agriculture and Life Sciences Grand Challenges

https://grandchallenges.tamu.edu/home/

Texas A&M AgriLife Research Strategic Plan

http://agriliferesearch.tamu.edu/files/2011/03/ResearchStrategicPlan.pdf

Texas A&M AgriLife Extension Service Strategic Plan

https://agrilife.org/od/accountability/texas-agrilife-extension-service-strategic-plan/

TEXAS A&M University®

Appendix A1: Information required for USDOE Accrediting Bodies

January 2, 2017

TO: External Program Reviewers and Program Accreditors

FROM: Michael T. Stephenson
Associate Provost for Academic Affairs and SACSCOC Accreditation Liaison

RE: Information required for USDOE Accrediting Bodies

Texas A&M University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, master's, and doctoral degrees. Consistent with comprehensive standard 3.13.1, the following provides the institution's official position on its purpose, governance, programs, degrees, diplomas, certificates, personnel, finances, and constituencies and is published in official university documents as noted.

Purpose

Classified by the Carnegie Foundation as a Research Doctoral University (Highest Research Activity), Texas A&M embraces its mission of the advancement of knowledge and human achievement in all its dimensions. The research mission is a key to advancing economic development in both public and private sectors. Integration of research with teaching prepares students to compete in a knowledge-based society and to continue developing their own creativity, learning, and skills beyond graduation.

The institution's official mission statement, published both on the institution's web page as well as in its annual university catalog, is:

> Texas A&M University (Texas A&M) is dedicated to the discovery, development, communication and application of knowledge in a wide range of academic and professional fields. Its mission of providing the highest quality undergraduate and graduate programs is inseparable from its mission of developing new understandings through research and creativity. It prepares students to assume roles in leadership, responsibility and service to society. Texas A&M assumes as its historic trust the maintenance of freedom of inquiry and an intellectual environment nurturing the human mind and spirit. It welcomes and seeks to serve persons of all racial, ethnic and geographic groups, women and men alike, as it addresses the needs of an increasingly diverse population and a global economy. In the twenty-first century, Texas A&M University seeks to assume a place of preeminence among public universities while respecting its history and traditions.

Governance

The governance of the institution was described in the 2012 certification of compliance submitted to SACSCOC.

Jack K. Williams Administration Building, Suite 100
1248 TAMU
College Station, TX 77843-1248 USA

Tel. +1 979.845.4016 Fax. +1 979.845.6994
http://provost.tamu.edu/

Texas A&M University at College Station, the flagship institution of the Texas A&M University System, has branch campuses located in Galveston, Texas and Doha, Qatar. A ten-member Board of Regents, appointed by the Governor, directs the Texas A&M System. The appointment of each Regent follows Texas Education Code (TEC, Chapter 85, Section 21).

TEC outlines the duties and responsibilities of the Board of Regents. These responsibilities are also defined in System Policy 02.01 Board of Regents and TEC 51.352. The Board elects two officers: Chair and Vice Chair. There are four standing committees: Audit, Academic & Student Affairs, Finance, and Buildings & Physical Plant. Special committees may be appointed by the Chair with Board approval.

At Texas A&M University the President is the chief executive officer; the President is not the presiding officer of the Board of Regents. The President reports to the state-appointed Board of Regents through the Chancellor of the Texas A&M University System. System Policy 2.05 Presidents of System Member Universities defines the duties of the President. The appointment of the President follows conditions set forth in System Policy 01.03 Appointing Power and Terms and Conditions of Employment, section 2.2.

Personnel

The institution is led by the President and members of his cabinet:

Michael K. Young, President
Carol A. Fierke, Provost and Executive Vice President
Jerry R. Strawser, Executive Vice President for Finance and Administration and CFO
Michael Benedik, Vice Provost
M. Dee Childs, Vice President for Information Technology and CIO
Michael G. O'Quinn, Vice President for Government Relations
Col Michael E. Fossum, Vice President and COO, TAMU-Galveston
Barbara A. Abercrombie, Vice President for HR & Organizational Effectiveness
Blanca Lupiani, Interim Vice President and Associate Provost for Diversity
Karen L. Butler-Purry, Interim Vice President for Research
Carrie L. Byington, Senior Vice President TAMU Health Science Center, Dean of the College of Medicine, and Vice Chancellor for Health Services
Daniel J. Pugh, Sr., Vice President for Student Affairs
Joseph P. Pettibon, II, Vice President of Enrollment and Academic Services
Gen Joe E. Ramirez, Jr. Commandant, Corps of Cadets
Amy B. Smith, Senior Vice President and Chief Marketing and Communications Officer
Scott Woodward, Director of Athletics

Programs, Degrees, Diplomas, and Certificates

See the Institutional Summary submitted to SACSCOC

Finances

See the Financial Profile 2016 submitted to SACSCOC

Southern Association of Colleges and Schools
Commission on Colleges

INSTITUTIONAL SUMMARY FORM
PREPARED FOR COMMISSION REVIEWS

GENERAL INFORMATION

Name of Institution Texas A&M University

Name, Title, Phone number, and email address of Accreditation Liaison
Michael T. Stephenson
Associate Provost for Academic Affairs and SACSCOC Accreditation Liaison
979.845.4016
mstephenson@tamu.edu

Name, Title, Phone number, and email address of Technical Support person for the Compliance Certification
Alicia M. Dorsey
Assistant Provost for Institutional Effectiveness
979.862.2918
amdorsey@tamu.edu

IMPORTANT:

Accreditation Activity *(check one)*:

☒ Submitted at the time of Reaffirmation Orientation
☐ Submitted with Compliance Certification for Reaffirmation
☐ Submitted with Materials for an On-Site Reaffirmation Review
☐ Submitted with Compliance Certification for Fifth-Year Interim Report
☐ Submitted with Compliance Certification for Initial Candidacy/Accreditation Review
☐ Submitted with Merger/Consolidations/Acquisitions
☐ Submitted with Application for Level Change

Submission date of this completed document: September 29, 2015

EDUCATIONAL PROGRAMS

1. Level of offerings (Check all that apply)

- ☐ Diploma or certificate program(s) requiring less than one year beyond Grade 12
- ☐ Diploma or certificate program(s) of at least two but fewer than four years of work beyond Grade 12
- ☐ Associate degree program(s) requiring a minimum of 60 semester hours or the equivalent designed for transfer to a baccalaureate institution
- ☐ Associate degree program(s) requiring a minimum of 60 semester hours or the equivalent not designed for transfer
- ☒ Four or five-year baccalaureate degree program(s) requiring a minimum of 120 semester hours or the equivalent
- ☒ Professional degree program(s)
- ☒ Master's degree program(s)
- ☒ Work beyond the master's level but not at the doctoral level (such as Specialist in Education)
- ☒ Doctoral degree program(s)
- ☐ Other (Specify) _____

2. Types of Undergraduate Programs (Check all that apply)

- ☐ Occupational certificate or diploma program(s)
- ☐ Occupational degree program(s)
- ☐ Two-year programs designed for transfer to a baccalaureate institution
- ☒ Liberal Arts and General
- ☒ Teacher Preparatory
- ☒ Professional
- ☐ Other (Specify) _____

GOVERNANCE CONTROL

Check the appropriate governance control for the institution:

☐ Private *(check one)*

☐ Independent, not-for-profit

Name of corporation OR
Name of religious affiliation and control: _____

☐ Independent, for-profit *

If publicly traded, name of parent company: _____

☒ Public state * *(check one)*

- ☐ Not part of a state system, institution has own independent board
- ☒ Part of a state system, system board serves as governing board
- ☐ Part of a state system, system board is super governing board, local governing board has delegated authority
- ☐ Part of a state system, institution has own independent board

* *If an institution is part of a state system or a corporate structure, a description of the system operation must be submitted as part of the Compliance Certification for the decennial review. See Commission policy "Reaffirmation of Accreditation and Subsequent Reports" for additional direction."*

INSTITUTIONAL INFORMATION FOR REVIEWERS

Directions:

Please address the following and attach the information to this form.

1. History and Characteristics

Provide a brief history of the institution, a description of its current mission, an indication of its geographic service area, and a description of the composition of the student population. Include a description of any unusual or distinctive features of the institution and a description of the admissions policies (open, selective, etc.). If appropriate, indicate those institutions that are considered peers. Please limit this section to one-half page.

2. List of Degrees

List all degrees currently offered (A. S., B.A., B.S., M.A., Ph.D., for examples) and the majors or concentrations within those degrees, as well as all certificates and diplomas. For each credential offered, indicate the number of graduates in the academic year previous to submitting this report. Indicate term dates.

3. Off-Campus Instructional Locations and Branch Campuses

List ***all locations*** where 50% or more credit hours toward a degree, diploma, or certificate can be obtained primarily through traditional classroom instruction. Report those locations in accord with the Commission's definitions and the directions as specified below.

Off-campus instructional sites—a site located geographically apart from the main campus at which the institution offers ***50 % or more*** of its credit hours for a diploma, certificate, or degree. This includes high schools where courses are offered as part of dual enrollment. For each site, provide the information below***. The list should include only those sites reported and approved by SACSCOC***. Listing unapproved sites below does not constitute reporting them to SACSCOC. In such cases when an institution has initiated an off-campus instructional site as described above without prior approval by SACSCOC, a prospectus for approval should be submitted immediately to SACSCOC.

Name of Site	Physical Address (street, city, state, country) Do not include PO Boxes.	Date Approved by SACSCOC	Date Implemented by the institution	Educational programs offered (specific degrees, certificates, diplomas) with 50% or more credits hours offered at each site	Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)

Institutions with off-campus instructional sites at which the institution offers ***25-49%*** credit hours for a diploma, certificate, or degree—including high schools where courses are offered as dual enrollment—are required to notify SACSCOC in advance of initiating the site. For each site, provide the information below.

Name of Site (Indicate if site is currently active or inactive. If inactive, date of last course offerings and date of projected reopening	Physical Address (street, city, state, country) Do not include PO Boxes.	Date Notified SACSCOC *by SACSCOC*	Date Implemented *by the institution*	Educational programs offered (specific degrees, certificates, diplomas) with 25-49% credit hours offered at each site	Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)

Branch campus—an instructional site located geographically apart and independent of the main campus of the institution. A location is independent of the main campus if the location is (1) permanent in nature, (2) offers courses in educational programs leading to a degree, certificate, or other recognized educational credential, (3) has its own faculty and administrative or supervisory organization, ***and*** (4) has its own budgetary and hiring authority. ***The list should include only those branch campuses reported and approved by SACSCOC.*** Listing unapproved branch campuses below does not constitute reporting them to SACSCOC. A prospectus for an unapproved branch campuses should be submitted immediately to SACSCOC.

Name of Branch Campus	Physical Address (street, city, state, country) Do not include PO Boxes.	Date Approved *by SACSCOC*	Date Implemented *by the institution*	Educational programs (specific degrees, certificates, diplomas) with 50% or more credits hours offered at the branch campus	Is the campus currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)

4. Distance and Correspondence Education

Provide an initial date of approval for your institution to offer distance education. Provide a list of credit-bearing educational programs (degrees, certificates, and diplomas) where 50% or more of the credit hours are delivered through distance education modes. For each educational program, indicate whether the program is delivered using synchronous or asynchronous technology, or both. For each educational program that uses distance education technology to deliver the program at a specific site (e.g., a synchronous program using interactive videoconferencing), indicate the program offered at each location where students receive the transmitted program. Please limit this description to one page, if possible.

5. Accreditation

(1) List all agencies that currently accredit the institution and any of its programs and indicate the date of the last review by each.

(2) If SACS Commission on Colleges is not your primary accreditor for access to USDOE Title IV funding, identify which accrediting agency serves that purpose.

(3) List any USDOE recognized agency (national and programmatic) that has terminated the institution's accreditation (include the date, reason, and copy of the letter of termination) or list any agency from which the institution has voluntarily withdrawn (include copy of letter to agency from institution).

(4) Describe any sanctions applied or negative actions taken by any USDOE-recognized accrediting agency (national, programmatic, SACSCOC) during the two years previous to the submission of this report. Include a copy of the letter from the USDOE to the institution.

6. Relationship to the U.S. Department of Education

Indicate any limitations, suspensions, or termination by the U.S. Department of Education in regard to student financial aid or other financial aid programs during the previous three years. Report if on reimbursement or any other exceptional status in regard to federal or state financial aid.

Document History

Adopted: September 2004
Revised: March 2011
Revised: January 2014

1. History and Characteristics

Provide a brief history of the institution, a description of its current mission, an indication of its geographic service area, and a description of the composition of the student population. Include a description of any unusual or distinctive features of the institution and a description of the admissions policies (open, selective, etc.). If appropriate, indicate those institutions that are considered peers. Please limit this section to one-half page.

History. Texas A&M University was established in 1871 as the state's first public institution of higher education and opened for classes in 1876. We are now one of a select few institutions in the nation to hold land grant, sea grant (1971) and space grant (1989) designations. We are also one of few universities to host a presidential library; the George Bush Presidential Library and Museum opened in 1997. A mandatory military component was a part of the land grant designation until 1965 and today we are one of only three institutions with a full-time corps of cadets, leading to commissions in all branches of service. We have two branch campuses, one in Galveston, Texas, (established in 1962, officially merged with Texas A&M in 1991) and one in Doha, Qatar (established in 2003). In 2001 we were admitted to the Association of American Universities (AAU) and in 2004 to Phi Beta Kappa. We are classified by the Carnegie Foundation as a Research University (very high research activity).

Mission. Texas A&M University is dedicated to the discovery, development, communication, and application of knowledge in a wide range of academic and professional fields. Its mission of providing the highest quality undergraduate and graduate programs is inseparable from its mission of developing new understandings through research and creativity. It prepares students to assume roles in leadership, responsibility and service to society. Texas A&M assumes as its historic trust the maintenance of freedom of inquiry and an intellectual environment nurturing the human mind and spirit. It welcomes and seeks to serve persons of all racial, ethnic and geographic groups as it addresses the needs of an increasingly diverse population and a global economy. In the 21st century, Texas A&M University seeks to assume a place of preeminence among public universities while respecting its history and traditions.

Enrollment Profile.
77.42% Undergraduate, 18.41% Graduate, 4.02% Professional, and 0.14% Post-Doc Certificate

Undergraduate Students:
93.58% Texas Residents, 3.96% non-Texas Residents, 2.46% non-Texas, non-US Residents;
62.41% White, 3.11% Black, 22.33% Hispanic, 6.21% Asian

Graduate Students:
45.09% Texas Residents, 16.57% non-Texas Residents, 38.34% non-Texas, non-US Residents
Admissions Process. Selective. Automatic admission for Texas resident applicants in the top 10% of their high school graduating class; automatic admission for applicants who rank in the top 25% of their high school graduating class and achieve a combined (old) SAT math and SAT critical reading score of at least 1300 with a test score of at least 600 in each component, or combined (newly redesigned) SAT math and SAT evidence based reading and writing (EBRW) score of at least 1360 with a test score of at least 620 in Math and 660 in EBRW, or 30 composite on the ACT with a 27 in the math and English components; review of all other applicants based on academic potential, distinguishing characteristics, exceptional circumstances and personal achievements.

Peer Institutions. Georgia Institution of Technology, Ohio State University, Pennsylvania State University, Purdue University, University of California- Berkeley, Davis, Los Angeles, San Diego, University of Florida, University of Illinois – Champaign/Urbana, University of Michigan, University of Minnesota, University of North Carolina – Chapel Hill, University of Texas – Austin, and University of Wisconsin – Madison.

2. List of Degrees

List all degrees currently offered (A. S., B.A., B.S., M.A., Ph.D., for examples) and the majors or concentrations within those degrees, as well as all certificates and diplomas. For each credential offered, indicate the number of graduates in the academic year previous to submitting this report. Indicate term dates.

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL COMMUNICATION & JOURNALISM	BS	35	45	18	98
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL DEVELOPMENT	MAGR	5	5	0	10
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL ECONOMICS	BS	45	90	15	150
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL ECONOMICS	MS	8	10	7	25
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL ECONOMICS	PHD	2	1	3	6
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL EDUCATION	EDD	1	1		2
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL LEADERSHIP & DEVELOPMENT	BS	66	102	20	188
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL LEADERSHIP EDUCATION & COMMUNICATION	MED	5	6	4	15
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL LEADERSHIP EDUCATION & COMMUNICATION	MS	6	9	1	16
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL LEADERSHIP EDUCATION & COMMUNICATION	PHD	4	3	3	10
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL SCIENCE	BS	16	33	1	50
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL SYSTEMS MANAGEMENT	BS	9	23	5	37
AGRICULTURE AND LIFE SCIENCES	AGRICULTURAL SYSTEMS MANAGEMENT	MS		2		2
AGRICULTURE AND LIFE SCIENCES	AGRONOMY	MS	1		2	3
AGRICULTURE AND LIFE SCIENCES	AGRONOMY	PHD	1			1
AGRICULTURE AND LIFE	ANIMAL BREEDING	MS	2	1	1	4

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
SCIENCES						
AGRICULTURE AND LIFE SCIENCES	ANIMAL SCIENCE	BS	34	77	12	123
AGRICULTURE AND LIFE SCIENCES	ANIMAL SCIENCE	MAGR	6	4		10
AGRICULTURE AND LIFE SCIENCES	ANIMAL SCIENCE	MS	6	1	5	12
AGRICULTURE AND LIFE SCIENCES	ANIMAL SCIENCE	PHD	2	1	3	6
AGRICULTURE AND LIFE SCIENCES	ANIMAL SCIENCE-PRODUCTION/ INDUSTRY	BS	45	64	22	131
AGRICULTURE AND LIFE SCIENCES	BIOCHEMISTRY	BS	9	29	4	42
AGRICULTURE AND LIFE SCIENCES	BIOCHEMISTRY	MS	1	3	1	5
AGRICULTURE AND LIFE SCIENCES	BIOCHEMISTRY	PHD	2	3	3	8
AGRICULTURE AND LIFE SCIENCES	BIOENVIRONMENTAL SCIENCES	BS	31	44	14	89
AGRICULTURE AND LIFE SCIENCES	BIOLOGICAL AND AGRI ENGINEERING	BS	10	34		44
AGRICULTURE AND LIFE SCIENCES	BIOLOGICAL AND AGRI ENGINEERING	MENGR	3			3
AGRICULTURE AND LIFE SCIENCES	BIOLOGICAL AND AGRI ENGINEERING	MS	2	7		9
AGRICULTURE AND LIFE SCIENCES	BIOLOGICAL AND AGRI ENGINEERING	PHD	2		2	4
AGRICULTURE AND LIFE SCIENCES	COMMUNITY DEVELOPMENT	BS	5	2		7
AGRICULTURE AND LIFE SCIENCES	ECOLOGICAL RESTORATION	BS	3	5		8
AGRICULTURE AND LIFE SCIENCES	Ecosystem Science & Mgmt	MS		2	5	7
AGRICULTURE AND LIFE SCIENCES	Ecosystem Science & Mgmt	PHD	3	3	1	7
AGRICULTURE AND LIFE	ENTOMOLOGY	BS	1	9	1	11

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
SCIENCES						
AGRICULTURE AND LIFE SCIENCES	ENTOMOLOGY	MS	5	4	1	10
AGRICULTURE AND LIFE SCIENCES	ENTOMOLOGY	PHD	2	1	1	4
AGRICULTURE AND LIFE SCIENCES	FOOD SCI & TCHN-FOOD SCI	BS	5	8		13
AGRICULTURE AND LIFE SCIENCES	FOOD SCI & TCHN-INDUSTRY	BS	5	20	3	28
AGRICULTURE AND LIFE SCIENCES	FORENSIC & INVESTIGATIVE SCIENCES	BS	1	16	1	18
AGRICULTURE AND LIFE SCIENCES	FORESTRY	BS	4	6	1	11
AGRICULTURE AND LIFE SCIENCES	GENETICS	BS	11	14		25
AGRICULTURE AND LIFE SCIENCES	HORTICULTURE	BA	7	9	2	18
AGRICULTURE AND LIFE SCIENCES	HORTICULTURE	BS	12	12	3	27
AGRICULTURE AND LIFE SCIENCES	HORTICULTURE	MAGR	1	1		2
AGRICULTURE AND LIFE SCIENCES	HORTICULTURE	MS	1		3	4
AGRICULTURE AND LIFE SCIENCES	HORTICULTURE	PHD		2	1	3
AGRICULTURE AND LIFE SCIENCES	NATURAL RESOURCES DEVELOPMENT	MNRD	1	2		3
AGRICULTURE AND LIFE SCIENCES	NUTRITIONAL SCIENCE	BS	55	68	18	141
AGRICULTURE AND LIFE SCIENCES	PHYSIOLOGY OF REPRODUCTION	MS		1	2	3
AGRICULTURE AND LIFE SCIENCES	PHYSIOLOGY OF REPRODUCTION	PHD	1			1
AGRICULTURE AND LIFE SCIENCES	PLANT & ENVRNMNTL SOIL SCIENCE	BS	13	15	3	31
AGRICULTURE AND LIFE	PLANT BREEDING	MS	2	5	1	8

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
SCIENCES						
AGRICULTURE AND LIFE SCIENCES	PLANT BREEDING	PHD	3	1	1	5
AGRICULTURE AND LIFE SCIENCES	PLANT PATHOLOGY	MS		3	2	5
AGRICULTURE AND LIFE SCIENCES	PLANT PATHOLOGY	PHD	1	2	1	4
AGRICULTURE AND LIFE SCIENCES	POULTRY SCIENCE	BS	3	4		7
AGRICULTURE AND LIFE SCIENCES	POULTRY SCIENCE	MAGR	3	1	2	6
AGRICULTURE AND LIFE SCIENCES	POULTRY SCIENCE	PHD			3	3
AGRICULTURE AND LIFE SCIENCES	POULTRY SCIENCE-INDUSTRY	BS	8	15	4	27
AGRICULTURE AND LIFE SCIENCES	RANGLND ECL & MGT-RANCH MANAGEMENT	BS	3	9	2	14
AGRICULTURE AND LIFE SCIENCES	RANGLND ECL & MGT-RANGELAND RESOURCES	BS	1	2		3
AGRICULTURE AND LIFE SCIENCES	REC, PARK & TOURISM SCI-COM REC & PRKS ADMIN	BS	4	1		5
AGRICULTURE AND LIFE SCIENCES	REC, PARK & TOURISM SCIENCES	BS	2	8	10	20
AGRICULTURE AND LIFE SCIENCES	REC, PARK & TOURISM SCI-PARKS & CONSERVATION	BS	4	3		7
AGRICULTURE AND LIFE SCIENCES	REC, PARK & TOURISM SCI-TOURISM MANAGEMENT	BS	20	28	11	59
AGRICULTURE AND LIFE SCIENCES	REC, PARK & TOURISM SCI-YOUTH DEVELOPMENT	BS	16	20	5	41
AGRICULTURE AND LIFE SCIENCES	RECREATION, PARK & TOURISM SCI	MS		6	2	8
AGRICULTURE AND LIFE SCIENCES	RECREATION, PARK & TOURISM SCI	PHD	2	3		5
AGRICULTURE AND LIFE SCIENCES	RENEWABLE NATURAL RESOURCES	BS	11	17		28
AGRICULTURE AND LIFE	SOIL SCIENCE	MS	3	1		4

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
SCIENCES						
AGRICULTURE AND LIFE SCIENCES	SOIL SCIENCE	PHD	1		1	2
AGRICULTURE AND LIFE SCIENCES	SPATIAL SCIENCES	BS	2	3		5
AGRICULTURE AND LIFE SCIENCES	TURFGRASS SCIENCE	BS	7	3		10
AGRICULTURE AND LIFE SCIENCES	WILDLIFE & FISHERIES SCIENCES	BS	5	3		8
AGRICULTURE AND LIFE SCIENCES	WILDLIFE & FISHERIES SCIENCES	MS	5	2	2	9
AGRICULTURE AND LIFE SCIENCES	WILDLIFE & FISHERIES SCIENCES	PHD	3	2	3	8
AGRICULTURE AND LIFE SCIENCES	WILDLIFE SCIENCE	MWSC	3	2		5
AGRICULTURE AND LIFE SCIENCES	WL & FS SCI-VERTEBRATE ZOOLOGY	BS	5	5	4	14
AGRICULTURE AND LIFE SCIENCES	WL & FS SCI-WILDLIFE ECOLOGY & CONSERVATION	BS	32	51	13	96
ARCHITECTURE	ARCHITECTURE	MARCH	5	38	1	44
ARCHITECTURE	ARCHITECTURE	MS	1			1
ARCHITECTURE	ARCHITECTURE	PHD	2	2	1	5
ARCHITECTURE	BUILDING CONSTRUCTION	BS	54	116	37	207
ARCHITECTURE	CONSTRUCTION MANAGEMENT	MS	8	37	5	50
ARCHITECTURE	ENVIRONMENTAL DESIGN ARCHITECHURAL STUDIES	BED	22	62	1	85
ARCHITECTURE	LAND & PROPERTY DEVELOPMENT	MLPD	12	7	1	20
ARCHITECTURE	LANDSCAPE ARCHITECTURE	BLA		19		19
ARCHITECTURE	LANDSCAPE ARCHITECTURE	MLA		20		20
ARCHITECTURE	URBAN & REGIONAL PLANNING	BS	4	12	2	18
ARCHITECTURE	URBAN & REGIONAL PLANNING	MUP	5	18	6	29
ARCHITECTURE	URBAN & REGIONAL SCIENCE	PHD	3	1	6	10
ARCHITECTURE	VISUALIZATION	MFA	3		1	4

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
ARCHITECTURE	VISUALIZATION	MS	4	3	2	9
ARCHITECTURE	VISUALIZATION	BS	13	38	6	57
BUSH SCHOOL OF GOVERNMENT & PUBLIC SERVICE	HOMELAND SECURITY CERTIFICATE	CER	1	10		11
BUSH SCHOOL OF GOVERNMENT & PUBLIC SERVICE	INTERNATIONAL AFFAIRS	MIA	8	81	6	95
BUSH SCHOOL OF GOVERNMENT & PUBLIC SERVICE	INTERNATIONAL AFFAIRS CERTIFICATE	CER	10	22	12	44
BUSH SCHOOL OF GOVERNMENT & PUBLIC SERVICE	NON-PROFIT MANAGEMENT CERTIFICATE	CER	13	20	10	43
BUSH SCHOOL OF GOVERNMENT & PUBLIC SERVICE	PUBLIC SERVICE AND ADMINISTRATION	MPSA	1	64	4	69
BUSINESS	ACCOUNTING	BBA	37	271	12	320
BUSINESS	ACCOUNTING	MS	15	115	8	138
BUSINESS	BUSINESS ADMINISTRATION	MBA	51	3	4	58
BUSINESS	BUSINESS ADMINISTRATION	PHD	1	5	13	19
BUSINESS	BUSINESS HONORS	BBA	6	52	1	59
BUSINESS	EXECUTIVE MBA	MBA	1	49		50
BUSINESS	FINANCE	BBA	49	180	13	242
BUSINESS	FINANCE	MS	16	95	1	112
BUSINESS	FINANCIAL MANAGEMENT	MFM		1		1
BUSINESS	LAND ECONOMICS & REAL ESTATE	MRE	14	9	2	25
BUSINESS	MANAGEMENT	BBA	36	131	12	179
BUSINESS	MANAGEMENT	MS	33	49	2	84
BUSINESS	MANAGEMENT INFORMATION SYSTEMS	BBA	13	35	3	51
BUSINESS	MANAGEMENT INFORMATION SYSTEMS	MS	5	149	2	156
BUSINESS	MARKETING	BBA	47	144	15	206
BUSINESS	MARKETING	MS	30	8		38
BUSINESS	PROFESSIONAL MBA	MBA		46		46

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
BUSINESS	SUPPLY CHAIN MANAGEMENT	BBA	36	130	7	173
DENTISTRY	ADVANCED EDUCATON IN GENERAL DENTISTRY	CER			9	9
DENTISTRY	DENTAL HYGIENE	BS		25		25
DENTISTRY	DENTISTRY	DDS	1	103	1	105
DENTISTRY	ENDODONTICS	CER	3			3
DENTISTRY	MAXILLOFACIAL SURGERY	CER			3	3
DENTISTRY	ORAL AND MAXILLOFACIAL PATHOLOGY	CER			1	1
DENTISTRY	ORAL BIOLOGY	MS	1	12		13
DENTISTRY	ORTHODONTICS	CER		6		6
DENTISTRY	PEDIATRIC DENTISTRY	CER			11	11
DENTISTRY	PERIODONTICS	CER		3		3
DENTISTRY	PROSTHODONTICS	CER			2	2
EDUCATION & HUMAN DEVELOPMENT	ATHLETIC TRAINING	MS		14		14
EDUCATION & HUMAN DEVELOPMENT	BILINGUAL EDUCATION	MED	1	3		4
EDUCATION & HUMAN DEVELOPMENT	COMMUNITY HEALTH	BS	19	60	39	118
EDUCATION & HUMAN DEVELOPMENT	COUNSELING PSYCHOLOGY	PHD	1		5	6
EDUCATION & HUMAN DEVELOPMENT	CURRICULUM & INSTRUCTION	EDD	4	4		8
EDUCATION & HUMAN DEVELOPMENT	CURRICULUM & INSTRUCTION	MED	15	60	50	125
EDUCATION & HUMAN DEVELOPMENT	CURRICULUM & INSTRUCTION	MS		2		2
EDUCATION & HUMAN DEVELOPMENT	CURRICULUM & INSTRUCTION	PHD	4	9	5	18
EDUCATION & HUMAN DEVELOPMENT	EDUC HUMAN RESOURCE DEVELOPMENT	MS	14	18	7	39
EDUCATION & HUMAN DEVELOPMENT	EDUC HUMAN RESOURCE DEVELOPMENT	PHD	3		4	7
EDUCATION & HUMAN DEVELOPMENT	EDUCATIONAL ADMINISTRATION	EDD	3		4	7
EDUCATION &	EDUCATIONAL	MED	7	13		20

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
HUMAN DEVELOPMENT	ADMINISTRATION					
EDUCATION & HUMAN DEVELOPMENT	EDUCATIONAL ADMINISTRATION	MS	2	20	2	24
EDUCATION & HUMAN DEVELOPMENT	EDUCATIONAL ADMINISTRATION	PHD	7	1	5	13
EDUCATION & HUMAN DEVELOPMENT	EDUCATIONAL PSYCHOLOGY	MED	12	30	3	45
EDUCATION & HUMAN DEVELOPMENT	EDUCATIONAL PSYCHOLOGY	MS		1	2	3
EDUCATION & HUMAN DEVELOPMENT	EDUCATIONAL PSYCHOLOGY	PHD	6	4	5	15
EDUCATION & HUMAN DEVELOPMENT	EDUCATIONAL TECHNOLOGY	MED	4	10	4	18
EDUCATION & HUMAN DEVELOPMENT	HEALTH	BS	115	187	38	340
EDUCATION & HUMAN DEVELOPMENT	HEALTH EDUCATION	MS	8	10	5	23
EDUCATION & HUMAN DEVELOPMENT	HEALTH EDUCATION	PHD	4	1	1	6
EDUCATION & HUMAN DEVELOPMENT	HUMAN RESOURCES DEVELOPMENT	BS	23	52	36	111
EDUCATION & HUMAN DEVELOPMENT	INTERDISCIPLINARY STUDIES	BS	157	243	2	402
EDUCATION & HUMAN DEVELOPMENT	KINESIOLOGY	BS	73	106	42	221
EDUCATION & HUMAN DEVELOPMENT	KINESIOLOGY	MS	4	13	3	20
EDUCATION & HUMAN DEVELOPMENT	KINESIOLOGY	PHD	6	5	7	18
EDUCATION & HUMAN DEVELOPMENT	SCHOOL PSYCHOLOGY	PHD			6	6
EDUCATION & HUMAN DEVELOPMENT	SPECIAL EDUCATION	MED		24	5	29
EDUCATION & HUMAN DEVELOPMENT	SPORTS MANAGEMENT	BS	42	60	34	136
EDUCATION &	SPORTS MANAGEMENT	MS	15	16	15	46

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
HUMAN DEVELOPMENT						
EDUCATION & HUMAN DEVELOPMENT	TECHNOLOGY MANAGMENT	BS	21	33	7	61
ENGINEERING	AEROSPACE ENGINEERING	BS	30	52	1	83
ENGINEERING	AEROSPACE ENGINEERING	MENGR	3	2	1	6
ENGINEERING	AEROSPACE ENGINEERING	MS	1	3	7	11
ENGINEERING	AEROSPACE ENGINEERING	PHD	2	2	2	6
ENGINEERING	BIOMEDICAL ENGINEERING	BS	7	63	1	71
ENGINEERING	BIOMEDICAL ENGINEERING	MENGR	3	1		4
ENGINEERING	BIOMEDICAL ENGINEERING	MS	2	2	3	7
ENGINEERING	BIOMEDICAL ENGINEERING	PHD	5	4	3	12
ENGINEERING	CHEMICAL ENGINEERING	BS	47	74	10	131
ENGINEERING	CHEMICAL ENGINEERING	MENGR	2	2	1	5
ENGINEERING	CHEMICAL ENGINEERING	MS	2	10	14	26
ENGINEERING	CHEMICAL ENGINEERING	PHD	6	10	4	20
ENGINEERING	CIVIL ENGINEERING	BS	91	93	5	189
ENGINEERING	CIVIL ENGINEERING	MENGR	54	52	16	122
ENGINEERING	CIVIL ENGINEERING	MS	11	9	7	27
ENGINEERING	CIVIL ENGINEERING	PHD	14	8	11	33
ENGINEERING	COMPUTER ENGINEERING	MENGR	27	40	4	71
ENGINEERING	COMPUTER ENGINEERING	MS	7	5	6	18
ENGINEERING	COMPUTER ENGINEERING	PHD	3	2	4	9
ENGINEERING	COMPUTER ENGINEERING	BS	24	36	3	63
ENGINEERING	COMPUTER ENGINEERING	MS	4	2	2	8
ENGINEERING	COMPUTER ENGINEERING	PHD	4	1		5
ENGINEERING	COMPUTER ENGINEERING	BS	11	21		32
ENGINEERING	COMPUTER ENGINEERING	MENGR	3	5		8
ENGINEERING	COMPUTER SCIENCE	BS	48	63	9	120
ENGINEERING	COMPUTER SCIENCE	MCS	17	24	2	43
ENGINEERING	COMPUTER SCIENCE	MS	6	9	6	21
ENGINEERING	COMPUTER SCIENCE	PHD	7	8	8	23
ENGINEERING	ELECTRICAL ENGINEERING	BS	90	115	10	215
ENGINEERING	ELECTRICAL ENGINEERING	MENGR	21	54	7	82

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
ENGINEERING	ELECTRICAL ENGINEERING	MS	11	14	11	36
ENGINEERING	ELECTRICAL ENGINEERING	PHD	11	18	13	42
ENGINEERING	ELECTRONIC SYSTEMS ENGINEERING TECHNOLOGY	BS	19	26	4	49
ENGINEERING	ENGINEERING	DENGR		1		1
ENGINEERING	ENGINEERING SYSTEMS MANAGEMENT	MS	3	18	1	22
ENGINEERING	ENGR TCHN-MANUFACTURING & MCHNCL ENGR	BS	41	49	2	92
ENGINEERING	HEALTH PHYSICS	MS		2		2
ENGINEERING	INDUSTRIAL DISTRIBUTION	MID	1	66		67
ENGINEERING	INDUSTRIAL DISTRIBUTION	BS	76	84	9	169
ENGINEERING	INDUSTRIAL ENGINEERING	BS	83	87	6	176
ENGINEERING	INDUSTRIAL ENGINEERING	MENGR	10	29	12	51
ENGINEERING	INDUSTRIAL ENGINEERING	MS	2	19	3	24
ENGINEERING	INDUSTRIAL ENGINEERING	PHD	5	1	5	11
ENGINEERING	INTERDISCIPLINARY ENGINEERING	PHD			1	1
ENGINEERING	MATERIALS SCIENCE & ENGINEERING	MENGR	1	1	1	3
ENGINEERING	MATERIALS SCIENCE & ENGINEERING	MS	3	2	4	9
ENGINEERING	MATERIALS SCIENCE & ENGINEERING	PHD	3	4	3	10
ENGINEERING	MECHANICAL ENGINEERING	BS	92	151	33	276
ENGINEERING	MECHANICAL ENGINEERING	MENGR	8	12	4	24
ENGINEERING	MECHANICAL ENGINEERING	MS	21	13	20	54
ENGINEERING	MECHANICAL ENGINEERING	PHD	9	9	15	33
ENGINEERING	NUCLEAR ENGINEERING	BS	6	19	1	26
ENGINEERING	NUCLEAR ENGINEERING	MENGR	1		1	2
ENGINEERING	NUCLEAR ENGINEERING	MS	6	9	6	21
ENGINEERING	NUCLEAR ENGINEERING	PHD	5	7	9	21
ENGINEERING	OCEAN ENGINEERING	BS	9	25	1	35
ENGINEERING	OCEAN ENGINEERING	MENGR	3	1	1	5
ENGINEERING	OCEAN ENGINEERING	MS	3	3	1	7

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
ENGINEERING	OCEAN ENGINEERING	PHD	1	2		3
ENGINEERING	PETROLEUM ENGINEERING	BS	45	114	5	164
ENGINEERING	PETROLEUM ENGINEERING	MENGR	10	16	9	35
ENGINEERING	PETROLEUM ENGINEERING	MS	22	15	28	65
ENGINEERING	PETROLEUM ENGINEERING	PHD	3	6	5	14
ENGINEERING	RADIOLOGICAL HEALTH ENGINEERING	BS	4	15		19
ENGINEERING	SAFETY ENGINEERING	MS	7	2	1	10
GEOSCIENCES	ATMOSPHERIC SCIENCE	MS	3	2	6	11
GEOSCIENCES	ATMOSPHERIC SCIENCE	PHD	1	1	1	3
GEOSCIENCES	ENVIRONMENTAL GEOSCIENCE	BS	18	21	1	40
GEOSCIENCES	GEOGRAPHIC INFORMATIONAL STUDIES	BS	4	7	2	13
GEOSCIENCES	GEOGRAPHY	BS	3	12	2	17
GEOSCIENCES	GEOGRAPHY	MS	1	2	4	7
GEOSCIENCES	GEOGRAPHY	PHD	1	1	3	5
GEOSCIENCES	GEOLOGY	BA	3	4		7
GEOSCIENCES	GEOLOGY	BS	19	31	25	75
GEOSCIENCES	GEOLOGY	MS	6	5	4	15
GEOSCIENCES	GEOLOGY	PHD	2	3	1	6
GEOSCIENCES	GEOPHYSICS	BS	11	21	2	34
GEOSCIENCES	GEOPHYSICS	MS	1	2	4	7
GEOSCIENCES	GEOPHYSICS	PHD	1	1	1	3
GEOSCIENCES	GEOSCIENCES	MGSC			1	1
GEOSCIENCES	METEOROLOGY	BS	4	14	1	19
GEOSCIENCES	OCEANOGRAPHY	MS	1	4	5	10
GEOSCIENCES	OCEANOGRAPHY	PHD		3		3
GEOSCIENCES	SPATIAL SCIENCES	BS	1			1
LIBERAL ARTS	ANTHROPOLOGY	BA	15	31	4	50
LIBERAL ARTS	ANTHROPOLOGY	MA	3	1	2	6
LIBERAL ARTS	ANTHROPOLOGY	PHD	2	4	3	9
LIBERAL ARTS	CLASSICS	BA	3	1	2	6
LIBERAL ARTS	CLINICAL PSYCHOLOGY	PHD			2	2
LIBERAL ARTS	COMMUNICATION	BA	88	147	36	271
LIBERAL ARTS	COMMUNICATION	MA	1	1	1	3
LIBERAL ARTS	COMMUNICATION	PHD	5	2	3	10
LIBERAL ARTS	ECONOMICS	BA	5	13	5	23
LIBERAL ARTS	ECONOMICS	BS	68	95	36	199
LIBERAL ARTS	ECONOMICS	MS	30	55		85

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
LIBERAL ARTS	ECONOMICS	PHD		8	4	12
LIBERAL ARTS	ENGLISH	BA	55	92	17	164
LIBERAL ARTS	ENGLISH	MA	3	3	2	8
LIBERAL ARTS	ENGLISH	PHD	1	2	5	8
LIBERAL ARTS	HISPANIC STUDIES	PHD		1	1	2
LIBERAL ARTS	HISTORY	BA	48	99	18	165
LIBERAL ARTS	HISTORY	MA		2	2	4
LIBERAL ARTS	HISTORY	PHD	2	4	1	7
LIBERAL ARTS	INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY	PHD	5			5
LIBERAL ARTS	INTERNATIONAL STUDIES	BA	53	81	13	147
LIBERAL ARTS	MODERN LANGUAGES	BA	1	3		4
LIBERAL ARTS	MUSIC	BA	2	8		10
LIBERAL ARTS	PERFORMANCE STUDIES	MA		7	1	8
LIBERAL ARTS	PHILOSOPHY	BA	9	12	5	26
LIBERAL ARTS	PHILOSOPHY	MA		2	1	3
LIBERAL ARTS	PHILOSOPHY	PHD		2		2
LIBERAL ARTS	POLITICAL SCIENCE	BA	38	90	31	159
LIBERAL ARTS	POLITICAL SCIENCE	BS	21	48	7	76
LIBERAL ARTS	POLITICAL SCIENCE	MA		2	1	3
LIBERAL ARTS	POLITICAL SCIENCE	PHD	3	2	2	7
LIBERAL ARTS	PSYCHOLOGY	BA	29	55	9	93
LIBERAL ARTS	PSYCHOLOGY	BS	83	166	27	276
LIBERAL ARTS	PSYCHOLOGY	MS	3			3
LIBERAL ARTS	PSYCHOLOGY	PHD	2	1	1	4
LIBERAL ARTS	SOCIOLOGY	BA	16	30	11	57
LIBERAL ARTS	SOCIOLOGY	BS	25	66	22	113
LIBERAL ARTS	SOCIOLOGY	MS		3	1	4
LIBERAL ARTS	SOCIOLOGY	PHD	3		6	9
LIBERAL ARTS	SPANISH	BA	11	18	7	36
LIBERAL ARTS	TELECOMMUNICATION MEDIA STUDIES	BA	21	24	5	50
LIBERAL ARTS	TELECOMMUNICATION MEDIA STUDIES	BS	6	5	2	13
LIBERAL ARTS	THEATER ARTS	BA	3	9	2	14
LIBERAL ARTS	WOMEN'S AND GENDER STUDIES	BA	1		2	3
MEDICINE	EDUCATION FOR HEALTHE CARE PROFESSIONALS	MS	2	2	2	6
MEDICINE	MEDICAL SCIENCES	MS	3	3		6
MEDICINE	MEDICAL SCIENCES	PHD	1	2	3	6
MEDICINE	MEDICINE	MD	9	185		194

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
NURSING	FAMILY NURSE PRACTITIONER	MSN			11	11
NURSING	NURSING	BSN	10	122		132
NURSING	NURSING EDUCATION	MSN		8		8
PHARMACY	PHARMACY	PHAR MD	1	77		78
PUBLIC HEALTH	BOISTATISTICS	MPH			3	3
PUBLIC HEALTH	ENVIRONMENTAL HEALTH	MPH	2	17	1	20
PUBLIC HEALTH	ENVIRONMENTAL HEALTH	MSPH		1	1	2
PUBLIC HEALTH	EPIDEMIOLOGY	MPH	9	19	24	52
PUBLIC HEALTH	EPIDEMIOLOGY AND ENVIRONMENTAL HEALTH	DRPH		1	1	2
PUBLIC HEALTH	HEALTH ADMINISTRATION	MHA	1	20		21
PUBLIC HEALTH	HEALTH POLICY AND MANAGMENT	MPH	6	21	1	28
PUBLIC HEALTH	HEALTH PROMOTION AND COMMUNITY HEALTH SCIENCES	DRPH	1	2		3
PUBLIC HEALTH	HEALTH PROMOTION AND COMMUNITY HEALTH SCIENCES	MPH	3	15	9	27
PUBLIC HEALTH	HEALTH SERVICES RESEARCH	PHD	2	4	1	7
PUBLIC HEALTH	OCCUPATIONAL SAFETY AND HEALTH	MPH	1	6		7
SCIENCE	ANALYTICS	MS		21	1	22
SCIENCE	APPLIED MATHEMATICAL SCIENCES	BS	18	42	6	66
SCIENCE	APPLIED PHYSICS	PHD	2	1		3
SCIENCE	BIOLOGY	BA	10	22	1	33
SCIENCE	BIOLOGY	BS	54	133	10	197
SCIENCE	BIOLOGY	MS		3	1	4
SCIENCE	BIOLOGY	PHD	2	4	4	10
SCIENCE	CHEMISTRY	BA	8	18	2	28
SCIENCE	CHEMISTRY	BS	14	24	1	39
SCIENCE	CHEMISTRY	MS	1	2	2	5
SCIENCE	CHEMISTRY	PHD	15	8	22	45
SCIENCE	MATHEMATICS	BA	5	16	2	23
SCIENCE	MATHEMATICS	BS	2	5		7
SCIENCE	MATHEMATICS	MS	6	21	5	32
SCIENCE	MATHEMATICS	PHD	5	4	16	25
SCIENCE	MICROBIOLOGY	BS	3	14	1	18
SCIENCE	MICROBIOLOGY	MS			1	1
SCIENCE	MICROBIOLOGY	PHD		1		1
SCIENCE	MOLECULAR & CELL BIOLOGY	BS	8	12	1	21

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
SCIENCE	PHYSICS	BA		6	1	7
SCIENCE	PHYSICS	BS	1	17	1	19
SCIENCE	PHYSICS	MS	3	2	2	7
SCIENCE	PHYSICS	PHD	7	10	10	27
SCIENCE	STATISTICS	MS	14	27	17	58
SCIENCE	STATISTICS	PHD			2	2
SCIENCE	ZOOLOGY	BS	2	8	3	13
TAMU AT GALVESTON	MARINE BIOLOGY	BS	39	70	6	115
TAMU AT GALVESTON	MARINE ENGINEERING TECHNOLOGY	BS	4	13	5	22
TAMU AT GALVESTON	MARINE FISHERIES	BS	7	11		18
TAMU AT GALVESTON	MARINE RESOURCES MANAGMENT	MMRM	4	7	2	13
TAMU AT GALVESTON	MARINE SCIENCES	BS	3	2		5
TAMU AT GALVESTON	MARINE TRANSPORTATION	BS	41	18	21	80
TAMU AT GALVESTON	MARITIME ADMINISTRATION	BS	42	61	14	117
TAMU AT GALVESTON	MARITIME ADMINISTRATION & LOGISTICS	MMAL	7	5	2	14
TAMU AT GALVESTON	MARITIME STUDIES	BA	6	6	3	15
TAMU AT GALVESTON	OCEAN AND COASTAL RESOURCES	BS	6	9	2	17
TAMU AT GALVESTON	OFFSHORE & COASTAL SYSTEMS ENGINEERING	BS		20		20
TEXAS A&M SCHOOL OF LAW	LAW	JD	41	159	5	205
UNIVERSITY INTERDISCIPLINARY	AGRIBUSINESS	BS	29	61	2	92
UNIVERSITY INTERDISCIPLINARY	AGRIBUSINESS	MAB	20	6		26
UNIVERSITY INTERDISCIPLINARY	BIOTECHNOLOGY	MBIOT	7	10	1	18
UNIVERSITY INTERDISCIPLINARY	ENVIRONMENTAL STUDIES	BS	24	22	7	53
UNIVERSITY INTERDISCIPLINARY	FOOD SCIENCE & TECHNOLOGY	MS	2		2	4
UNIVERSITY INTERDISCIPLINARY	FOOD SCIENCE & TECHNOLOGY	PHD	1	2	3	6

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
UNIVERSITY INTERDISCIPLINARY	GENETICS	MS	1	1	1	3
UNIVERSITY INTERDISCIPLINARY	GENETICS	PHD	4	4	1	9
UNIVERSITY INTERDISCIPLINARY	MARINE BIOLOGY	MS	3	9	1	13
UNIVERSITY INTERDISCIPLINARY	MARINE BIOLOGY	PHD		4		4
UNIVERSITY INTERDISCIPLINARY	MOLECULAR & ENVIRONMENTAL PLANT SCIENCE	MS	1	1	2	4
UNIVERSITY INTERDISCIPLINARY	MOLECULAR & ENVIRONMENTAL PLANT SCIENCE	PHD		1	2	3
UNIVERSITY INTERDISCIPLINARY	NEUROSCIENCE	MS			2	2
UNIVERSITY INTERDISCIPLINARY	NEUROSCIENCE	PHD			1	1
UNIVERSITY INTERDISCIPLINARY	NUTRITION	MS	3			3
UNIVERSITY INTERDISCIPLINARY	NUTRITION	PHD	2		1	3
UNIVERSITY INTERDISCIPLINARY	TOXICOLOGY	MS			2	2
UNIVERSITY INTERDISCIPLINARY	TOXICOLOGY	PHD	1	1	1	3
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - AGRICULTURE	BS	31	42	21	94
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - ARCHITECTURE	BS	15	24	22	61
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - BUSINESS ADMIN	BS	34	43	14	91
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - EDUCATION	BS	25	38	23	86
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - GALVESTON	BS	3	1		4
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - GEOSCIENCES	BS	1	1	1	3

College	Degree Program	Number of Graduates				
		Degree	Fall 2015	Spring 2016	Summer 2016	Total
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - LIBERAL ARTS	BA	1	3		4
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - LIBERAL ARTS	BS	5	3	1	9
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - SCIENCE	BS	2	2	1	5
UNIVERSITY INTERDISCIPLINARY	UNIVERSITY STUDIES - VETERINARY MED	BS	5	9	5	19
UNIVERSITY INTERDISCIPLINARY	WATER MANAGEMENT AND HYDRO SCI	MS		3	4	7
UNIVERSITY INTERDISCIPLINARY	WATER MANAGEMENT AND HYDRO SCI	MWM	2	4	2	8
UNIVERSITY INTERDISCIPLINARY	WATER MANAGEMENT AND HYDRO SCI	PHD	3	1	1	5
VETERINARY MEDICINE & BIOMEDICAL SCIENCES	BIOMEDICAL SCIENCES	BS	91	173	37	301
VETERINARY MEDICINE & BIOMEDICAL SCIENCES	BIOMEDICAL SCIENCES	MS	23	32	16	71
VETERINARY MEDICINE & BIOMEDICAL SCIENCES	BIOMEDICAL SCIENCES	PHD	2	1	3	6
VETERINARY MEDICINE & BIOMEDICAL SCIENCES	SCIENCE & TECHNOLOGY JOURNALISM	MS	1	4		5
VETERINARY MEDICINE & BIOMEDICAL SCIENCES	VETERINARY MEDICINE	DVM		129		129
VETERINARY MEDICINE & BIOMEDICAL SCIENCES	VETERINARY PATHOBIOLOGY	PHD	3	1		4
VETERINARY MEDICINE & BIOMEDICAL SCIENCES	VETERINARY PUBLIC HEALTH - EPIDEMIOLOGY	MS		2		2

3. Off-Campus Instructional Locations and Branch Campuses

List ***all locations*** where 50% or more credit hours toward a degree, diploma, or certificate can be obtained primarily through traditional classroom instruction. Report those locations in accord with the Commission's definitions and the directions as specified below.

Off-campus instructional sites—a site located geographically apart from the main campus at which the institution offers ***50 % or more*** of its credit hours for a diploma, certificate, or degree. This includes high schools where courses are offered as part of dual enrollment. For each site, provide the information below***. The list should include only those sites reported and approved by SACSCOC***. Listing unapproved sites below does not constitute reporting them to SACSCOC. In such cases when an institution has initiated an off-campus instructional site as described above without prior approval by SACSCOC, a prospectus for approval should be submitted immediately to SACSCOC.

Off-Campus Instructional Locations – 50% or more.

Name of Site	Physical Address (street, city, state, country) Do not include PO Boxes.	Date Approved by SACSCOC	Date Implemented by the institution	Educational programs offered (specific degrees, certificates, diplomas) with 50% or more credits hours offered at each site		Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)
Texas A&M Health Science Center	8441 State Highway 47 Clinical Building 1, Suite 3100 Bryan, TX 77807	2000	2000	EDUCATION FOR HEALTHCARE PROFESSIONALS	MS	Yes
				MEDICAL SCIENCES	MD	
				MEDICAL SCIENCES	MS	
				MEDICAL SCIENCES	PHD	
				MEDICINE	MD	
				NURSING	BSN	
				NURSING EDUCATION	MSN	
				PHARMACY	PHMD	
				FAMILY NURSE PRACTITIONER	MSN	
Arabian Society for Human Resource Management	Saudi Aramco – Box 8926 Training & Career Development South Administration Building, Room 242 Dhahran 31311 Saudi Arabia	2012	2007	HUMAN RESOURCE MANAGEMENT	MS	Yes
City Centre	842 West Sam Houston Parkway North, Suite 200 Houston, Texas 77024-3920	2012	2012	ANALYTICS	MS	Yes
				BUSINESS ADMINISTRATION	MBA	
College of Dentistry	3302 Gaston Ave. Dallas, TX 75246	2001	2000	ADVANCED EDUCATON IN GENERAL DENTISTRY	CTGFA	Yes
				DENTAL HYGIENE	BS	
				DENTAL PUBLIC HEALTH	Certific ate	
				DENTISTRY	DDS	
				ENDODONTICS	CTGFA	
				MAXILLOFACIAL SURGERY	CTGFA	
				ORAL AND MAXILLOFACIAL PATHOLOGY	CTGFA	
				ORAL AND MAXILLOFACIAL	CTGFA	

Name of Site	Physical Address (street, city, state, country) Do not include PO Boxes.	Date Approved by SACSCOC	Date Implemented by the institution	Educational programs offered (specific degrees, certificates, diplomas) with 50% or more credits hours offered at each site		Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)
				RADIOLOGY		
				ORAL BIOLOGY	MS	
				ORAL BIOLOGY	PHD	
				ORTHODONTICS	CTGFA	
				PEDIATRIC DENTISTRY	CTGFA	
				PERIODONTICS	CTGFA	
				PROSTHODONTICS	CTGFA	
Institute of Biosciences and Technology	2121 W. Holcombe Blvd. Houston, TX 77030	2000	2000	HEALTH ADMINISTRATION	MHA	Yes
				MEDICINE	MD	
Rangel College of Pharmacy	1010 W. Avenue B. Kingsville, TX 78363	2011	2006	PHARMACY	PHMD	Yes
College of Medicine - Temple	2401 S. 31st Street Temple, TX 76508	2000	2000	MEDICINE	MD	Yes
				MEDICAL SCIENCES	PHD	
Clinical Learning Resource Center	Health Professions Building 3950 North A. W. Grimes Blvd. Round Rock, TX 78665	2011	2010	MEDICINE	MD	Yes
				NURSING	BSN	
Rural Public Health - McAllen Teaching Site	2101 South McColl Road McAllen, TX 78503	2011	2010	HEALTH POLICY AND MANAGMENT	MPH	Yes
				HEALTH PROMOTION AND COMMUNITY HEALTH SCIENCES	MPH	
				NURSING	BSN	
Texas A&M University School of Law	1515 Commerce St Fort Worth, TX 76102	2013	2013	HEALTH CARE LAW	JM	Yes
				INTELLECTUAL PROPERTY	ML	
				INTELLECTUAL PROPERTY	MJ	
				JURISPRUDENCE	MJ	
				LAW	JD	
				LAWS	ML	
Houston Methodist Hospital	6670 Bertner Avenue, R2-216 Houston, TX 77030	2015	2015	MEDICINE	MD	Yes
Baylor University Medical Center	3500 Gaston Avenue Dallas, TX 75246	2012	2011	MEDICINE	MD	Yes

Off-Campus Instructional Locations – 25%-49%.

Name of Site (Indicate if site is currently active or inactive. If inactive, date of last course offerings and date of projected reopening	**Physical Address (street, city, state, country) Do not include PO Boxes.**	**Date Notified SACSCOC**	**Date Implemented *by the institution***	**Educational programs offered (specific degrees, certificates, diplomas) with 25-49% credit hours offered at each site**	**Is the site currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)**
Department of State Health Services	1100 West 49th Austin, TX. 78756	2011	2004	HEALTH POLICY & MANAGEMENT - MPH	

Branch Campuses

Name of Branch Campus	**Physical Address (street, city, state, country) Do not include PO Boxes.**	**Date Approved *by SACSCOC***	**Date Implemented *by the institution***	**Educational programs (specific degrees, certificates, diplomas) with 50% or more credits hours offered at the branch campus**		**Is the campus currently active? (At any time during the past 5 years, have students been enrolled and courses offered? If not, indicate the date of most recent activity.)**
Texas A&M University at Galveston	200 Seawolf Pkwy. Galveston, TX 77553	1992	1991	MARINE BIOLOGY	BS	Yes
				OFFSHORE & COASTAL SYSTEMS ENGINEER	BS	
				MARINE BIOLOGY	MS	
				MARINE BIOLOGY	PHD	
				MARINE ENGINEERING TECHNOLOGY	BS	
				MARINE FISHERIES	BS	
				MARINE RESOURCES MANAGMENT	MMR	
				MARINE SCIENCES	BS	
				MARINE TRANSPORTATIO N	BS	
				MARITIME ADMINISTRATION	BS	
				MARITIME ADMINISTRATION & LOGISTICS	MML	
				MARITIME STUDIES	BA	
				OCEAN AND COASTAL RESOURCES	BS	
				OCEAN ENGINEERING	BS	
				UNIVERSITY STUDIES –	BS	

				GALVESTON		
Texas A&M University at Qatar	253 Texas A&M Qatar Engineering Building Education City Al Luqta St Doha, Qatar	2005	2003	CHEMICAL ENGINEERING	BS	Yes
				CHEMICAL ENGINEERING	MS	
				CHEMICAL ENGINEERING	MEN	
				ELECTRICAL ENGINEERING	BS	
				MECHANICAL ENGINEERING	BS	
				PETROLEUM ENGINEERING	BS	

4. Distance and Correspondence Education

Provide an initial date of approval for your institution to offer distance education. Provide a list of credit-bearing educational programs (degrees, certificates, and diplomas) where 50% or more of the credit hours are delivered through distance education modes. For each educational program, indicate whether the program is delivered using synchronous or asynchronous technology, or both. For each educational program that uses distance education technology to deliver the program at a specific site (e.g., a synchronous program using interactive videoconferencing), indicate the program offered at each location where students receive the transmitted program. Please limit this description to one page, if possible.

Initial Approval in February 2000

Credit Bearing Degree Programs		Site	Synchronous/Asynchronous/Both
AEROSPACE ENGINEERING	MENGR		Asynchronous
AGRICULTURAL DEVELOPMENT	MAGR		Asynchronous
AGRICULTURAL EDUCATION	EDD	Synchronous course offered worldwide via PC or LMS	Both
AGRICULTURAL SYSTEMS MANAGEMENT	MS		Asynchronous
ANALYTICS	MS		Asynchronous
BILINGUAL EDUCATION	MED		Asynchronous
BILINGUAL EDUCATION	MS		Asynchronous
BIOLOGICAL AND AGRI ENGINEERING	MENGR		Asynchronous
COMPUTER ENGINEERING	MENGR	Synchronous course offered worldwide via PC or LMS	Both
CURRICULUM & INSTRUCTION	EDD		Asynchronous
CURRICULUM & INSTRUCTION	MED		Asynchronous

EDUC HUMAN RESOURCE DEVELOPMENT	MS		Asynchronous
EDUCATION FOR HEALTH CARE PROFESSIONALS	MS		Asynchronous
EDUCATIONAL ADMINISTRATION	MED		Asynchronous
EDUCATIONAL PSYCHOLOGY	MED	Synchronous course offered worldwide via PC or LMS	Both
EDUCATIONAL PSYCHOLOGY	MS		Asynchronous
EDUCATIONAL TECHNOLOGY	MED		Asynchronous
ELECTRICAL ENGINEERING	MENGR		Asynchronous
ENERGY	MS		Asynchronous
ENGINEERING	MENGR		Asynchronous
ENGINEERING SYSTEMS MANAGEMENT	MS		Asynchronous
EPIDEMIOLOGY	MPH		Asynchronous
FAMILY NURSE PRACTITIONER	MSN	Bryan, TX	Both
HEALTH EDUCATION	MS		Asynchronous
INDUSTRIAL DISTRIBUTION	MID	College Station, TX	Both
INDUSTRIAL ENGINEERING	MENGR		Asynchronous
LAWS	LLM		Asynchronous
JURISPRUDENCE	MJ		Asynchronous
MARITIME ADMINISTRATION & LOGISTICS	MMAL		Asynchronous
MATHEMATICS	MS		Asynchronous
MECHANICAL ENGINEERING	MENGR		Asynchronous
NATURAL RESOURCES DEVELOPMENT	MNRD		Asynchronous
NURSING	BSN		Asynchronous
NURSING EDUCATION	MSN	Bryan, TX	Both
PETROLEUM ENGINEERING	MENGR		Asynchronous
PLANT BREEDING	MS		Asynchronous
PLANT BREEDING	PHD		Asynchronous
POULTRY SCIENCE	MAGR		Asynchronous
PUBLIC SERVICE AND ADMINISTRATION	MPSA	College Station, TX	Both
RECREATION & RESOURCES DEVELOPMENT	MRRD	College Station, TX	Both
SAFETY ENGINEERING	MS		Asynchronous

SPECIAL EDUCATION	MED	Synchronous course offered worldwide via PC or LMS	Synchronous
SPECIAL EDUCATION	MS	Synchronous course offered worldwide via PC or LMS	Synchronous
SPORTS MANAGEMENT	MS		Asynchronous
STATISTICS	MS		Asynchronous
WILDLIFE SCIENCE	MWSC		Asynchronous
MILITARY LAND SUSTAINABILITY	CERT		Asynchronous
ADVANCED INTERNATIONAL AFFAIRS	CERT	College Station, TX; Houston, TX	Both
AGRICULTURE E-LEARNING DEVELOPMENT	CERT		Asynchronous
APPLIED BEHAVIOR ANALYSIS	CERT		Asynchronous
EDUCATION FOR HEALTHE CARE PROFESSIONALS	CERT		Asynchronous
ENERGY	CERT		Asynchronous
ENERGY SUSTAINABILITY ENGINEERING	CERT		Asynchronous
FORENSIC HEALTH CARE	CERT		Asynchronous
HOMELAND SECURITY	CERT		Asynchronous
INDUSTRIAL DATA ANALYTICS	CERT		Asynchronous
NATIONAL SECURITY AFFAIRS	CERT	College Station, TX; Livermore, CA; Sandia, NM	Both
NONPROFIT MANAGEMENT	CERT	College Station, TX; Houston, TX	Both
PUBLIC HEALTH	CERT	McAllen, TX	Both
REGULATORY SCIENCE IN FOOD SYSTEMS	CERT		Asynchronous
SAFETY ENGINEERING	CERT		Asynchronous
APPLIED STATISTICS	CERT		Asynchronous

5. Accreditation

Accreditation Council for Pharmacy Education	The pharmacy professional degree program	Last Review: April 2014
American Council for Construction Education	The B.S. and M.S. curriculum in construction science	Last Review: 2011 (B.S.) and 2012 (M.S.)
American Psychological	The clinical psychology program	Last Review: April/May 2015

Association	in the Department of Psychology and the counseling psychology and school psychology program in the Department of Educational Psychology	
American Veterinary Medical Association Council on Education	The veterinary medicine degree program	Last Review: 2013
Association to Advance Collegiate Schools of Business (AACSB)	The business baccalaureate, master's, and doctoral programs in Mays Business School	Last Review: Fall 2012
Commission on Accreditation for Dietetics Education	The dietetic track in the nutritional sciences curriculum and the dietetic internship program	Last review: January 2015
Commission on Accreditation of Athletic Training Education (caATe)	Athletic Training (College of Education)	Last Review: 2013
Commission on Accreditation of Healthcare Management Education	The Master of Health Administration	Last Review: Fall 2010
Commission on Collegiate Nursing Education and the Texas Board of Nursing	The nursing degree programs	Last Review: July 2013
Commission on Dental Accreditation. (CODA)	The degree programs in dentistry and dental hygiene and the certificate programs in the ten advanced dental graduate education programs	Last Review: August 2013
Commission on English Language Program Accreditation (CEA)	The English Language Institute	Last review: 2013
Computing Accreditation Commission of ABET	The computer science program	Last review: 2010
Council of the Section of Legal Education and Admissions to the Bar of the American Bar Association	Texas A&M University School of Law	Last review: 2010
Council on Education for Public Health	The School of Public Health degree programs	Last Review: April 2011
Engineering Accreditation Commission of ABET	Undergraduate programs in aerospace, biological and agricultural, biomedical, chemical, civil, computer, electrical, industrial, mechanical, nuclear, ocean, petroleum and radiological health engineering	Last Review: 2010-2011 (College Station) and 2015 (Qatar)
Engineering Accreditation Commission of ABET	Maritime systems engineering (Offshore and Coastal Systems Engineering) – TAMU Galveston	Last review: 2010-11

Engineering Technology Accreditation Commission of ABET	The electronic systems engineering technology program, the manufacturing and mechanical engineering technology program,	Last Review: 2013-2014 (College Station) and 2015 (Qatar)
Engineering Technology Accreditation Commission of ABET	marine engineering technology – TAMU Galveston	Last Review: 2013-14
Forensic Science Education Programs Accreditation Commission (FEPAC)	The forensics and investigative sciences program	Last Site Visit: October 2011 Accreditation dates: 1/2012-1/2017)
Institute of Food Technologists	The food science and technology curriculum	Last Review: December 2011
Landscape Architectural Accreditation Board	The curriculum in landscape architecture	Last Review: July 2015
Liaison Committee on Medical Education	The medical education degree program	Last Review: August 2012
National Architectural Accrediting Board	The curriculum in architecture	Last Review: March 2013
Network of Schools of Public Policy, Affairs, and Administration	The Master of Public Service and Administration degree in the Bush School of Government and Public Service	Last review: April 2014
National Recreation and Park Association	The curriculum in recreation, park and tourism sciences	Last Review: June 2010
Planning Accreditation Board	The Master of Urban Planning curriculum	Last Review: 2013
Society for Range Management	The curriculum in rangeland ecology and management	Last Review: 2006
Society of American Foresters	The curriculum in forestry	Last Review: 2013
State Board of Educator Certification Texas Education Agency	Programs in professional education and degrees conferred by Texas A&M University	Last review 2011

(2) If SACS Commission on Colleges is not your primary accreditor for access to USDOE Title IV funding, identify which accrediting agency serves that purpose.

Not applicable.

(3) List any USDOE recognized agency (national and programmatic) that has terminated the institution's accreditation (include the date, reason, and copy of the letter of termination) or list any agency from which the institution has voluntarily withdrawn (include copy of letter to agency from institution).

None.

(4) Describe any sanctions applied or negative actions taken by any USDOE-recognized accrediting agency (national, programmatic, SACSCOC) during the two years previous to the submission of this report. Include a copy of the letter from the USDOE to the institution.

None.

6. Relationship to the U.S. Department of Education.

Texas A&M University does not have any limitations or suspensions, nor have we been terminated by the U.S. Department of Education in regard to student financial aid or other financial aid programs during the previous three years. We are not on reimbursement nor do we have any other exceptional status in regard to federal or state financial aid.

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Appendix B:
Department Climate Plan

2016 PLPM Climate Plan

Background

In 2015 the university required all academic units to formulate a climate plan to enhance inclusivity across the university, its colleges and departments. Plant Pathology and Microbiology developed its climate plan based on input from other schools and our faculty, staff, and students. The plan was submitted to the college last year and below is a revised plan based on feedback we received.

The Department of Plant Pathology and Microbiology dedicates efforts towards the discovery and dissemination of knowledge of plant pathology and plant-microbiology, and promotes the Grand Challenges of 'Feeding our World, Protecting our Planet, and Improving our Health'. PLPM values the diversity of its members and believes that this diversity enhances the strength of the department. PLPM welcomes all individuals interested in any aspect of plant health, microbiology and the environment irrespective of age, appearance, citizenship, culture, gender identity, marital status, military service, physical ability, professional status, race, religion or sexual orientation. The definition of 'People' as used in this plan is inclusive of all. Department success depends on all members and visitors having similar perceptions and attitudes about our organization and goals. We continuously seek improvement. Based on discussions among faculty, staff and students, we decided to develop a climate survey to judge the current perceptions of the climate within PLPM.

- Section 1.0 briefly summarizes the results of the climate assessment
- Section 2.0 describes specific suggestions
- Section 3.0 describes actions implemented
- Section 4.0 indicates next steps

Section 1.0: Climate Survey Results

The climate survey was sent to every member of PLPM in College Station. The survey is available at http://plantpathology.tamu.edu/plpm-climate-survey/. The survey separated input by position (Faculty, Graduate Student, Postdoc, Staff). The survey received 28 responses (57% faculty, 26% Graduate Students, 25% Postdoctoral Fellows, and 63% Staff.

- In My Department: 64% 'sufficient resources' to 81% 'roles and responsibilities.' This translated to 76-88%, 60-88%, 55-73%, 67-80% satisfaction by Staff, Faculty, Graduate Students, and Postdocs, respectively.
- Several Graduate Students felt they did not have the 'resources needed to do their work' (55%), while 42% felt 'differences among people was not valued'.
- Importance and Satisfaction: 83-96% and 61-75% for importance and satisfaction, respectively.

- University: 57-68%. Graduate Students felt that the university did not consider them important or value them (50% ea).
- Department: 58-92%. Graduate students felt their job did not necessarily equate with happiness (58%) while Staff felt a strong connection to the department (92%).
- Treatment at work: (The lower % the better, 41-65%, with Graduate Students having a perception of there being unwritten rules.
- Treatment in the department: 60-76%, indicating that the department valued them and their opinions.
- Department relating to its members: 60-67%. Most felt informed (67%) while 60% felt rewarded adequately. Graduate Students felt they were not adequately rewarded (55%) and that their time was not effectively used (50%).
- Ability to do my job: 63-77%, indicating overall satisfaction. However, only 50% of the Graduate Students and 58% of the Faculty felt they had the necessary tools and equipment to do high quality work.
- Implicit Bias: A perception of "geographical bias" between main campus and west campus was raised. This has been an issue as long as the department has been split. The requirement for some of the department to travel to weekly seminar detracts from unit cohesiveness and inclusivity.
- There was a perception by some that personal views of some influenced their treatment of others. The suggestion is to reinforce the need for openness, fairness and willingness to consider alternate opinions and views.

Section 2.0: Suggestions to Improve Climate

- Ensure that everyone understands they are appreciated.
- Better and more consistent communication.
- In addition to current departmental functions and graduate student chili cook-off, include functions where volleyball and other games are encouraged as well.
- In addition to the DH-inspired annual awards, have departmental awards with a formal nomination process.
- Another faculty retreat.
- Increase transparency and shared governance. One note was other institutions expect more faculty engagement and currently too few of our faculty were committed to the success of the whole department. The attitude of being over-worked is pervasive.
- Improve confidence that equipment will work and be available.

Section 3.0: Efforts to Enhance Department Climate

The climate survey indicates overall satisfaction is high, but highlights specific areas in which we can improve. We discuss climate at faculty meetings, and perform the following. Implementing changes based on the 4 Ps (Program, People, Policy, Practice).

1. Suggestion Box

Program: Installed and only the DH has a key.

People: All members of the department are encouraged to contact the DH via mail, email, phone or through the suggestion box. All suggestions discussed.
Policy: Members of the department are notified regarding suggestions via emails and included in the Department Bylaws under Department Climate.
Practice: Emails, etc. are checked daily, the suggestion box monthly.

2. Climate and inclusivity discussions
Program: Included at every faculty meeting and every staff, graduate and post-doc meeting.
People: Everyone in the department
Policy: Included in the Department Bylaws under Department Climate.
Practice: Ongoing, encouraged by everyone.

3. Posters with Aggie values:
Program: Aggie core values (Excellence, Integrity, Leadership, Loyalty, Respect, and Selfless Service) installed on building floor.
People: Everyone in, and everyone who visits the department.
Policy: Included in the Department Bylaws under Department Climate.
Practice: Ongoing

4. Graduate Student Handbook:
Program: Updated handbook with expectations and responsibilities more clearly delineated. Rewritten to clarify student, faculty advisors, and department responsibilities. S*tudents are empowered* to take control of their graduate careers and to reinforce the roles of the graduate advisor, the graduate committee, and the purpose of the research proposal early in the student's career progress. Efforts are underway to underscore the role of the research proposal in the student's graduate career.
People: All graduate students and faculty major advisors.
Policy: Included in Department Bylaws.
Practice: Updated annually based on feedback.

5. Graduate Student Orientation:
Program: Annually each fall at the beginning of the semester. Expanded to an entire day, includes faculty lightning talks. Extremely well received across the department.
People: All graduate students, post-docs, and major advisors.
Policy: In Graduate Student Handbook.
Practice: Annually.

6. Graduate student stipends:
Program: Current stipends were not competitive with many peers. The faculty voted to raise graduate student stipends. Initiated F16, beginning graduate students at $24,000 for both Ph.D.

and M.S. The department additionally pays tuition (~$5,800/year). However, the success of this effort is dependent on faculty' ability to garner competitive grant funds and the department's ability to support first year stipends.
People: All graduate students and major advisors.
Policy: In Graduate Student Handbook.
Practice: Ongoing.

7. Individual Development Plans (IDPs):
Program: For all incoming students (http://myidp.sciencecareers.org/). The site provides a series of exercises to assist students in determining their skills, interests, and values, a list of scientific career paths with a prediction of which ones best fit your skills and interests, and a tool for setting strategic goals for the coming year, with optional reminders to keep you on track. The site also contains articles and resources to guide students through the process.
People: All graduate students, post-docs, major advisors.
Policy: Will be included in next version of Graduate Student handbook.
Practice: Annually or as student wishes.

8. Annual Graduate Student Poster Symposium:
Program: This symposium emphasizes communication and promote a familial atmosphere for science discussions.
People: All graduate students.
Policy: The department covers printing costs for these posters and purchased easels for display. Students enter as early career or late career levels and prizes awarded.
Practice: each spring semester.

Ongoing events

1. Annual BESC Fall Symposium:
Program: Sponsored by the department in collaboration with the BESC Professional Board. Highlights include student poster session, keynote speaker, and awards for best posters. Attendance and interest is stronger than ever. This event will continue to enhance connectivity among current and former students and environmental professionals across the state of Texas.
People: All BESC students, faculty, board members.
Policy: In BESC Professional Board Bylaws.
Practice: In fifth year.

2. Official Annual Department Awards:
Program: Department awards as determined by formal Awards Committee vote.
People: All members of the department.
Policy: Being prepared by Awards Committee.

Practice: Annually. Currently the DH hosts two department-wide celebrations each year at his house. During the spring celebration awards are given in multiple categories based on votes submitted. Winners (over 21) are presented a bottle of wine with a special label with their name, award, and date. Many bottles are displayed in offices and contribute to improved morale across the department. Awards Committee is taking over this event

3. Staff faculty laboratory visits:
Program: Staff members of the department visit faculty laboratory's, and hear and see first-hand about the research performed. Builds a connection among faculty, students and staff members.
People: All department staff.
Policy: Staff are excused from their duties by the DH for the visits.
Practice: Annually.

4. Annual Harvest Celebration:
Program: Tables are set up outside the building and prizes for centerpieces awarded.
People: Everyone is welcome. Inclusive food for all (vegetarians, vegans, etc.).
Policy: All excused for 2 h to enjoy comradeship.
Practice: Every November.

5. 1st Fridays:
Program: Celebration of birthdays and special occasions.
People: Everyone in the department.
Policy: Encouraged by DH.
Practice: Held the first Friday of the month.

Section 4.0: Planned for 2017-2018

The two major projects planned address two of the most commonly expressed climate needs:
1. Graduate Student Professional Growth: (done)
Program: Graduate Student Spring Poster Symposium
People: Everyone in the department.
Policy: Encouraged by DH.
Practice: Best day and time TBA each spring

2. Faculty/Staff off-site retreat:
Program: Department retreat off-site. We had research, teaching and extension retreats at the OD Butler farm.
People:
Policy:
Practice:

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Appendix C: Development Brochures

PLANT PATHOLOGY & MICROBIOLOGY/ BIOENVIRONMENTAL SCIENCES

Protecting Our Environment, Improving Our Health

TEXAS A&M FOUNDATION

LEAD by EXAMPLE

21st Century Environmental Sciences Experiential Learning Classroom

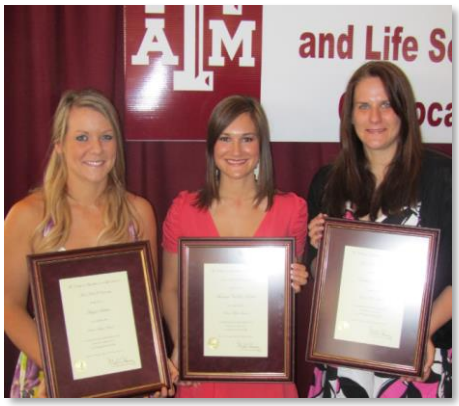
Instilling critical assessment in an integrated learning environment

Bioenvironmental Sciences (BESC) is a STEM-oriented major that equips environmental professionals with the skills necessary to develop and implement solutions to environmental problems. Our graduates enter careers in industry, government or academia associated with prevention and remediation of environmental hazards such as toxic wastes that can damage fragile ecosystems.

Our major uses **theoretical and experiential learning** in our classrooms and laboratories. These experiences, combined with excellent internship opportunities ensure that our graduates are knowledgeable with the concepts and the technologies essential for prevention, assessment, and abatement of environmental problems.

Our students build their networking skills prior to graduation by participating in our student chapter of the **National Association of Environmental Professionals**, which hosts speakers from industry and government agencies involved in environmental careers.

Our major is advised by our **BESC Professional Board** composed of environmental professionals from across Texas. These board members actively engage with our students through our annual fall BESC Symposium and spring BESC career mentoring. Many of our board members host internships for our majors.



A 21st Century Classroom for Training the Next Generation of Environmental Professionals

Bioenvironmental Sciences is currently housed in the L.F. Peterson Building, built in 1963. It is antiquated and our current classrooms are technologically and physically lacking

The Texas A&M University System is investing $40 million in the construction of a new building to house the Department and the BESC major. The location of the new building on west campus places it adjacent to the Texas A&M Gardens which will be used as an experiential outdoor laboratory for our majors.

The new building will enhance the recruitment of new faculty and the brightest students to the major. However, the programmatic capacity of the major still needs your help.

Now is a unique opportunity to contribute to the BESC major through improving and enhancing our ability to train future BESC majors in the critical thinking and analytical skills to make a difference in the sustainability of industry, and the urban and agricultural environment.

Create an Environmental Legacy

Funds are requested to construct the interior of the BESC Experiential Learning Classroom. This includes computers, displays, collaborative tables and chairs with integrated monitors for case study data analysis

Support the Bioenvironmental Sciences

For more information about giving opportunities that will continue Texas A&M's strong commitment to the Texas environment, contact the Texas A&M Foundation:

> **Jennifer Burnett,** Director of Development
> 979.847.9314
> jburnett@txamfoundation.com

> **Kelsey Christian,** Director of Development
> 979.847.9314
> kchristian@txamfoundation.com

Not sure the exact names that go here

Ask your human resources department whether your employer will match your BESC Excellence Fund contribution– you could double, triple or quadruple the size of your gift.

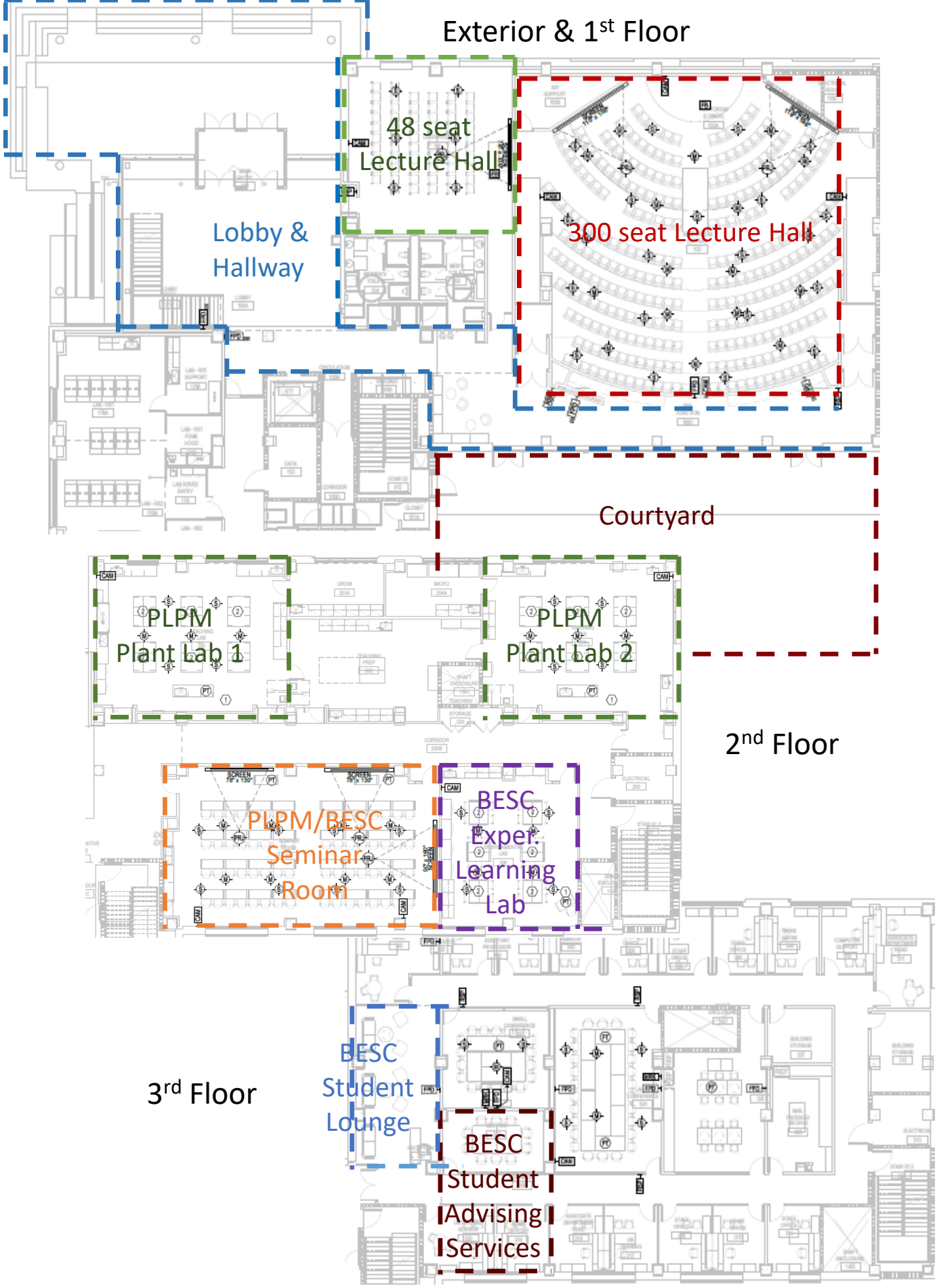
To make an online contribution to the BESC Excellence Fund, visit https://plantpathology.tamu.edu/contact-information/giving/

TEXAS A&M FOUNDATION

LEAD by EXAMPLE

Bioenvironmental Sciences // Giving Opportunities

	Space	Amount	Status
	Exterior	*Guesses	
1	Building Named	$ 5,000,000	
2	Courtyard	$ 2,000,000	
	Interior-1st floor		
3	Lobby & Hallway	$ 2,000,000	
4	48-seat Lecture Hall	$ 1,000,000	
5	300-seat Lecture Hall	$ 3,000,000	
	Interior-2nd floor		
6	PLPM/BESC Seminar Room	$ 150,000	
7	BESC Exper. Learning Classroom	$ 200,000	
8	PLPM Plant Lab 1	$ 200,000	
9	PLPM Plant Lab 2	$ 200,000	
	Interior-3rd floor		
10	BESC Student Lounge	$ 50,000	
11	BESC Student Advising Services	$ 50,000	


Exterior & 1st Floor
48 seat Lecture Hall
300 seat Lecture Hall
Lobby & Hallway
Courtyard
PLPM Plant Lab 1
PLPM Plant Lab 2
2nd Floor
PLPM/BESC Seminar Room
BESC Experiential Learning Lab
BESC Student Lounge
3rd Floor
BESC Student Advising Services

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Appendix D: PLPM Faculty 2-page Curriculum Vitaes

Olufemi Joseph Alabi

Department of Plant Pathology & Microbiology
Texas A&M AgriLife Research & Extension CenterTexas A&M University
2401 E. Hwy 83, Weslaco, TX 78596
alabi@tamu.edu

Education and Training

Ph.D. Plant Pathology, Washington State University, Pullman, WA, 2009
M.Sc. Crop Protection & Environmental Biology, University of Ibadan, Nigeria, 2003
B. Agric. Plant Science, Obafemi Awolowo University, Ile-Ife, Nigeria, 1998

Research and Professional Experience

2013-Date Assistant Professor & Extension Specialist, Department of Plant Pathology & Microbiology, Texas A&M AgriLife Research & Extension Center, Weslaco, TX 78596. I lead an applied research and extension program focused on diseases of fruits and vegetable crops.

2010-2013 Research Associate, Department of Plant Pathology, WSU-Irrigated Agriculture Research & Extension Center, Prosser, WA. Epidemiology, molecular diagnosis, genome characterization/genetic diversity studies and impact assessment of viruses infecting wine grapes.

2003-2005 Research Supervisor, International Institute of Tropical Agriculture, Ibadan, Nigeria. Epidemiology, molecular diagnosis and genome characterization of viruses associated with cassava mosaic disease in Nigeria.

Selected Peer-Reviewed Articles (see faculty publication list)

Synergistic Activities

Member: the American Phytopathological Society (APS).
Senior Editor: Plant Disease journal
Reviewer: Plant Disease, Phytopathology, Crop Protection, Archives of Virology, Viruses, PLoS ONE.
International Mentor: Norman E. Borlaug Leadership Enhancement in Agriculture Program.
Awarded/Allocated Federal and Industry grants: $10,321,865/$704,419 since August 2013.

Outreach Materials and Program Publicity

Since current appointment:

1. Novel Citrus Planting Design; https://www.youtube.com/watch?v=A3-y-F4LwYw; https://www.facebook.com/TXPlantClinic/posts/10155471922627558
2. Residents can help control the Mexican fruit fly; https://www.youtube.com/watch?v=f-bowEytE1o
3. Factsheet on Citrus Canker; http://www.agrilifebookstore.org/Citrus-Canker-p/eplp-032.htm
4. Guide for recognizing and collecting samples to test for grapevine viruses.
5. Factsheet on Alternaria leaf blight of carrot; http://www.agrilifebookstore.org/Alternaria-

Leaf-Blight-of-Carrots-p/eplp-028.htm

6. Factsheet on Downy Mildew of Spinach; http://amarillo.tamu.edu/files/2016/02/Downy-Mildew-of-Spinach.pdf
7. "Winter Texans invited to informational citrus festival Jan. 29 in Weslaco"; http://today.agrilife.org/2016/01/26/winter-texan-festival/; https://www.youtube.com/watch?v=lag4AbiRug4
8. "It Takes Three to Tango"; Page 10-11 in Valley Ag Magazine Volume 2, Issue 2. November/December 2015
9. "Texans asked to help keep citrus canker in check"; http://today.agrilife.org/2015/11/12/citrus-canker-in-texas-facts/; https://www.youtube.com/watch?v=2rF9_FM-6dA; http://www.raymondville-chronicle.com/news/2015-11-18/News/Texans_asked_to_help_keep_citrus_canker_in_check.html; http://bayareaobserver.com/texans-asked-to-help-keep-citrus-canker-in-check-p2188-93.htm
10. "Southern corn leaf blight in fall corn"; Texas Row Crops Newsletter; http://agrilife.org/texasrowcrops/2015/10/05/southern-corn-leaf-blight-in-fall-corn/ (co-authored with Dr. Tom Isakeit)
11. "Experts predict wet weather, farming problems to persist in South Texas"; http://today.agrilife.org/2015/03/26/rain-farming-problems-to-persist-in-south-texas/; http://www.valleymorningstar.com/news/slice_of_life/article_7635a402-d673-11e4-b0ab-3bd96502f28b.html
12. Factsheet on Gulf Coast Citrus Greening Quarantine; http://plantclinic.tamu.edu/files/2011/01/GulfCoastCitrusGreeningAwareness_final3.pdf (co-authored with Dr. Kevin Ong)
13. "U.S. Congressmen visit Texas A&M AgriLife's front line of defense against invasive pests, diseases"; http://today.agrilife.org/2014/09/17/congressmen-visit-weslaco-center/
14. "Onion and Watermelon Irrigation Field Day set for May 8 in Weslaco"; http://today.agrilife.org/2014/04/29/onion-watermelon-field-day/
15. "Annual plant sale slated April 5 in Cameron County"; http://today.agrilife.org/2014/03/26/cameron-county-plant-sale/
16. "Residents can help save Texas' citrus industry"; http://today.agrilife.org/2014/02/14/residents-help-save-citrus-industry/; https://www.youtube.com/watch?v=cMnEUlQsj6o
17. "Water issues to dominate 68th horticulture society meet Feb. 21 in Weslaco"; http://today.agrilife.org/2014/02/13/68th-horticulture-society-meet/
18. "Alabi named new plant pathologist at Weslaco"; http://today.agrilife.org/2013/08/01/alabi-new-weslaco-plant-pathologist/; http://www.themonitor.com/opinion/columnists/alabi-named-new-agrilife-plant-pathologist-at-weslaco/article_3e577faa-ffe3-11e2-bc0f-001a4bcf6878.html

David N. Appel

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

Specializations: Forest and Shade Tree Pathology, Disease Biology of Winegrapes, Epidemiology and Control of Plant Diseases

Appointment Basis: Research (25%), Teaching (45%), and Extension (30%) (current)

Academic Education Background

1981 Ph.D., Plant Pathology, Virginia Polytechnical Institute and State University, Blackburg
Dissertation: The influence of selected urban site factors, host nutrition and water stress on the decline and blight of pin oak incited by *Endothia gyrosa*

1976 M.S., Plant Pathology, West Virginia University, Morgantown
Thesis: Endo-polygalacturonase production by *Ceratocystis ulmi* isolates of known aggressiveness

1973 B.A., Plant Pathology, West Virginia University, Morgantown

Professional and Research Experience

2015-present	Professor and Extension Specialist, Texas A&M University
2009-2015	Associate Department Head, Extension, Texas A&M University
2001-2002	Interim Department Head, Texas A&M University
1990-2006	Associate Department Head, Academics, Texas A&M University
1989-1990	Acting Department Head, Texas A&M University
1995-present	Professor and Extension Specialist, Texas A&M University
1987-1995	Associate Professor, Texas A&M University
1981-1987	Assistant Professor, Texas A&M University
1976-1980	Research Assistant, Plant Pathology, Virginia Tech
1975-1976	Research Assistant, Plant Pathology, West Virginia University

Teaching Experience (Courses Taught)

PLPA 301 Introduction to Plant Pathology (1994 – 2009, 2013 – Present)
PLPA 601 (611) Advanced Plant Pathology (1991 – 1994)
PLPA 603 Plant Disease Management (2013 – Present)
PLPA 626 Plant Disease Diagnosis (2003 – Present)
PLPA 629 Concepts of Forest and Shade Tree Diseases (1982 – 1990)
BESC 489 Environmental Regulations (1994 – 2008)
PLPA 481 Seminar (1993 – 2007)
ESSM (FRSC) 307 Forest Protection (1981 – Present)
FRSC 420 Urban Forestry (1985 – 1990)
FRSC 421 Arboriculture (1984 – 1990)

Publications (see addendum for details)

a. Refereed journal articles: 33
b. Extension publications: 10
c. Books, reviews and book chapters: 7
d. Technical publications: 39
e. Popular articles: 4
f. Selected presentation (excluding support of county programs, commodity groups): 12

Membership and Offices Held in Professional Organizations

American Phytopathological Society
Potomac Division (1976-1981)
Southern Division (1982-Present)
Chair, Forest Pathology Committee (1990)
American Society of Enology and Viticulture
International Society of Arboriculture
Editor, Texas Chapter Newsletter (1982-1986)

External Grants and Other Research

Lifetime Total for All Grants: $6,019,488
Lifetime Total to Program: $1,691,665

Professional Awards and Recognition

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
1995 Selected to participate in the Experiment Station Committee on Organization and Policy Leadership Development Program (Class 5), NASULGC
1992 Work recognized by declaration of Oak Wilt Awareness Week, Gov. Ann Richards
1991 Outstanding Plant Pathology Faculty Award, Department of Plant Pathology and Microbiology, Texas A&M University
1982 Outstanding Professor, Plant Sciences Club, Dept. of Plant Sciences, Texas A&M University, Dept. of Plant Sciences
1976 Graduate Student Research Award, Potomac Division, American Phytopathological Society

Service to Profession (selected)

2014 Organizer, Winegrape Field Trip, 65th Annual Conference of the American Society for Enology and Viticulture, Austin, TX
2013. Organizer, Horticultural Crops Field Trip, American Phytopathological Society Annual Meeting, Austin, TX
2005. Organizer, Forest Pathology Field Trip, American Phytopathological Society Annual Meeting, Austin, TX

Contact Information:

E-mail: d-appel@tamu.edu
Telephone: 979-845-8273

Thomas M. Chappell

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Texas Agricultural and Mechanical University
2132 TAMU, College Station, TX 77840
Phone: 979-458-0637 (office) • 979-777-4599 (mobile)
Email: thomas_chappell@tamu.edu

EDUCATION

Ph.D., Biology, Duke University, Durham, NC, 2010. Thesis title: *Coevolution of the natural* Ipomoea-Coleosporium *plant-fungus pathosystem*. Advisor: Mark Rausher.

B.S. with distinction (*magna cum laude*), Biology, University of Michigan, Ann Arbor, 2004.

B.M. (*summa cum laude*), Performance, University of Michigan, Ann Arbor, 2004.

RESEARCH INTERESTS and EXPERIENCE

Disease ecology and evolution: vector-borne disease epidemiology, evolution of resistance and virulence, host range evolution, natural and managed pathosystems.

Genetics: coevolution, population genetics, genetics of adaptation, quantitative genetics, molecular evolution.

Insects and infectious disease: risk modeling and assessment, phenological models, biocontrol, integrated pest management, cost-benefit analysis, resistance management.

Methods: biostatistics; statistical modeling and forecasting; data mining and pattern discovery.

2010-present	Postdoctoral research	NC State Univ., Dept. of Entomology, Raleigh, NC
2004-2010	Dissertation research	Duke Univ., Dept. of Biology, Durham, NC
Summer 2005	Extension Assistant	NC State Univ., Biol. and Agricultural Engineering Extension
2003-2004	B.S. Thesis research	Univ. of Michigan Museum of Zoology, Insect Division
2001-2004	Lab Technician	Univ. of Michigan Museum of Zoology, Insect Division
Summer 2003	Research Assistant	Univ. of Michigan Dept. of Ecology and Evolutionary Biology
1998-1999	Research Assistant	Univ. of Arkansas at Monticello School of Forest Resources

TEACHING

Spring 2017: Instructor, NCSU, Entomology 731, graduate course “Insect Ecology”

Spring 2010: Teaching Assistant, Duke Univ., course “Ecology & Evolution”

Summer 2009: Mentor, Duke Univ., Undergrad. intern Emir Ova (Sabanci Univ., Istanbul) thesis research

Spring 2009: Teaching Assistant, Duke Univ., course “Animal Physiology”

Spring 2006: Teaching Assistant, Duke Univ., course “Microbial Evolution”
Falls of 2006-2008: Teaching Assistant, Duke Univ., course "AIDS & Emerging Diseases"

RELEVANT TRAINING

SAS Institute Courses, Cary, NC, 2014

Modules: Data Manipulation and Analytics; Applied Analytics; Advanced Predictive Modeling, Summer Institute in Statistical Genetics, Seattle, 2006 (4, Population Genetic Data Analysis for Natural Populations; 6, Quantitative Genetics; 12, Coalescent Theory)

SELECTED ABSTRACTS

Chappell TM, Ward RV, DePolt KT, Greene JK, Roberts PM, Kennedy GG (April 2017) Thrips Infestation Predictor for Cotton: A practical tool for predicting tobacco thrips (*Frankliniella fusca*) infestation of cotton seedlings in the southeastern United States. Online forecasting and management support tool, http://climate.ncsu.edu/cottonTIP

Chappell TM (May 2015). Thrips/Tospovirus Relationships and Risk-Driven Decision Models: The Search for Observable Input to Inform Tospovirus Incidence Forecasting, Using the Tobacco Agroecosystem of North Carolina. Invited talk at AFRI-NIFA-spon. workshop, Asilomar, CA.

Chappell TM (May 2015) Hindcasting Risk to Study a Disease System Outcome: The Effect of Projected Thrips Dispersal Intensity on our Understanding of Imidacloprid's Efficacy in Suppressing TSW in Tobacco. Invited talk at AFRI-NIFA-sponsored workshop, Asilomar, CA.

Chappell TM, Burrack HJ, Kennedy GG (March 2013) TSWV and Thrips Risk Forecasting Tool. Online tool for growers of solanaceous crops in the southeast. Online forecasting and management support tool, http://climate.ncsu.edu/thrips

Chappell TM, Kennedy GG (November 2012) Weather-Mediated Effects on Thrips and Tomato Spotted Wilt Inoculum Potential Interact to Determine TSWV Prevalence in Tobacco. Annual meeting of the Entomological Society of America, Knoxville, TN.

Chappell TM (June 2010) Plant-Pathogen Coevolution in a Natural Pathosystem: Genetic Divergence, and Convergence on Community Structure. Annual meeting of the Society for the Study of Evolution, Portland, OR.

Chappell TM (March 2009) The *Ipomoea-Coleosporium* pathosystem: Evolutionary Inferences from Infectivity Patterns in the Field and Laboratory. Annual meeting of the Plant Pathology Society of North Carolina, Raleigh, NC.

Chappell TM (August 2004) Concordance of Hybrid Clines Reveals Sexual Selection’s Role in Genitalic Divergence and Speciation in Two *Barytettix* Grasshopper Species. Undergraduate thesis for graduation with distinction, University of Michigan.

AWARDS AND FELLOWSHIPS

NSF Doctoral Dissertation Improvement Grant, "Genetic architecture of resistance in a natural plant-fungus pathosystem," 2008-2010
Plant Pathology Society of North Carolina Student Travel Award, 2007
Summer Institute in Statistical Genetics scholarship and travel grant, SISG, 2006
University Honors, University of Michigan, 2000-2004
Eagle Scout rank, 1999

PUBLICATIONS (see section 4)

Kimberley A. Cochran

1619 Garner Field Rd
Texas A&M University
Uvalde, TX 78801
Phone: 830-278-9151
kimberly.cochran@ag.tamu.edu

Experience

2015-Present	Assistant Professor and Extension Specialist of Plant Pathology
2006-2015	Graduate Research Assistant
2009	Teaching assistant in the graduate level course Plant Pathogenic Fungi
2006	Staff member in the soil ecology lab of Dr. Craig Rothrock
2005	Intern at the Arkansas Game and Fish Commission at the Charlie Craig State Fish Hatchery

Education

2015	Ph.D. in Plant Science with emphasis in plant pathology from the Univ. of Arkansas
2009	M.S. in Plant Pathology from the Univ. of Arkansas
2006	B.S. in Biology, minor in Interdisciplinary Studies from the Honors College at Univ. of Central Arkansas

Grants & Gifts

See attached document

Presentations

2015-2017	45 various Master Gardener intern training sessions, county agent organized CEU education programs, and outreach programs with the public and youth in the Program Specialist role with TAMU AgriLife.
2012-2013	3 soybean program research update presentations to the Arkansas Soybean Promotion Board, by invitation
2012	Invited to give the presentation “Soybean Seed Quality and Vigor” at the 2012 Prairie County Crop Production Meeting
2012	Collaborated with J.C. Rupe on the “Focus on soybean” Plant Management Network webcast “Preserving soybean seed quality” presented by J.C. Rupe here
2012	Invited on two occasions to the P. Allen Smith Garden Home by the ASPB to discuss soybean seed quality with soybean growers and hold instruction workshops for 4-H student outreach and the Bean2Blog events in central Arkansas

2010	Rice Field Day research poster "Relationship of fungal and bacterial seed microflora to seed vigor" at Stuttgart, AR
2009	Invited to deliver a research spotlight oral presentation at the American Seed Trade Association Annual Convention in Phoenix, AZ

Several oral and poster presentations at national and regional meetings in addition to departmental seminars.

Professional Organizations & Related Activities

2017	Vice-Chair of American Phytopathologicial Society Extension Committee
2016	Volunteer moderator of multiple sessions at Southern Division American Phytopathological Society annual meeting in Tampa, FL
2016	Attended the first annual Women, Wine, and Networking event at Southern Division American Phytopathological Society annual meeting in Tampa, FL
2016	Volunteer reviewer of Southern Division American Phytopathological Society Graduate Student Travel Award applications
2015-Present	Member of the APS Extension Committee
2013-Present	Founding committee member and Chair Assistant of the APS CADRE
2012-Present	Member, previous vice chair, chair, and immediate past chair positions of APS Early Career Professionals
2011-Present	Member of the APS Seed Pathology, and Early Career Professional committees
2014	Co-organizer and moderator for Schroth Faces of the Future symposium and an Idea Café discussion on current seed health issues at the APS annual meeting

Other Activities

2016	Reviewed manuscript submissions for publication in Plant Management Network, and *Nematropica*, by invitation by editors-in-chief, Dr. Jason Woodward and Dr. Terry Kirkpatrick, respectively
2014	Invited to review an article for *Nematropica* by the editor-in-chief, Dr. Terry Kirkpatrick
2014	Acted as Soybean Science Challenge science fair judge and provided a presentation during the award ceremony at the request of the University of Arkansas Cooperative Extension and the ASPB
2011	Volunteered as a Regional Science Fair Judge at the University of Arkansas
2007-2014	Plant Disease Diagnostic Booth at the Fayetteville Farmer's Market volunteer

Publications See section 4

Martin B. Dickman

University Distinguished Professor
Christine Richardson Endowed Professor of Agriculture
Institute for Plant Genomics and Biotechnology
Professor, Department of Plant Pathology & Microbiology
Texas A&M University
2123 TAMU, College Station, TX 77843-2123

Education

1987 Ph.D. University of Hawaii, Plant Pathology
1982 M.S. in Plant Pathology, University of Hawaii
1979 B.S. in Horticulture, University of Hawaii, Hilo

Research and/or Professional Experience

2006-2017.	Director, Institute for Plant Genomics and Biotechnology, Texas A&M University
2006-pres.	Professor, Department of Plant Pathology and Microbiology, Texas A&M U
2006-pres	Christine Richardson Professor of Agriculture, Texas A&M University
2003-2004	Charles Bessey Professor of Plant Pathology, University of Nebraska
1997-2003	Professor, Plant Pathology, University of Nebraska
1993-1997	Associate Professor, Plant Pathology, University of Nebraska
1987-1993	Assistant Professor, Plant Pathology, University of Nebraska
1987-1988	Post-doctoral Research Fellow, Institute of Biological Chemistry, Washington State University.

Consulting Positions

1998-2005	Consultant, IDUN Pharmaceuticals, San Diego (Programmed Cell Death)
2012- 2014	Scientific Director, VG Energy

Honors and Awards Received

1991	Junior Faculty Recognition for Excellence in Research Award University of Nebraska
2002	Distinguished Alumni Award- University of Hawaii-Hilo
2003-	Charles Bessey Professor of Plant Pathology- University of Nebraska
2003-present	**Fellow**, American Phytopathological Society (APS)
2006 -present	**Fellow**-American Association for the Advancement of Science (AAAS)
2014 -present	**Fellow**-American Academy for Microbiology (ASM)
2017	**University Distinguished Professor**
2017	Noel Keen Award for Scientific Excellence in Molecular Plant Pathology

Selected Editor/Editorial Boards

1991-2000 Associate Editor, Applied and Environmental Microbiology
1996-2000 Associate Editor, Mycologia
1997-2013 Senior Editor, Physiological and Molecular Plant Pathology
1996-1999 Senior Editor, Archives of Microbiology
2001-2005 American Phytopathological Society-Senior Editor-APS Press
2009- Senior Editor-GM Crops
2010- Review Editor-Frontiers in Cellular and Infection Microbiology
2010- Review Editor-Frontiers in Plant Biotechnology
2012- Editor-in-Chief Molecular Plant Pathology
2013- Academic Editor -Microbial Cell

Membership in Professional Societies

American Association for the Advancement of Science
American Phytopathological Society
Genetics Society of America
American Society for Microbiology
British Society for Plant Pathology

Professional Activities- Last 5 years

2009-2011 National Science Foundation (NSF) Symbiosis, Defense and Self-Recognition
2009-2011 Hosted (along with Julie Borlaug) Texas Youth -World Food Prize
2007-2009 USDA- OSQR Progr. Review, Panel Member, NPR 303-Plant Disease
2009- 2012 American Phytopathological Society-Scientific Program Board
2009- 2012 International Atomic Energy Agency IAEA-Board Member-Mutation Breeding
2011-2013 IITA Banana Improvement Program –Africa 2009-2012
2012-2011 National Science Foundation (NSF): Cell signaling (CDF) Panel
2012- 2014 Wolf Foundation Award-Panel Chair-Israel
2013 current New Zealand Bioprotection Centre:International Advisory Board

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.

Peer Reviewed Publications 5 years (see section 4)

Daniel J. Ebbole

Education and Professional Preparation

Indiana University	Microbiology	B.A.	1983	
Indiana University	Biochemistry	B.S.	1983	
Purdue University	Biochemistry	Ph.D.	1988	Advisor: Howard Zalkin
Stanford University	Biological Sci.	Postdoctoral	1988-1991	Advisor: Charles Yanofsky

Appointments

2004-present	Professor, Dept. Plant Pathology and Microbiology, and Genetics,
2009-present	Adjunct Professor, Fujian Agriculture & Forestry University, Fuzhou, PRC
1997-2004	Associate Professor, Plant Pathology and Microbiology, and Genetics
2001	Visiting Scientist DuPont Ag Biotech, Newark, DE. (February – August)
1991-1997	Assistant Professor, Texas A&M University

Honors and Awards

Fujian Province 100 Talent Professor (2016-2018)
Minjiang Scholar, Fujian Agriculture & Forestry University (2013-2015)
NSF IOS Award proposal 0716894 (2007-2010)
USDA National Needs Fellowship Training Award 2015-38420-15845 (2005-2009)
NSF IOS Award proposal 05444094 (2006-2007)
NSF IOS Award proposal 0115642 (2001-2005)
USDA-IFAFS Award (2000-2003)
NSF MCB Award 9974608 (1999-2002)
USDA-NCGRI Award (1999-2002)
USDA CSREES Award (1997-1999)
NIH R01Award (1992-1997)
NIH NRSA Postdoctoral Research Fellowship (1988-1991)

Teaching activities

Current courses taught:

PLPA607 Pathogen Strategies (1 cr, since 214) Fall
BESC402 Microbial Processes in Bioremediation (3 cr) - Developing for Spring 2018
BESC311 China Study Abroad: International Perspectives on Environmental Issues (3 cr since 2013)
BESC481 Seminar (1 cr) Fall
BESC484 Field Experience (3 cr) as assigned

Past courses taught:

BESC403 Sampling and Environmental Monitoring (2013-2016)
PLPA630 Fungal Physiology and Genetics (Formerly part of PLPA625)
PLPA631 Laboratory for Fungal Biology course (Team taught with Brian Shaw)
PLPA611 Advanced Plant Pathology (stopped after 2013 with curriculum change)
PLPA612 Advanced Plant Pathology II (1995-1999, then merged with PLPA611)
PLPA617 Principles and Concepts of Plant Pathogenesis (1993-1997, alternate years)
PLPA625 Plant Pathogenic Fungi (Team taught with Brian Shaw then split in 2009)

Service activities

Chair, Graduate Recruiting Committee, 2016-present
Graduate Student Club Advisor, 2016-present
Associate Editor, *Current Genetics 2006-present*
Associate Editor Molecular Plant-Microbe Interact 1999-2001
Most recent grant panel: Jan 23-25, 2018 NSF-NIFA Plant-Biotic Interactions

Recent meetings attended

2017 APS meeting San Antonio, TX. Aug. 6-10. Two Posters Presented

1. Poster: Characterization of a 21 member effector gene family from the rice blast fungus. – Melian Chen.

2. Poster: Analysis of a virulence gene family of *Pyricularia* from cereal and grass hosts. – Daniel Ebbole

2017 5th Intl Conf on Plant-Biotic Interactions (5ICPBI), Xiamen, China, Aug. 17-21.
Session talk: Evolution of an effector gene family from the rice blast fungus.

Recent Publications (2015-2017 yrs) see section 4

Most recent postdoctoral mentees:

Shengli Ding 2008-2010 (currently Associate Professor, Henan Agricultural University)
Jin-Suk Lee 2008-2010 (Research Staff Member, Samsung Electronics, S. Korea)

Most Recent Graduate Students

Yue Shang, MS Plant Pathology, 2003-2007
Dan Li, PhD, Plant Pathology 2000-2005
Seven additional PhD students (six Plant Pathology, one Genetics) (1992-2004)

Most Recent Undergraduate Research Students Mentored (summer 2017)

Morgan Everitt, Sophia Murphey, Makenzie Menchaca

Awards for past five years

Fujian Province 100 Talent Professor (2015-2018)
Fujian Agriculture and Forestry University Minjiang Scholar (2013-2015)

Carlos F. Gonzalez

Professor
Co-Director, Center for Phage Technology

Education and Training:

Texas A&M University	Microbiology	BS, 1970
Texas A&M University	Microbiology	MS, 1972
University of Nebraska-Lincoln	Plant Pathology	Ph.D., 1978
U California-Davis	Plant Pathology	Post-doc, 1978-79
U Michigan – Medical School	Microbiology/Genetics	Post-doc, 1979-80

Research and Professional Experience:
Core Member, Center for Phage Technology Texas A&M University (2011-Present)
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)
Research Microbiologist, Unilever (Microlife Genetics), 1980-1986
U.S. Army Reserve, Captain, 1972-1982 (Honorable Discharge)

Honors and Service/Leadership
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
Diversity Award-2011-Texas A&M University-Division of Student Affairs-Multicultural Services
2013 MANRRS Legend Award- Society for Minorities in Agriculture Natural Resources and Related Sciences
Excellence in Teaching Award, American Phytopathological Society-2013

US Patents-10 Issued
US Patent No. 9,357,785 B2 issued June 7,2016-"Method for treatment and control of plant disease"

Selected Publications: (see section 4)

Thomas Isakeit

Professor and Extension Plant Pathologist
Department of Plant Pathology and Microbiology
Texas A&M University, College Station TX 77843-2132
979-862-1340; cell 979-229-4976; t-isakeit@tamu.edu

Profile

- Twenty-four years experience in applied plant pathology research and extension
- Broad experience in diagnosis and management of diseases of field crops and vegetables
- Specializing in management approaches and educational activities for emerging plant diseases
- Field and laboratory skills for isolation and testing of plant pathogens and evaluating controls
- Capable in coordinating multi-disciplinary teams for plant disease management
- Ability to work effectively with government agencies and seed and chemical industries
- Proponent of disease control using integrated management approaches (chemical and non-chemical)
- Consistent focus on the needs of diverse types of farmers

Education **Ph.D., M.Sc., Plant Pathology,** Michigan State University, 1988, 1984
B.Sc., Agriculture, University of Alberta, 1980

Relevant Experience & Accomplishments

Research Experience

- Identified effective fungicide for cotton root rot with $10+ million annual benefit in Texas
- Identified 8 new plant diseases in the United States and 8 new records for Texas
- Experienced in evaluation of fungicides, bactericides and host plant resistance in many crops
- Coordinated soybean rust monitoring in Texas, saving millions of dollars for US soybean growers

Extension Experience

- Presentations to growers, industry or commodity groups: 445
- Extension factsheets and articles: 157

Professional Accomplishments

- Refereed, technical publications: 38 full-length; 53 short and abstracts + 6 book chapters
- 263 other technical publications and abstracts
- 12 international and national invited presentations
- Obtained $2,125,095 extra-mural support for research and extension activities, 1994-2017
-

International Experience

- Australia: 3-month sugarcane disease research project, Tully, Qld., 1992

- Indonesia: 4-day consulting trip for sugarcane disease problem, Sumatra, 1995
- Guatemala: 3-4 day technician training, 4 visits, 2008-2011
- Panama: 4-day consulting trip to evaluate national plant disease diagnostic clinic, 2008
- China: 5-day consultation on corn aflatoxin research, Nanjing, 2015

Awards

- 2017 Outstanding Plant Pathologist. American Phytopathological Society – Southern Division.
- 2013 Special Service/Recognition Award. Soil and Crop Sciences Dept., Texas A&M University
- 2013 Texas A&M AgriLIFE Extension Team Award for Superior Service (Cotton Root Rot Team)
- 2012 International IPM Award of Excellence (Soybean rust – pest information platform for extension and education (PIPE), 7th International IPM Symposium, Memphis, TN, Mar. 27-29, 2012 (team award)
- 2011 Texas Plant Protection Association Academic/Agency Award
- 2010 Texas AgriLIFE Extension Team Award for Superior Service (Pecan IPM Program Team)

Graduate Students

- Committee Chair or Co-chair: 2 Ph.D. and 2. M.Sc., Department of Plant Pathology and Microbiology
- Committee Member: 11 M.Sc. and 12 Ph.D., Plant Pathology, Horticulture, Crop Sciences

Select References (Last 5 Years)

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, E-mail: ykjo@tamu.edu

EDUCATION

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

APPOINTMENTS

Associate Professor & Extension Specialist, 2014-present
Assistant Professor & Extension Specialist, 2008-2014
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

PROFESSIONAL ACTIVITIES

American Phytopathological Society (APS)

- Turfgrass Pathology Committee Member, 2008-present
  - Chair 2014-2015, Immediate Past Chair 2015-2016, Vice chair, 2013-2014
  - Organized the turf field trip for the annual meeting in Minneapolis, Minnesota, August 2014 and in Austin, Texas, August 2013
  - Initiated the updating of turfgrass disease names
  - Organized the special session of the APS annual meeting 2016 – The phytobiome: A new frontier in turfgrass disease
- APS Office of International Programs (OIP) Committee Member, 2016-present
  - Contributed to enhance the relationship between APS and international plant pathology organizations
  - Participated in organizing the annual OIP Silent Auction to raise funds to support the various APS programs and awards that OIP offers
  - Lead the Library Assistance Program to provide APS publications to libraries and institutions in developing countries which do not have access or cannot afford them

Texas Turfgrass Association (TTA), Member, 2008-present
Presented the topic of turfgrass disease management at annual TTA conferences in 2009, 2013, 2014, 2016

Korean Agricultural Scientist Forum in America (KASFA), Lead organizer, 2012-2013
Prepared and delivered a biweekly electronic newsletter (written in Korean) covering world and regional agricultural news and issues to 11 KASFA members

TEACHING EXPERIENCES

PLPA 489 & 689. Turfgrass Pathology

- Stacked course with PLPA 334 for undergraduates & PLPA 634 with additional requirement for graduates. Fall 2016.
- Stacked course with PLPA 489 for undergraduates & PLPA 689 with additional requirement for graduates. Fall of 2010, 2012, 2014.
- The objective is for students to recognize important turfgrass problems and understand biological mechanisms in the disease process and principals of disease management strategies.

Diseases of Field Crops (PLPA623) Summer of 2009, 2011, 2013, 2015, 2017

The objective is for students to learn fundamental and practical aspects of important and representative diseases of field crops in Texas. The course is designed to complement textbook-based information with hands-on experience and broaden student views of holistic approaches to disease management on varying agricultural systems. Field trips are a major part of the class and include crop fields of rice, soybean, corn, sorghum, and peanut, orchards of pecan and citrus, golf courses and athletic fields. Taught 5-6 graduate students per course.

PEER-REVIEWED PUBLICATIONS (see section 4)

Charles M. Kenerley

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

Education:

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

Professional Experience:

Professor, Texas A&M University, 1995 - Present
Associate Department Head, Plant Pathology & Microbiology, 2007-2014.
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, 1990-Present
Member, Genetics Faculty, Texas A&M University, 2005-2015
Research Technician, Plant Pathology, University of Wisconsin, Madison, WI, 1976-79

Professional Affiliations:

American Phytopathological Society
American Association for the Advancement of Science
TAMU Program for the Biology of Filamentous Fungi

Undergraduate Research Programs as Mentor

PLPM Bioenvironmental Sciences Undergraduate Research Scholars
TAMU Undergraduate Research Scholars (Honors Program)
PLPA NSF-REU Program

Current Course Teaching Responsibilities

BESC 484 Writing Intensive Professional Internship
BESC 481 Communication Intensive Capstone Seminar
BESC 491 Undergraduate Research
PLPA 613 Advanced Laboratory in Plant Pathology

Previous Course Teaching Responsibilities

BESC 402 Microbial Processes in Bioremediation, 1993-2016
PLPA 628 Soil-borne Plant Pathogens, 1983-1991
PLPA 627 Theory of Plant Disease Epidemiology, 1991-2007
PLPA 602 Fungi as Plant Pathogens, 1985-1989
PLPA 681 Plant Pathology Seminar, 1983-1988, 2007-2011
PLPA 690 Plant Pathology Journal Club, 1990-1995

Awards and Honors:

American Phytopathological Society Fellow, 2015
PLPA Faculty Teaching Award, 2016
PLPA Faculty Teaching Award, 2010
PLPA Outstanding Professor Award, 2004
PLPA Faculty Teaching Award, 1997

Selected Departmental Service

Search Committee for Epidemiologist Position, Chair 2016
Awards and Honors Committee, Chair, 2007-2009; Member, 2016-present
Undergraduate Appeal Committee, Member, 2007-2015
Committee for Selection of Teaching Assistants, Member, 1998-2015
Departmental Promotion and Tenure Committee, Chair, 2012-2014
Committee for University Studies Degree in Environmental Business, Chair, 2011
Committee for Environmental Studies Degree, Chair, 2010
Committee for Undergraduate Honors Program, Member, 2009
Departmental Head Search Committee, Member, 1989, 2000, 2008
Advisor, Student Chapter, NAEP, 1993-2007

Selected College (COALS) and University (TAMU) Service

TAMU Graduate Teaching Assistant Assessment Committee, Member, 2014-2015
COALS "No Grade" Appeals Committee, Member, 2013-2015
COALS Graduate Programs Committee, Member, 2007-2015
COALS Undergraduate Programs Committee, Member, 2007-2015
TAMU Graduate Appeals Committee, Member, 2007-2015
TAMU Protein Chemistry Laboratory Advisory Committee, Member, 2006-2014
TAMU Research Standards Officer, 1999-2009
TAMU Writing Center Committee, Charter Member, 2003-2006
TAMU Core Curriculum Revision Committee, Member, 199-2000
TAMU President's Vision 2020 Theme Group, 1998-1999
TAMU Faculty Senate, Member, 1996-1999
TAMU Committee on Academic Freedom, Responsibility and Tenure, 1997-2000

Peer Reviewed Publications (last 5 years): (see section 4)

Mikhailo (Mike) V. Kolomiets

Department of Plant Pathology and Microbiology
Faculty of Molecular and Environmental Sciences (MEPS)
Faculty of Program of Biology of Filamentous Fungi (PBOFF)
Texas A&M University
College Station, TX 77843-2132

a. *Professional Preparation*:

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

b. *Appointments*:

Professor, Dpt. of Plant Pathology, Texas A&M University,	2014 – Present
Visiting Professor (sabbatical leave), Institute of Plant Biochemistry, University of Goettingen, Germany	2010
Associate Professor, Dpt. of Plant Pathology, Texas A&M University,	2008 - 2014
Assistant Professor, Dpt. of Plant Pathology, Texas A&M University,	2002 - 2008
Post-Doctoral Researcher, Disease Resistance Group, DuPont-Pioneer	1999-2001
Post-Doctoral Researcher, Dpt. of Agronomy, Univ. of Missouri-Columbia	1998-1999
Graduate Research Assistant, Dpt. of Horticulture, Iowa State University	1993-1998
Senior Research Fellow, Institute of Horticulture, Kiev, Ukraine	1989-1993
Junior Research Fellow, Institute of Horticulture, Kiev, Ukraine	1986-1998

c. *Synergistic Activities:*

- Editor of Journals, *Molecular Plant Pathology* (2015-2018), *Frontiers in Plant Sciences* (2013-present)
- NSF and USDA Panel Member, 2015, 2012, 2011, 2010.
- Developed and teaches a graduate course PLPA 609 “Defense Hormone Signaling”.
- Teaches an undergraduate/graduate class PLPA 301/601 “Plant Pathology”.
- Member of Executive and Symposium Committees, Molecular and Environmental Plant Sciences (MEPS) Interdepartmental Program
- Member of Undergraduate and Graduate Program Committees (2008-18).
- Ad hoc reviewer for *Plant Cell*, *Plant Journal*, *Phytochemistry*, *Molecular Plant-Microbe Interactions, Plant Physiology, Physiological and Molecular Plant Pathology, Phytopathology, Plant Physiology, Plant Molecular Biology, Planta, Molecular Plant Patholology, Journal of Experimental Botany, PLOS One, Open Biology, Molecular and General Genetics, Crop Science,* etc.

d. *Awards:*

Outstanding Young Faculty Award, 2011, Molecular and Environmental Plant Sciences
Outstanding Professor Award, 2005, Dept. of Plant Pathology and Microbiology, TAMU
Graduate Research Excellence Award, 1998, Iowa State University.

e. *Graduate Advisors and Postdoctoral Sponsors:*

Graduate Co-Major Professors: D. Hannapel and R. Gladon, Iowa State University
Post Doctoral Advisors: G. Johal, Purdue University; N. Yalpani, DuPont-Pioneer

f. *Thesis Advisor and Postgraduate-Scholar Sponsor, Visiting scientists:*
Current Ph.D. graduate students:
Huang, Pei-Cheng (PhD); Damarwinasis, Danny (MS); Wang, Ken (PhD), Gorman, Zachary (PhD), Bennett, John (PhD)
Current Postdoc:
Borrego, Eli
Past graduate students:
Constantino, Nasie (PhD); Borrego, Eli (PhD); Christensen, Shawn (PhD); Nemchenko, Andriy (PhD), Miller, Chestley (MS); Zhang, Jinglan, (MS), Park, Yong-Soon (PhD)
Past postdoctoral fellows: Yan, Yuanxin; Christensen, Shawn; Gao, Xiquan; Davletova, Sholpan; Nemchenko, Andriy.
Visiting scientists: 4 professors, 7 graduate students, 2 postdocs.
Member of Graduate Student Advisory Committees at TAMU: 28.
Total number of undergraduate student research interns supervised since 2002: > 240

g. *Short Description of Research Program:*
The major focus is on lipid-mediated abiotic/biotic stress responses and signal communication between plants and symbionts, pathogens, herbivorous insects and insect parasitoids. The molecular signals under the study are oxidized lipids called oxylipins totaling an estimated 650 diverse molecular species found in plants including jasmonates, traumatin, green leaf volatiles and less understood large group of 9-oxylipins with hypothesized novel hormone-like signaling activities.

h. *Federal funding:*
Dr. Kolomiets program has been continuously funded by federal agencies including NSF and USDA totaling over $5 million since 2005. Other funding sources included Texas Corn Producers Board and Texas AgriLIfe Research programs.

Publications: Since joining TAMU authored/co-authored 37 peer-reviewed papers, three book chapters, four peer-reviewed conference proceeding, over 90 published abstracts.

Clint Magill

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Texas A&M University
College Station, TX, 77843
Phone 979 845 8250 FAX 845 6483
E-mail: c-magill@tamu.edu

Professional Preparation

Institution	Major/Area	Degree (Awards)
University of Illinois	Agricultural Science	B. Sc. 1963 (Bronze Tablet)
Cornell University	Genetics	Ph. D. 1968 (AD White and NSF Fellow)

Research and Professional Experience

1985-present, Professor (Genetics) Department of Plant Pathology & Microbiology, TAMU
1975-85, Associate Professor, TAMU
1969-75, Assistant Professor, Department of Plant Sciences, TAMU
1967-69 NSF Postdoctoral Fellow, Genetics & Cell Biology, University of Minnesota

Current Classroom Teaching

Genetics 310, Principles of Heredity (Sp, Su & Fall)
Genetics 603, Introductory Graduate Genetics (Fall)
BESC 481, Undergraduate Seminar Presentations (Varies)
Plant Pathology 610, Host Plant Resistance (Sp) Co-taught with a Plant Breeder and Entomologist

Invited Talks (Recent)

Pizza with a Prof, research talk to Honors Undergraduates 2017
Sorghum Research, Seminar for Sorghum & Millet Innovation Lab, KSU, 2013
Sorghum downy mildew, Downy Mildew Symposium, APS meeting Austin Tx 2103

Research: SIGNIFICANT ACHIEVEMENTS

- Identification of multiple amino acid transport systems in *Neurospora crassa*
- Demonstration of parasexual recombination in the rice blast fungus
- Texmont Rice, a high yielding, early maturing doubled haploid variety via anther culture
- Demonstration of high levels of DNA methylation in DNA of resting spores *P. omnivorum*
- Contributions to development of an RFLP map for sorghum
- Identification of host defense pathways in cotton and sorghum induced by fungal pathogens
- Development of antisense constructs of cadinene synthase to lower gossypol production in cottonseed (in collaboration with Dr. Chan Benedict)
- 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 and of *Fusarium oxysporum* f. sp vasinfectum race 4 of cotton. .
- Potential nematode resistant cotton via RNAi (collaboraton with Keerti Rathore and Jim Starr)

Synergisic Actviites

- Member, TAMU Faculties of Genetics and of Molecular and Environmental Plant Sciences Participant, USDA Workshop on NDPRS guidelines, Falls Church VA, 2013
- Member, external review panel for USDA Grain, Forage and Bio-energy Research Unit, Lincoln NE (2007)
- Collaborative research with colleagues and USDA scientists on host-pathogen interactions in cotton (nematodes and fungal wilt diseases), sorghum diseases (fungi and the downy mildew oomycete) and DNA based identification of downy mildews.
- Review numerous manuscripts submitted for publication; Editorial Advisory Board, Physiological and Molecular Plant Pathology

Professional Honors

College Level Award for Excellence for Undergraduate Teaching, 1986:
Nominated for Presidential Award for Graduate Teaching by students in Gene 603, 2008
Fellow of the American Association for the Advancement of Science, 2009
2009: Named a Fellow of the American Association for the Advancement of Science

University Service: Current

Member, University Honors Council
Ad Hoc Member, VP-Student Affairs Faculty Advisory Committee
Member, CAFRT Committee
Member of the Faculty Senate (Speaker, 2008-2009)
Co-Chair, Transportation Services Advisory Committee

University Service: Significant Prior

Member, Search Committee for Vice President for Administration
Ex-officio member, Faculty Senate and Faculty Senate Executive Committee
Member, University Architect Search Committee
Faculty representative, Athletic Council
Member, Council of Built Environment
Member, Academic Master Planning Committee
Appointed Faculty Representative to Task Force on Enrollment Management
Faculty Representative and Member, Campus Security Master Plan Committee
Co-Chair, University Bicycle Advisory Committee

Publications (since 2012) see section 4

Kranthi Kiran Mandadi

Texas A&M AgriLife Research & Extension Center
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Weslaco, TX 78596

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Fax: +1 (956) 969-5620
E-mail: kkmandadi@tamu.edu

APPOINTMENTS AND EDUCATION

2015-current Assistant Professor, Plant Pathology and Microbiology, Texas A&M AgriLife Research
2010-2014 Postdoctoral Research Associate, Texas A&M University, College Station
2010 Ph.D., Texas A&M University, College Station
2005 M.S., Texas A&M University-Kingsville
2002 B.S., Agricultural Sciences, ANGR Agricultural University, India

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CONFERENCE PRESENTATIONS

Invited talks

Mandadi, K.K. Irigoyen, S., and Scholthof, K-BG (2017) Genome-wide alternative splicing landscapes modulated during plant-microbe interactions, The Genetics Society of Korea, October 26-27, Seoul, Korea.

Mandadi, K.K. (2017) Elucidating Grass-Virus Interactions using Brachypodium and Setaria, Dept. of Plant Biology, Ecology, and Evolution, Oklahoma State University, October 19, Stillwater, OK

Mandadi, K.K. and Scholthof, K-BG (2016) Virus-induced changes in grass systems biology. 'Contributions of plant viruses to phytobiome research session', Annual meeting of American Phytopathological Society. July 30-Aug 3, Tampa, FL.

Mandadi, K.K. and Scholthof, K-BG (2016) Genome-wide alternative splicing patterns modulated during grass:virus interactions. 'Brachypodium Genomics session', Plant and Animal Genome XXIV. January 9-13, San Diego, CA.

Mandadi, K.K, Pyle, JP, and Scholthof, K-BG. (2014) Comparative viromic analyses of C_3 and C_4 grass antiviral defense responses in *Brachypodium distachyon* and *Setaria viridis*. 'Genomics mini-symposium' American Society of Plant Biologists, July 12-16, Portland, OR.

Mandadi, K.K, and Scholthof, K-BG. (2014) Transcriptomic analyses and alternative splicing landscapes of Brachypodium infected with *Panicum mosaic virus*. 'Genomics session', Plant and Animal Genome XXII. January 11-15, San Diego, CA.

Mandadi, K.K., and Scholthof, K.-B.G. (2012) Defining a synergism: Transcriptome analysis of the mixed infection of *Panicum mosaic virus* and its satellite virus (SPMV) in *Brachypodium distachyon*. 21st Annual Plant Virology Retreat, May 4-6, The Samuel Roberts Noble Foundation, Ardmore, OK.

Poster presentations >23 since 2004

HONORS AND AWARDS

- 2017: New Innovator in Food and Agriculture, Foundation for Food and Agriculture Research

- 2013: Postdoc of the year, Plant Pathology and Microbiology, Texas A&M University
- 2011: Ambassador, American Society of Plant Biologists
- 2011: MEPS Student Association Service Award

PROFESSIONAL MEMBERSHIPS

- 2015-current: American Phytopathological Society
- 2008- current: American Society of Plant Biologists

LIST OF POSTDOCS

- 2016-current, supervisor, Dr. Renesh Bedre.
- 2016-current, supervisor, Dr. Manikandan Ramasamy.
- 2015-current, supervisor, Dr. Shankar Pant.
- 2015-2016, supervisor, Dr. Carol Vargas. Currently working as Postdoctoral Administrative Fellow, Interdisciplinary Program in Genetics, Texas A&M University

LIST OF PUBLICATIONS (see section 4)

LIST OF AWARDS

- 2017: New Innovator in Food and Agriculture, Foundation for Food and Agriculture Research
- 2013: Postdoc of the year, Plant Pathology and Microbiology, Texas A&M University
- 2011: Ambassador, American Society of Plant Biologists

Gary N. Odvody

Texas A&M AgriLife Research & Extension Center, Corpus Christi, TX 78406
Plant Pathologist, Texas A&M AgriLife Research
Office Phone 1-361-265-9201: FAX 1-361-265-9434. Email: g-odvody@tamu.edu

Employment:

1977- Jan 1979: Post Doctoral Research Associate, University of Nebraska
1 Feb 1979: Research Plant Pathologist, Texas A&M AgriLife Research

Education:

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

Selected Honors, Awards, Organization Appointments:

June 1982: co-host and co-organizer Sorghum Downy Mildew Workshop, TAES, Corpus Christi, TX
1985-1989 Member of Board of Directors of Sorghum Improvement Conference of North America
July 1995: Co-organizer of Aflatoxin Workshop, TAES, Corpus Christi, TX
Feb 1997-Current: Member of USDA-ARS Sorghum Germplasm Committee
June 1997-Sep 2000: Chairman of Working Group on Sorghum Ergot, Appointed during Global Conference on Ergot of Sorghum, Sete Lagoas, Brazil
Sept 1996: Co-organizer/moderator Sorghum Ergot Awareness session, during International Conference on Genetic Improvement of Sorghum and Millet, Lubbock, TX
Nov 1997: Planning committee Grain Sorghum Production Conference, TAEX, Corpus Christi, TX
1997-1998 Ad Hoc Committee on sorghum ergot, American Seed Trade Association
1997-2000 Member steering committee to develop joint sorghum ergot research between U.S. and INIFAP scientists in MX.
1998 member and local arrangements chair, Conference on the Status of Sorghum Ergot in North America, Corpus Christi, TX
1999-2002 member and chairman (‘00-02), NC-227 committee, Ergot: A New Disease of U.S. Grain Sorghum.
Sep 2000: Member organizing committee, global conference, Sorghum and Millets Diseases Guanajuato, MX
Sep 2000: Co-editor Compendium of Sorghum Diseases, Second Edition, APS Press, St Paul, MN
2005-2009 Member of Board of Directors of Sorghum Improvement Conference of North America
2016: Texas A&M AgriLife Extension. Team Award for Superior Service as member of Sugarcane Aphid Team.
2016: Southern IPM Center. 2016 Friends of Southern IPM Pulling Together Award as member of Sugarcane Aphid Team.

Professional Service:

2006-2011 Associate Editor Associate Editor of Fitopatologia Brasileira (Brazilian Phytopathology)

Societies and Appointments:
American Phytopathological Society, Sorghum Improvement Conference of North America

Refereed Publications (past 5 years) see section 4

Kevin L. Ong

Department of Plant Pathology & Microbiology
Texas A&M AgriLife Extension Service, Texas A&M University System
Tel : 979-845-8032, 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

PROFESSIONAL APPOINTMENTS

***Current (2017)*: Professor and Extension Plant Pathologist, Director – Texas Plant Disease Diagnostic Lab, Department of Plant Pathology & Microbiology Texas A&M AgriLife Extension Service, Texas A&M University, College Station, TX**

Provide leadership and direct activities of the Texas Plant Disease Diagnostic Lab (TPDDL). Collaborate and cooperate with Texas Department of Agriculture, USDA-APHIS and National Plant Diagnostic Network to identify emerging and existing plant heath and plant biosecurity related issues, and executing activities in support of these partners. Identify, develop and deliver science-based extension education to AgriLife Extension personnel (county agents), consultants, producers and the general public, with emphasis on disease management in the green industry (turf, ornamental and landscape).

***2008-2017*:** Associate Professor and Extension Plant Pathologist, Director – Texas Plant Disease Diagnostic Lab, Department of Plant Pathology & Microbiology Texas A&M AgriLife Extension Service, Texas A&M University, College Station, TX

***2002 – 2008*:** Assistant Professor and Extension Specialist, Department of Plant Pathology & Microbiology, Texas A&M AgriLife Extension Service, Texas A&M University, Dallas Research & Extension Center, Dallas, TX

ACCOMPLISHMENT HIGHLIGHTS

- Increased TPDDL partnership activities with Texas Department of Agriculture and USDA-APHIS-PPQ to include provision of diagnostic capabilities for pest/pathogens of concern.
- Planned, developed and executed the Master Gardener Specialist FIRST DETECTOR education program – a combination the state-based master Gardener program and the National Plant Diagnostic Network First Detector program to provide training for surveillance and education awareness of pests and pathogens of concern. This program has yielded over 250 education hours and more than 1200 contacts from a small group of trained volunteers (35).
- Conducted over 300 plant pathology extension trainings for Texas A&M AgriLife Extension personnel, master gardener volunteers and the general public. Presented research and extension work at over 60 invited engagements, 31 field days and 23 webminars.
- Co-PI on SCRI funded "Combatting rose rosette" project. Managing section to monitor and document rose rosette incidence and attempt to identify potential resistance to this viral disease. Collaborating with several other researchers to develop and validate new and existing diagnostic methods for rose rosette virus.
- Co-PI on AFRI funded "Improvement and deployment of rapid standardized PCR diagnostics tools" where project was accomplished with collaborators from 5 other states.

SERVICE ACTIVITIES

Served as ad-hoc Reviewer*:* manuscripts for various journals (Plant Disease Notes, Journal of Nematology, Phytopathology, HortScience, Crop Protection, Plant Health Progress)
Served on peer review panels: USDA, NSF, Regional IPM Centers.
Served on university committees: 3 faculty search committees, Texas A&M College and AgriLife peer review committee.

AWARDS AND MERITS

2016 Texas A&M AgriLife Extension Service Superior Service Team Award. TX Strawberry Project.
2014 American Society of Horticulture Sciences - Southern Region Extension Communications Team Award for Earth-kind Landscape Management (publication)
2010 Texas A&M AgriLife Extension Service Superior Service Team Award. Landscape Recovery and Renovation Response Team (reponse to Hurricane Ike).
2005 Superior Service Team Award 2005. Texas Cooperative Extension Commendation for *innovative statewide delivery to Texas Schools of educational program and information about integrated pest management, resulting in safer, more wholesome learning environments for the children and youth of Texas*.

PROFESSIONAL SOCIETY ACTIVITIES

American Phytopathological Society

- Southern Division – APS, *President* (2016)
- Office of Public Relation and Outreach board member (2009-2015)

PUBLICATIONS (see section 4)

Scholarly output include 18 refereed/peer-review articles, 4 proceedings, 56 scientific abstracts, 7 bulletins/book chapters, 40 extension factsheets, and over 25 popular/industry articles.

Extension factsheets (five since 2016)

Ong, K. and Alabi, O. 2016. Citrus Canker. Texas A&M AgriLife Extension factsheet EPLP-032 (9/16), 2pp
Ong, K. 2016. Powdery Mildew of Crape Myrtles. Texas A&M AgriLife Extension factsheet EPLP-031 (8/16), 2pp
Brake, A. and **Ong, K.** 2016. Powdery Mildew of Rose. Texas A&M AgriLife Extension factsheet EPLP-021 (7/16), 2pp
Brake, A. and **Ong, K.** 2016. Phytophthora of Rose. Texas A&M AgriLife Extension factsheet EPLP-020 (4/16), 2pp
Ong, K. and Brake, A. 2016. Crown Gall of Roses. Texas A&M AgriLife Extension factsheet EPLP-017 (3/16), 2pp

Elizabeth A. Pierson (Adjunct)

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HFSB-202, College Station, TX 77843-2133
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POSITION AND SPECIALIZATION*:*
Professor, Plant Microbe Interactions, Dept. Horticultural Sciences and Texas A&M AgriLife Research
Adjunct: Department of Plant Pathology and Microbiology; **Member**: MEPS Interdisciplinary Program

EDUCATION
Ph.D. Major: Botany (Ecology), Washington State University, Pullman, WA, 1988
BS, Honors Major: Biology, Indiana University, Bloomington, IN, 1982

ACADEMIC AND PROFESSIONAL EXPERIENCE
Professor, 2017-present, Associate Professor, 2009-2017
Research Associate Professor, Division of Plant Pathology and Microbiology, Department of Plant Sciences, University of Arizona, Tucson, AZ, 1999-2009
Research Assistant Professor, Department of Plant Pathology, University of Arizona, 1990-1999
Research Associate, USDA-ARS Root Disease & Biological Control Unit, Pullman, WA, 1989-90
Statistical Consultant, Computer Information Center, Washington State University, Pullman, WA, 1987-8
Teaching/Research Assistant, Dept. of Botany, Washington State University, 1982-87

TEACHING
Formal Courses at Texas A&M University:
HORT/MEPS618 Root Biology, 3 credits; HORT/MEPS/PLPM619 Plant-Associated Microorganisms, 3 credits; HORT301 Garden Science, 3 credits; BESC 484 Field Experience (*Writing-Intensive*), 3 credits; HORT/MEPS/PLPM685/485 Directed Studies: Molecular Microbial Ecology 3 credits; PLPM 685: Incorporating High Impact Learning and Professional Development Skills into Teaching 1 credit; MEPS681: Professional Development; HORT/MEPS/PLPM691/491 Research.
Formal Courses at University of Arizona: PLP550: Principles of Plant Microbiology (team taught course/ecology and epidemiology section), 4 credits; PLP551: Biology and Characterization of Plant Pathogenic Agents (team taught course/bacteriology section), 4 credits; PLP596A: Contemporary Topics in Plant Pathology, 1 credit.

PROFESSIONAL ACTIVITIES, HONORS, AWARDS
President Texas Plant Protection Association 2016; Associate Editor, *Molecular Plant Microbe Interactions* 2013-present; Chair USDA: NP 303 Plant Disease June 2013 Ad Hoc Review; Panel Member: NIH Host-Associated Microbial Communities Panel 2012; USDA Microbial Biology Panel 2009, 2014; NSF Ecology and Evolutionary Physiology Panel 1999, 1996.

RESEARCH INTERESTS:
Plant-microbe interactions to promote plant health/suppress plant disease, microbial ecology, bacterial signaling, secondary metabolites, biofilms, gene regulation, omics of *Pseudomonas*; epidemiology, emerging diseases, *Candidatus* Liberibacter; *Pseudomonas* as platform for next generation biofuels.

CURRENT FUNDING
DOE-EERE-BETO, Upgrading Lignin-containing Biorefinery Residues for Bioplastics, PIs Joshua Yuan. Co-PIs AJ Ragauskas, BE Dale, D Gross SY Dai, S Kim, DB Rivers, B Yang, E Pierson, M Jin.

Leland (Sandy) Pierson III

Professor and Head

Professional Preparation

The University of California, Davis	Microbiology	B.A., 1979
Washington State University	Microbiology	Ph.D., 1986
USDA-ARS (Research Fellow)	Plant Pathology	1986-1990

Appointments

2009-present	Professor and Head, Department of Plant Pathology & Microbiology, Texas A&M University, College Station, TX.
2011-2012	Interim Head, Department of Horticultural Sciences, Texas A&M University
2009	Associate Director, School of Plant Sciences, University of Arizona.
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.

Honors

Invited participant	Foundation for Food and Agricultural Research (FFAR) meeting	2016
Invited Speaker	State Agriculture and Rural Legislative Committee Chair Summit	2016
Elected Fellow	American Phytopathological Society	2015
Recipient	Outstanding Faculty Teaching Award, College of Ag & Life Sciences, University of Arizona (one award annually)	2007
Recipient	Student's Choice, The Microbiology Club Teaching Award	1999
Recipient	Creative Teaching Award. College of Agriculture, Arizona	1995

Selected Synergistic Activities

Chair	Academic Unit Leaders Forum, American Phytopathological Society	2016-2017
Chair	Academic Program Review, Entomology & Plant Pathology, Auburn University	2016
Director	Root/Rhizosphere Interface Grand Challenge Project, Texas A&M	2015-
Chair	NCAC-14 Plant Pathology Department Heads Group	2016
Member	Texas Plant Protection Association Board	2013-present
Mediator	Texas A&M University Mediation Training	2013
Chair	Department Head Committee, American Phytopathological Society	2012
Member	Academic Program Review, UC Riverside Plant Pathology.	2011
Member	Microbial Community in Soils Panel, USDA-NIFA	2011
Invited	American SM BioQuest Institute	2007
Member	Academic Program Review, Plant Pathology at Iowa State University.	2005
Instructor	Microbial Genetics lecture/laboratory course/bionformatics exer.	1994-2009
Member	Colloquium on Microbial Communities: From Life Apart to Life Together. American Academy of Microbiology	2002
Organizer	Colloquium on Genomics of Plant-Associated Bacteria, ASM	2000
Member	CALS Curriculum Committee	2007-2009
Chair	CALS Curriculum Committee	2003-2004

Chair	Microbiology Curriculum Committee	2003-2005
Chair	CALS Promotion & Tenure Committee	2004-2005
Assoc. Ed.	Molecular Plant-Microbe Interactions	1998-2002
Assoc. Ed.	Applied & Environmental Microbiology	1997-2003
Member	Interdisciplinary Genetics Graduate Program	1995-2009
Member	W-147, 1147, 2147 Biological Control Working Group	1993-2010

Thesis Advisor & Postdoctoral Sponsor
Served as advisor or co-advisor for six post-doctoral, five PhD and five M.S. students. Service on >65 Graduate Student Committees and supervised >40 Undergraduate Research Projects

Invited Talks
>Fifty invited presentations since 1990 related to rhizosphere bacterial ecology, genomics, phenazine production by *Pseudomonas* and plant pathology along with numerous talks on the Root Microbiome.

Areas of Interest
Gene regulation; microbial interactions; plant-microbe signaling; biofilms, biological control.

Louis K. Prom (Adjunct)

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ARS-USDA, CGRU, Plains Area
College Station, TX, 77845
Phone 979 260 9393 FAX 979 260 9333
E-mail: louis.prom@ars.usda.gov

Professional Preparation

Institution	Major/Area	Degree/year
Walsh University	Biology	B. A. 1982
Alabama A & M University	Soil and Plant Science	M. Sc. 1984
North Dakota State University	Plant Pathology	Ph. D. 1995
North Dakota State University and University of Arkansas		Post-doc. 1995-99

Appointments

2014-Present GS14, USDA-ARS Research Plant Pathologist
2006-2014 GS 13, USDA-ARS Research Plant Pathologist
2003-2006 GS 12, USDA-ARS Research Plant Pathologist
1999-2003 GS 11, USDA-ARS Research Plant Pathologist

Synergisic Activites

Adjunct Faculty, Texas A&M University, Department of Plant Pathology & Microbiology
Editor: Research Journal of Plant Pathology, Journal of Plant Diseases and Biomarkers

External reviewer for Plant Disease Journal, Phytopathology, Canadian Journal of Plant Pathology, Mycological Research Journal, Journal of Plant Diseases and Protection, Tropical and Subtropical Agroecosystems Journal, Tropical Plant Pathology, and Hort-Technology, Journal of Plant Diseases and Biomarkers and the South African National Research Foundation

Hosted visiting scientists from China, Cameroon, and Senegal for short term laboratory training on plant disease screening techniques

Interest

My focus is to develop control strategies through the identification of resistance sources, identification of molecular markers, and the development of diagnostic probes for fast screening of susceptible/resistant cultivars to minimize the impact of sorghum diseases such as anthracnose, grain mold, head smut, and downy mildew. These fungal pathogens are emerging problems that affect sorghum production efficiency, grain quality, and the overall economic and nutritional value of the grain.

Selected Peer-reviewed Publications (Last 5 years)

Prom, L. K., Perumal, R., Cisse, N., and Little, C. R. 2014. Evaluation of selected sorghum lines and hybrids for resistance against grain mold and long smut fungi in Senegal, West Africa. Plant Health Progress 15:28-31.

Cuevas, H., **Prom, L. K**., and Erpelding, J. 2015. Inheritance and molecular mapping of anthracnose resistance genes present in sorghum line SC112-14. Molecular Breeding. 34:1943-1953.

Prom, L. K., Perumal, R., Montes-Garcia, N., Isakeit, T., Odvody, G., Roney, W., Little, C. R. and Magill, C. 2015. Evaluation of Gambia and Mali sorghum germplasm against downy mildew pathogen, *Peronosclerospora sorghi* in Mexico and the USA. J. Gen. Plant Pathol. 81:24-31.

Prom, L. K., Perumal, R., Zheyu, J., Radwan, G., Isakeit, T. and Magill, C. 2015. Mycoflora analysis of hybrid sorghum grain collected from different locations in South Texas. American J. Experimental Agric. 6(1): 1-6.

Prom, L. K., Perumal, Isakeit, T. , Radwan, G., Rooney, W. L. and Magill, C. 2015. The impact of weather conditions on response of sorghum genotypes to anthracnose (Colletotrichum sublineola) infection. American J. Experimental Agric. 4:242-250.

Prom, L. K., Isakeit, T., Cuevas, H., Rooney, W. L., Perumal, R., Magill, C. 2015. Reaction of sorghum lines to zonate leaf spot and rough leaf spot. Plant Health Progress

Cuevas, H.E., **Prom, L.K.,** Isakeit, T., Radwan, G. 2016. Assessment of sorghum germplasm from Burkina Faso and South Africa to identify new sources of resistance to grain mold and anthracnose. Crop Prot. 79:43-50.

Prom, L. K., Perumal, R., Cuevas, H., Radwan, G., Katile, S., Isakeit, T. and Magill, C. 2016. Assessing the vulnerability of sorghum converted lines to anthracnose and downy mildew. J. of Agric. and Crops 2:101-106

Prom, L. K., Radwan, G., Perumal, R., Cuevas, H., Katile, S., Isakeit, T. and Magill, C. 2017. Grain biodeterioration of sorghum converted lines inoculated with a mixture of Fusarium thapsinum and Curvularia lunata. Plant Pathology J. 16:19-24.

Prom, L. K., Cissé, N., Perumal, R., Cuevas, H. 2017. Screening of sorghum lines against long smut and grain mold pathogens. Int. J. Plant Pathol. 8:23-27.

Grants

Potential sources of ergot resistance, National Sorghum Checkoff Program, $27K, 2010-2012 (Co-PI)

The impact of lignin modification on fungal pathogen and insect interactions in sorghum for cellulosic and thermal bioenergy, NIFA/AFRI, $973K, 2012-2017 (Co-PI)

Genomic dissection of anthracnose resistance response in sorghum [*Sorghum bicolor* (L.)], U.S. Department of Energy, $950,000 (Louis confirm), 2015-2017 (Co-PI)

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, TAES, Amarillo, Texas; adjunct Professor, West Texas A&M University, Canyon, TX and Texas Tech, Lubbock, TX.
06/86 - 8/91	Associate Professor, Plant Pathology, TAES, Amarillo, Texas.
03/84 - 6/86	Plant Pathologist, USDA-ARS, IAREC., Prosser, Washington.
09/81 - 1/84	Research Scientist, TAES, Blackland Research Center, Temple, Texas.

PROGRAM DESCRIPTION

The TAES plant pathology program in Amarillo/Bushland, led 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, Ecology and Epidemiology of Zebra Chip of Potato, and Epidemiology and Genomic Variability of Benyviruses. Although Dr. Rush has no official extension responsibilities, his lab has provided plant disease diagnostic services since the lab's inception. This currently includes conducting diagnostics for small grain virus diseases for the Great Plains Diagnostic Network and Lso in psyllids from the ZC SCRI psyllid survey.

GRADUATE and POST GRADUATE TEACHING/EDUCATION – 2001- Present

- Six Post Doctoral students, currently directing one
- Nine graduate students
- Major advisor for numerous undergraduate interns in West Texas A&M Universities' Coop Internship Training Program

PATENTS:

- U.S. Patent No. 5,614,186. Infected soil borne fungus for inoculating plants. Issued March 25, 1997
- U.S. Patent No. 6,175,059. Development of a novel gene delivery system. Issued January 16, 2001

SELECTED PROFESSIONAL MEMBERSHIPS:

- American Phytopathological Society
- Southern and Pacific Divisions American Phytopathological Society
- American Society Sugar Beet Technologist
- International Working Group on Plant Viruses with Fungal Vectors

SELECTED PROFESSIONAL LEADERSHIP ACTIVITIES:

- ARS – CRIS project reviewer. 2004 – 2006
- Frequent ad hoc reviewer for Plant Disease and Phytopathology
- Adjunct faculty – WTAMU and Texas Tech University
- APS, Soil Microbiology and Root Disease Committee, Chairman, 1991
- Associate Editor. Plant Disease 1988 – 1990
- Associate Editor. Phytopathology 1991 – 1993
- Senior Editor. Plant Disease 1998 – 2000
- TxGrain Program Coordinator for Ergot Research. 2001- 2003
- 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
- International Working Group on Plant Viruses with Fungal Vectors - Editor 1993 – 2005.
- TAMUS Tenure and Promotion Committee. 2007 – 2009; 20015-2017.
- USDA-ARS Sugar Crops Review Panel. Chairman. 2007.
- Zebra Chip Specialty Crops Research Initiative – National Program Director. 2009 – 2015.
- Senior Editor, Phytopathology. 2012 – 2014.

AWARDS and HONORS

- 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 and North Dakota. January, 2005.
- TAES Faculty Fellow. January, 2007.
- TAES Regent's Fellow. December, 2007.
- Fellow, American Phytopathological Society. July, 2008.
- Texas A&M AgriLife Research Senior Faculty Fellow, January, 2013.
- Dow AgroSciences IPM Team Award, Entomological Society of America. Knoxville, TX. November, 2012.
- Zebra Chip Leadership Team Award, Texas A&M University System Vice Chancellor's Award in Excellence, January 2013.
- NIFA Partnership Award for Mission Integration of Research, Education, and Extension. USDA. Washington, DC October 23, 2014.
- Nominated for the 2017 VC Award in Excellence for Research and also for the VC Award in Excellence for Team Research (Awardee not yet announced).

GRANTS - Procured Over $12 M in Competitive Grants Since 2009.

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

PUBLICATIONS (2012 – 2017) see section 4

Karen-Beth Goldberg Scholthof

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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.
1985-1989: Ph.D. (Plant Pathology), University of Kentucky. Dr. Robert J. Shepherd, advisor.

PROFESSIONAL EXPERIENCE
1982-1983: Research Technician II, Montana Potato Improvement Assoc., Bozeman.
1990-1992: Postdoctoral Fellow, Plant Pathology, University of California, Berkeley.
1992-1994: NIH Postdoctoral Fellowship, Plant Biology, 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.
2009-present: Director, BESC Undergraduate Honors Program, Texas A&M University

FACULTY DEVELOPMENT LEAVE
June-December 2002, Summer 2003: Visiting Scholar, History of Science Dept., Harvard University.
January-August 2009: Visiting Scholar, Science & Technology Studies, Cornell University.
January-August 2016: Visiting Fellow, School of Global Environmental Sciences and Sustainability, Colorado State University, Fort Collins.

AWARDS and HONORS
2004. American Phytopathological Society "Excellence in Teaching" Award.
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.
2011. Undergraduate Honors Program Teacher-Scholar Award. Texas A&M.
2015. Fellow, American Phytopathological Society.
2017. Fellow, American Association for the Advancement of Science

EDITORIAL ACTIVITIES
American Phytopathological Society (APS)
APS Press, Senior Editor, November 1999-August 2003.
Associate Editor, *Phytopathology.* January 2003-December 2005.
Associate Editor, *Molecular Plant-Microbe Interactions*. January 2004-December 2006.
Senior Editor, Phytopathology. January 2015-December 2017.
Annual Review of Phytopathology
Committee Member. January 2017-December 2021.

PROFESSIONAL ACTIVITIES (last 5 years)
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

Member, Center for the History of Microbiology in America/ASM Archives (CHOMA) Committee, July 2010-June 2019
Chair, CHOMA, Acquisitions Sub-committee, December 2012-August 2016
Chair and Organizer: History of Microbiology Symposium, 2012 General Meeting, San Francisco.
Chair and Organizer: CHOMA Travel Grant Award (2012-2016).
Chair and Organizer: ASM History of Microbiology Poster Session (2013-2015)

History of Science Society (HSS)

Member, Strategic Planning Committee. November 2013-October 2014.
Member, Meetings and Networks Strategic Planning Goals Team. June-November 2014
Member, Committee on Meetings and Programs (CoMP), 2013- 2016.
Co-Chair, Poster Session, Annual Meeting, 2015-2017.
Chair, Committee on Meetings and Programs. 2017-present

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Agricultural History Society
American Association for the Advancement of Science
American Phytopathological Society
American Society for Microbiology
International Society for History, Philosophy, and Social Studies of Biology (ISHPSSB)

TEACHING

BESC 314 (and Honors section). Pathogens, the Environment and Society. (3 hr.)
BESC 484 (and Honors sectiin). Research Experience. (3 hr.) Writing Intensive
BESC 481-970 (and Honors section). Seminar. (1 hr.) A capstone/seminar course designed to allow a student to become familiar with a focused issue within the bioenvironmental sciences.

2014, Zombies in Nature
2015, Food in Our Environment
2017, Genetically Modified Organisms (GMOs) in Agriculture: Environmental Promise or Peril?

INVITED TALKS and LECTURES (9 since 2012)

RESEARCH

The focus of my research is <u>two-fold</u>: the biology of host:virus interactions and the history of science. My laboratory research program is on a virus complex of *Panicum mosaic virus* (PMV) and satellite panicum mosaic virus (SPMV) using *Brachypodium distachyon* as a model grass species. My history of science research focus is on plant virus workers in the US (early to mid-20th century); my particular interest is the historiography of *Tobacco mosaic virus*.

Herman Bertus Scholthof

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

2005-	Professor, Plant Pathology and Microbiology, Texas A&M University
2017	Visiting Professor, Colorado State University (May-August)
2016	Visiting Professor, Colorado State University (January-August)
2009	Visiting Scientist, Boyce Thompson Institute for Plant Research, Cornell University (February-August)
2005-	Professor, Plant Pathology and Microbiology, Texas A&M University 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 and Microbial Biology, UC Berkeley

Awards and Honors

2009	Fellow, American Phytopathological Society
2009	TAMU Assoc. of Former Students Distinguished Achievement Award for Research
2007	Ruth Allen Award, American Phytopathological Society
2006	Outstanding Professor, Plant Pathology and Microbiol., Texas A&M University

Teaching

Texas A&M Graduate Teaching Academy Mentor (2012-2013)
PLPA 616 Methods in Molecular Biology of Plant-Microbe Interactions (Fall semesters)
Graduate level course, required for all PLPA students, taught since 1997, 2 credit hours
PLPA 605 Plant Virology Module (Spring Semesters)
Graduate level course, taught since 1995 for 3 credit hours, now as module 1 credit hour.
PLPA 665 Virus Gene Vectors and Gene Therapy (every two years, or as needed)
Graduate level course, team-taught with scientists in the TAMU Veterinary and Medical Science Schools since 2002, 3 credit hours
BESC 484W Undergraduate writing intensive course (team taught)

BESC 481-932C Capstone undergraduate communications course (Spring semesters, as needed)

Selected Professional Service Activities

Editorial Responsibilities

2008- Editorial Board Journal of Virology
2004- Editorial Board Virology
2004-2007 Senior Editor Molec. Plant-Microbe Interact.
2003-2004 Senior Editor Phytopathology
2001-2004 Associate Editor Molec. Plant-Microbe Interact.
1998-2001 Associate Editor Phytopathology

Selected Federal Grant Proposal Panels

USDA-NRI-Competitive Grants Program Plant Pathology (2x)
NSF Mol. Cell. Bioscience (1x), NIH Topics in Virology (2x), NIH Special Emphasis panel (1x)

Selected Current Committees

Department: Chair Facilities and Equipment Committee (2016-)
Chair/Co-Chair Graduate Student Recruitment Committee (2012-2015)
Graduate Student Advisor/Chair Graduate Programs (2009-2012)
University: Reviewer for Texas A&M Graduate Student Merit Fellowships (2014-2015)
Interdisciplinary Faculty of Genetics Program (2010-)
AgriLife Research Faculty Fellows Review Panel Member (2010-2011)
Intercollegiate Faculty of Virology (2002-)
International: International Committee on Virus Taxonomy (ICTV) Tombusvirus working group
Quality of Research Evaluator for the Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR) for the assessment of research performed in the time frame 2004-2010 by researchers of Italian universities and research institutes.

Selected Most Recent Invited Presentations
Keynote/State-of-the-Art Lecture
2012: Invited Keynote Speaker at the 29th Mid-Atlantic Plant Molecular Biology Society Symposium, August 16-17, Laurel MD.
2004: State-of-the-Art: American Society for Virology, Montreal, Canada.
Symposia/Colloquia/Workshops
2017: 4th Annual ENG-LIFE Symposium, Texas A&M University.
2015: Symposium speaker, Annual meeting APS, Pasadena, CA.
2012: Ten-day long lecture series on Molecular Plant Virology at the Department of Biological Sciences, at the L.N. Gumilev Eurasian National University, Astanana, Kazakhstan.
2012: Invited speaker at the annual CPBR symposium in Washington DC

Libo Shan

Professor

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

Professional Positions and Appointments:
2017-present Interim Director, Institute for Plant Genomics and Biotechnology
Texas A&M Agrilife Research, College Station, TX
2009-present Assistant Professor (2009-2013), Associate Professor (2013-2016), Professor (2016-)
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

Other Positions:
2017- Guest Editor, The Plant Cell
2014-present Senior Editor, Molecular Plant Pathology
2016 Editor, Plant Pattern Recognition Receptor, Methods and Protocols, Methods in Molecular Biology
2016 Guest Editor, PLoS Pathogens
2013-present Editorial Board, The Arabidopsis Book
2012-2014 Editorial Board, Molecular Plant Pathology
2010-present Associate Editor, Frontier in Plant-Microbe Interactions

Honors and Awards:
- Charles Albert Shull Award, American Society of Plant Biologists (ASPB), 2014
- Dean's Outstanding Achievement Award for Excellence in Early Career Research, College of Agriculture and Life Sciences, Texas A&M University, 2013
- American Society of Plant Biologists Women's Young Investigator Travel Award, 2010
- Don C. Warren Genetic Scholarship, Kansas State University, 2002-2003

Honors
2014 Charles Albert Shull Award, American Society of Plant Science
2013 Dean's Outstanding Achievement Award for Excellence in Early Career Research, The College of Agriculture and Life Sciences, Texas A&M University

Conference/Departmental Presentations (44 since 2013)
- Southern Section of the American Society of Plant Biologists Meeting, New Orleans, March 2018 **(Plenary speaker).**
- Department of Plant Pathology, University of California, Davis, February 2018.
- Genetics Institute, University of Florida, November 2017.

- The 5th International Conference on Biotic Plant Interactions, Xiamen, China, August 2017 **(Plenary speaker).**
- American Phytopathological Society Annual Meeting, San Antonio, TX, August 2017 (Session organizer).

Mentoring Graduate Students as major and co-major professor

Current graduate students enrolled at Texas A&M

- Ms. Bárbara Rodrigues, Ph.D degree candidate, Plant Pathology and Microbiology, Major Professor, joining laboratory January 2018 with the fellowship from CAPES- a foundation within the Ministry of Education in Brazil.
- Mrs. Chao Zhang, Ph.D degree candidate, Plant Pathology and Microbiology, Major Professor, joining laboratory January 2018 with the fellowship from Chinese Scholar Council.
- Mr. Pierce Jamieson, Ph.D degree candidate, Plant Pathology and Microbiology, Major Professor, joined laboratory January 2017.
- Ms. Ana Márcia Escocard, Ph.D degree candidate, Plant Pathology and Microbiology, Major Professor, joined laboratory January 2015 with the fellowship from the Brazilian government-National Counsel of Technological and Scientific Development.
- Mr. Kevin Babilonia Figueroa, Ph.D degree candidate, Molecular Environmental Plant Science (MEPS) program, Co-major Professor, August 2014.
- Mr. Kevin Cox, Ph.D degree candidate, Plant Pathology and Microbiology, Major Professor, joined laboratory August 2013 with Graduate Diversity and Merit Fellowship, and USDA-NIFA Fellowship.
- Mr. Chenglong Liu, Ph.D degree candidate, Plant Pathology and Microbiology, Major Professor, joined laboratory August 2012 with the fellowship from Chinese Scholar Council.

Current joint graduate students from other institutions

- Wenyong Shao, Joint-Ph.D degree with Nanjing Agricultural University, China. Co-major Professor. Joined my laboratory Septemebr 2016 with the fellowship from Chinese Scholar Council.
- Chuanchun Yin, Joint-Ph.D degree with Sichuan Agricultural University, China. Co-major Professor. Joined my laboratory Septemebr 2016 with the fellowship from Chinese Scholar Council.
- Ping Wang, Joint-Ph.D degree with China Agricultural University, China. Co-major Professor. Joined my laboratory October 2015 with the fellowship from Chinese Scholar Council.
- Yong Yang, Joint-Ph.D degree with China Agricultural University, China. Co-major Professor. Joined my laboratory September 2015 with the fellowship from Chinese Scholar Council.

Former graduate students from Texas A&M (8)

Former joint graduate students from other institutions (7)

Supervision of postdoctoral fellows and visiting scholars

Current postdoctoral fellows and visiting scholars

- Dr. Luciano Vespoli, Postdoctoral fellow, October 2017-present
- Dr. Xiao Yu, Postdoctoral fellow, August 2013-present

Former postdoctoral fellows and visitor scholars (8 since 2011)

Brian Douglass Shaw

Professor

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:

2017-present	Professor, Texas A&M Univ. Dept. of Plant Pathology and Microbiology
2009-2017	Associate Professor, Texas A&M Univ. Dept. of Plant Pathology and Microbiology
2003-2009	Assistant Professor, Texas A&M Univ. Dept. of Plant Pathology and Microbiology
2000-2003	Post Doctoral, Univ. of Georgia. Advisor: Dr. Michelle Momany
2000	Visiting Scientist, Univ. of Edinburgh, Scotland. Advisor: Dr. Nick Read
1995-2000	Graduate Assistant, Cornell University. Advisor: Dr. Harvey Hoch

Honors:

2017	AFS Distinguished Achievement Award, Teaching College Level.
2014	Fellow. Mycological Society of America
2009	Alexopolous Prize. Mycological Society of America
2009-2011	SLATE Award (3 Times) (Student Led Award for Teaching Excellence), Texas A&M University
1999	Graduate Fellowship, Mycological Society of America.
1999	Graduate Student of the Year, Department of Plant Pathology, Cornell University.

Selected Synergistic Activities:

Managing Editor, *Mycologia* 2016-present.
Member Texas A&M Institutional Biosafety Committee, 2015-present.
Member Texas A&M Faculty Senate. 2010-2013.
Councilor of Cell Biology and Physiology for MSA 2004-2006 and again form 2012-2014
Local Coordinator: Mycological Society of America Meeting Austin Texas, 2013.
Department Graduate Recruiting Committee 2012-2016 (chair 2015-2016)
Departmental Assessment Committee (chair 2009-2012).
Faculty Coordinator BESC Undergraduate Research Scholars program. 2011-present.
Faculty Coordinator BESC Undergraduate Poster Symposium. 2011-present.
Chair or Co-Chair of 9 Symposia at the International Mycology Congress, the Mycological Society of America; or the Fungal Genetics Conference since 2003.

Areas of Interest:

Developmental Biology of Fungi, Cell Biology of Fungi

Thesis Advisor:

Served as advisor for 5 PhD students; 2 MS students and 32 Undergraduate students. Advisory Committee for 19 PHD and MS students.

Invited Talks:
32 Invited talks since 1999 on developmental biology of fungi including international talks in China, Mexico, Scotland and Taiwan.

Current formal classroom teaching includes:
BESC 204 Molds and Mushrooms: The Impact of Fungi on Society and the Environment
PLPA 606 Fungal Biology

Awards and Honors (last 5 years):
2017 AFS Distinguished Achievement Award, Teaching College Level.
2014 Fellow. Mycological Society of America
2011 SLATE Award (Student Led Award for Teaching Excellence), Texas A&M University

Won Bo Shim

Professor and Associate Department Head
Department of Plant Pathology and Microbiology
Undergraduate Program in Bioenvironmental Sciences
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A. Professional Preparation

Seoul National University, Korea	Agricultural Biology	B.S., 1992
Seoul National University, Korea	Plant Pathology	M.S., 1995
Purdue University, Indiana, USA	Plant Pathology	Ph.D., 2000
USDA-ARS, Indiana, USA	Plant Pathology	Postdoc, 2001 – 2003

B. Appointments

2017 - Present Professor and Associate Department Head, Plant Pathology and Microbiology, Texas A&M University
2015 - Present Professor, Plant Pathology and Microbiology, Texas A&M University
2011 - Present Adjunct Professor, Plant Protection, Fujian A&F University, Fuzhou, PR China
2012 - 2015 Adjunct Associate Professor, Plant Pathology, The University of Arkansas
2009 - 2015 Associate Professor, Plant Pathology and Microbiology, Texas A&M University
2003 - 2009 Assistant Professor, Plant Pathology and Microbiology, Texas A&M University
2001 - 2003 Postdoctoral Research Plant Pathologist, USDA-ARS, West Lafayette, IN

C. TEACHING ACTIVITIES AT TEXAS A&M UNIVERSITY

- BESC 403 Sampling and Environmental Monitoring (Undergraduate Course in Bioenvironmental Sciences Program, 2004 ~ Present)
- BESC-China Study Abroad Program (2013 ~ Present)
- PLPA 613 Advanced Plant Pathology Laboratory (2015 ~ Present)
- **PLPA 623 Diseases of Field Crops (Graduate Course in Plant Pathology, 2003 ~ 2006)**
- **PLPA 616 Methods in Molecular Biology of Plant-Microbe Interactions (Graduate Course in Plant Pathology Program, 2007 ~ 2009)**
- Currently advising one PLPM Ph.D. student (Ms. Huijuan Yan) and one postdoctoral scholar (Man S. Kim)
- Served as a chair/co-chair of 7 PhD, 3 postdocs, and 2 MS students, and as an advisory committee member of 7 PhD and 1 MS students
- Mentored 8 visiting scholars and students from Tunisia, Ethiopia, Kenya, and China
- Mentored 21 undergraduate students as a paid student worker, research fellow, or an intern

D. PROFESSIONAL SYNERGISTIC ACTIVITIES

- *Associate Department Head for Academic Affairs*, Plant Pathology and Microbiology, Texas A&M University – responsible for overseeing recruiting and retention efforts for undergraduate and graduate programs, assessment of program and curriculum development, and departmental teaching assistant program
- *Chair*, Promotion and Tenure Committee (2017 – present), Graduate Recruiting Committee (2009 – 2012), Plant Pathology and Microbiology, Texas A&M University
- Member (2015 – present): Curriculum and Assessment Committee, Department of Plant Pathology and Microbiology, Texas A&M University, College Station, Texas
- Vice-Chair and Chair, Mycotoxicology Subject Matter Committee (2016-2017), American Phytopathological Society
- Vice-Chair and Chair, Molecular and Cellular Phytopathology Subject Matter Committee (2014-2015), American Phytopathological Society
- Member (2012 – present): Radiological Safety Committee, Environmental Health and Safety Department, Texas A&M University
- *Member*, the American Phytopathological Society (1998 ~ Present)
- *Associate Editor*, Phytobiomes (2015~Present), American Phytopathological Society
- *Associate Editor*, Phytopathology (2012~2015), American Phytopathological Society
- Chair, 2015 USDA Agricultural Research Service (ARS) Review Panel (Food Safety: Mycotoxin – Fusarium, Office of National Programs)
- Panelist, 2013 USDA Agricultural Research Service (ARS) Review Panel (Food Safety: Mycotoxin, Office of National Programs)
- *Panelist*, USDA-CSREES National Research Initiative Grants Programs and USDA-NIFA Agriculture and Food Research Initiative Grants Programs
- *Reviewer for* NSF, USDA-NRI, USDA-ARS, BARD, Austrian Science Foundation, South Africa NRF, FFAR grant proposals
- *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)

Publications (see section 4)

Junqi Song

Assistant Professor
Texas A&M AgriLife Research Center
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Phone: (972) 952-9244

EDUCATIONS

1993-1997	Ph.D. in Plant Mol. Bol.	Institute of Microbiology, Chinese Academy of Sciences, China
1990-1993	M.S. in Plant Pathology	Hebei Agricultural University, China
1986-1990	B.S. in Plant Pathology	Hebei Agricultural University, China

ACADEMIC APPOINTMENTS

2016-present	Assistant Professor, Texas A&M AgriLife Research Center at Dallas, TX
2010-2016	Assistant scientist, Department of Plant Pathology, University of Wisconsin-Madison.
2004-2010	Postdoctoral researcher, Department of Biology, Duke University
2003-2004	Postdoctoral researcher, Department of Molecular, Cellular and Developmental Biology, Yale University
1997-2003	Research Associate, Department of Horticulture, University of Wisconsin-Madison
1994-1995	Research Assistant, National Center for Gene Research, Chinese Academy of Sciences, China
93-94/95-97	Research Assistant, Institute of Microbiology, Chinese Academy of Sciences, China
1990-1993	Research Assistant, Department of Plant Pathology, Hebei Agricultural

PROFESSIONAL PRESENTATIONS

Invited Presentations

- University of Texas-Dallas, Dallas, Texas (2017)
- The 5th International Conference on Biotic Plant Interaction, Xiamen, China (2017)
- Nanjing Agricultural University, Nanjing, China (2017)
- Jiangsu Academy of Agricultural Sciences, Nanjing, China (2017)
- American Society for Microbiology Texas Branch Meeting, Dallas, Texas (2016)
- Texas A&M AgriLife Research and Extension Center at Weslaco, Weslaco, Texas (2016)
- Northwest A&F University, Yangling, China (2016)
- Huazhong Agricultural University, Wuhan, China (2015)
- Nanjing Agricultural University, Nanjing, China (2015)
- Plant Genome Stability and Change Conference, Pacific Grove. (2014)
- The 19th International Conference on ADP-ribosylation, Quebec, Canada (2013)
- The 22nd Annual Plant Molecular Biology Retreat, Asheville, North Carolina (2008)
- Beijing University, Beijing, China (2003)

- The 11th International Conference on the Status of Plant & Animal Genome Research, San Diego, California (2003)
- Institute of Microbiology, Chinese Academy of Sciences, Beijing, China (2003)
- Biotechnology Research Institute, Chinese Academy of Agricultural Sciences, Beijing, China (2003)
- The 82nd Annual Meeting of the Potato Association of America, Fargo, North Dakota (1998)

JOURNAL REVIEWER

Plant Cell, Plant Physiology, Molecular Plant-Microbe Interactions, Frontiers in Plant Science, Theoretical and Applied Genetics, Physiological and Molecular Plant Pathology, Plant Breeding

GRANTS

- Texas A&M Crop Improvement Program, Development of important traits in cotton through genome editing**,** Co-PI, $70,000, 2017
- Texas A&M Vegetables Seed Program, Engineering disease resistance and stress tolerance without fitness cost in tomato using a knock-in approach, PI, $47,500, 2017

PATENT

U. S. patent application No. 20050204419, 9/15/2005, "Potato genes for resistance to late blight."

Kati I. Stoddard

Texas A&M University
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kstoddard@tamu.edu

EDUCATION

Ph.D. in Environmental Science, August 2012
University of North Texas, Department of Biological Sciences
Masters of Science in Water Management and Hydrologic Science, August 2007
Texas A&M University, Water Management and Hydrologic Science Program
Bachelor of Science in Bioenvironmental Science, May 2005
Texas A&M University, Department of Plant Pathology and Microbiology

PROFESSIONAL APPOINTMENTS/EMPLOYMENT

2015-Current **Instructional Assistant Professor,** Texas A&M University, College Station, TX
2014-2015 **Biology Department Head,** Texas A&M University-Texarkana, Texarkana, TX
2013-2015 **Assistant Professor of Environmental Sci.,** Texas A&M University-Texarkana, Texarkana, TX
2013 **Adjunct Instructor,** University of North Texas, Denton, TX

COURSES TAUGHT/DEVELOPED

At Texas A&M University

- Spring 2017 Introduction to Bioenvironmental Science, Seminar
- Fall 2017 Introduction to Bioenvironmental Science, Environmental Sampling and Monitoring
- Summer 2017 Introduction to Bioenvironmental Science (5 week course)
- Spring 2017 Introduction to Bioenvironmental Science, Field Experience, Seminar
- Fall 2016 Introduction to Bioenvironmental Science, Field Experience
- Summer 2016 Introduction to Bioenvironmental Science (5 week course)
- Spring 2016 Introduction to Bioenvironmental Science, Field Experience, Seminar
- Fall 2015 Introduction to Bioenvironmental Science, Field Experience, Guest Lecturer in
- Environmental Sampling and Monitoring
- Summer 2015 Field Experience

At Texas A&M University-Texarkana

- Spring 2014 Biology I for Science Majors, Biology II for Science Majors, Environmental Biology
- Fall 2014 Biology I for Science Majors, Introduction to Geographic Information Systems, Environmental Biology, University Foundations (Freshmen Academic Success Course)
- Summer 2014 Co-developer of technology enhanced Introduction to Bioenvironmental Science
- Spring 2013 Biology II for Science Majors, General Ecology
- Fall 2013 Biology I for Science Majors, Biology I Lab for Science Majors, Environmental Biology, Independent Research

NON-ACADEMIC WORKING EXPERIENCE

2012-2013 Research and Technical Writing Consultant, Tate and Lyle
2007-2009 Project Scientist, KBA EnviroScience, Ltd., Lewisville TX
2006 Summer Intern, HDR Engineering Inc., Dallas, TX

PROFESSIONAL AFFILIATIONS

2009-Current Society of Environmental Toxicology and Chemistry (SETAC)
2015-Current National Science Teachers Association (NSTA)
2009-2013 National American Hazardous Materials Management Association (NAHMMA)
2002-2005 National Association of Environmental Professionals (NAEP)

CONFERENCE PARTICIPATION

2017 TAMU Center for Teaching Excellence Wakonse South 19th Annual Conference on College Teaching, April 1-3 **Presenter:** "One assignment to rule them all: Using infographics to accomplish multiple learning objectives"
2016 TAMU Center for Teaching Excellence Wakonse South 19th Annual Conference on College Teaching, April 1-3
2015 National Science Teachers Association Conference (NSTA), Chicago, IL, March 12-14
2015 Project Kaleidoscope STEM Summer Leadership Institute
2014 Teaching with Technology Conference, Texas A&M University, College Station, TX
2013 Transforming STEM Higher Education, Association of American Colleges and Universities (AACU), San Diego, CA
2013 Society of Environmental Toxicology and Chemistry (SETAC) North America 34th Annual Meeting, Nashville, TN
2011 SETAC North America 32nd Annual Meeting, Boston, MA, November 13-17.
2011 SETAC South Central Annual Regional Chapter Meeting, Denton, TX, May 20-21.
2010 SETAC North America 31st Annual Meeting, Portland, OR, November 7-11.
2009 SETAC North America 30th Annual Meeting, New Orleans, LA, November 19-23.
2009 North American Hazardous Materials Management Association (NAHMMA) Annual National Conference, Houston, TX, November 9-14.
2007 Universities Council on Water Resource (UCOWR)/National Institute for Water Resources (NIWR) Annual Conference: Hazards in Water Resources, Boise, ID, July 24-26.

Jeanmarie Verchot

Center Director
Texas A&M Agrilife Research & Extension Center-Dallas
17360 Coit Road
Dallas, Texas 75252
Jm.verchot@ag.tamu.edu, phone: 972-231-5362

Professional Preparation

B.S. Genetics (Molecular)	Cook College at Rutgers University	1987
Ph.D. Microbiology	Texas A&M University,	1991-1995

Appointments

2017-present Center Director, Texas A&M Agrilife Dallas Center
2009-2017 Professor, Oklahoma State University, Department of Entomology and Plant Pathology
2012-pres Chief Scientific Officer for VF Canna LLC
2004-2009 Associate Professor, Oklahoma State University, Department of Entomology and Plant Pathology
1998-2004.1 Assistant Professor, Oklahoma State University, Department of Entomology and Plant Pathology

1996-1998 Post-doctoral Research Scientist. Sainsbury Laboratory, Norwich Research Park, Colney, Advisor: David Baulcombe

Synergistic Activities

- Provide disease management consultation and SBIR support to Horn Canna Farms and Plant Haven International.
  Collaborate with Dennis Halterman at USDA on studies of PVY in potato
- Senior Editor Molecular Plant Pathology Journal
- Guest Editor for Plant Cell
- Previous Lead co-PI on NSF Forward to Advance program at Oklahoma State University

Honors and Awards

2017 Plant Virology Councilor to the ASV
2015 Regents Distinguished Researcher Award from OSU
2013 President, OSU Sigma XI chapter

Publications (see section 4)

Terry Wheeler

Professor
Texas A&M Research and Extension Center
1102 E. FM 1294, Lubbock, TX 79403

Educational background
Ph.D in Plant Pathology, North Carolina State University, Raleigh, NC, 1990
M.S. in Plant Pathology, Texas A&M University, College Station, TX, 1987
B. S. in Interdisciplinary studies, Worcester Polytechnic Institute, Worcester, MA, 1982

Professional Employment history:
2007 to current: Professor in Plant Pathology with Texas A&M 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.
1993 - 1994: Research Associate with Ohio State University, Columbus, OH.
1990 – 1993: Research Associate with Ohio Agricultural Research and Development Center, Wooster, OH.

Awards: Vice Chancellor's award in Excellence as a member of the Lubbock Cropping Systems Research Team in Team Collaboration. 2015.

Membership and reviewer in:
American Phytopathological Society (Plant Disease and Phytopathology); Society of Nematologists (Journal of Nematology, Nematropica, Nematology); also yearly participation in the Beltwide Cotton Conferences and reviewer for Journal of Cotton Science; reviewer as well for a number of other journals primarily in the areas of Verticillium wilt and nematodes.

Research Program:
Screening for resistance to cotton pathogens. This effort includes screening for resistance in cotton to *Verticillium dahliae*, *Xanthomonas citri* pv. *malvacearum* (Xcm), and *Meloidogyne incognita* in greenhouse/growth chamber for both the Texas A&M cotton breeder in Lubbock (Dr. Jane Dever), and for companies. Field screening efforts include rating disease nurseries for Dr. Dever that include internal germplasm and germplasm from companies; and replicated small plot variety tests that focus on commercial varieties and advanced commercial breeding lines. Bacterial blight screening is conducted at the Lubbock Research Station, by inoculating plots maintained by Jane Dever with the pathogen. These plots are rated for disease response, but are not typically used for yield. Commercial nurseries are also inoculated with this pathogen, when requested. Companies like Bayer CropScience, Monsanto, Phytogen, Americot, and All-Tex Cotton have all requested field inoculations so that they can screen their own germplasm. A collection of isolates of Xcm has been conducted since 2015, and they all appear to be race 18. There has been some breakdown of resistance in varieties recently to Xcm, but so far there is no

sign of a new race in the region. *Psuedomonas syringae* isolates, that can cause disease on cotton, may be involved with the breakdown of resistance to Xcm. This project is ongoing.

The Halfway Research station is naturally infested with *V. dahliae*, and this is also augmented by adding microsclerotia to the soil at planting. The AG-CARES facility in Lamesa, TX is naturally infested with *M. incognita*. The Lubbock Research Station has a natural population of *Rotylenchulus reniformis*, so a nursery is maintained and used occasionally to test for response by breeding lines. The testing program for commercial varieties and advanced breeding lines are conducted in producer's fields that are naturally infested with either *V. dahliae* or *M. incognita*.

Cropping Systems to Manage Plant Pathogens: A 120-acre circle at the Helm Farm, owned by Texas A&M AgriLife Research, was designed for large-plot systems trials, and irrigation research. The circle is infested with *V. dahliae*, and so is ideal for studying various management strategies. Crop rotations that have been examined include cotton/cotton/sorghum; cotton/sorghum; and cotton/wheat/fallow. The irrigation system is designed to maintain approximately 60% evapotranspiration at the base level (1.0B), and then 50% above (1.5B) and below (0.5B) this rate. There is also a conventional tillage (on beds) and minimum tillage (on flat ground) at the site. The results from these studies have led to improved producer recommendations. A long-term cotton/cotton/sorghum rotation was effective at reducing the rate of microsclerotia (fungal spore) buildup in the soil. However, once a buildup had occurred, the other rotations being examined have not had a major impact on the disease. Irrigation rate has tremendous impact on the disease, with only the 1.5B rate having significant disease most years. The impact of the tillage regimes are still unknown, since results have been highly variable depending on the year. This system has only been in place a few years, and will need a longer-time before consistent responses are established.

The AG-CARES farm (includes a 120-acre irrigated circle and drip-irrigated and dryland areas) is infested with the root-knot nematode. This farm is leased by the Lamesa Cotton Producers, so that Texas A&M can conduct relevant research on their typical soils and environment. This arrangement has continued for over 25 years. Over the years, there have been cropping systems that include peanut/cotton/cotton; sorghum/cotton/cotton; and currently wheat/fallow/cotton rotations that can be compared with continuous cotton. There are also three irrigation rates which are replicated three times within the irrigation system. The wheat/fallow/cotton rotation has been the most effective way of managing root-knot nematode, particularly since pumping capacity in that area is insufficient to irrigate a 120-acre field. Some of the circle must be in a dryland crop, or left fallow. However, there is also large plot work being conducted with different commercial varieties, and small plot work with experimental germplasm, and nematicides (seed treatments, infurrow-applications; and post-emergence applications).

Other areas of interest include management of seedling diseases of cotton (primarily with seed treatment fungicides); and management of pod rot in peanuts. Work will be expanding to the El Paso Valley in 2018, due to the recent discovery of Fusarium wilt, race 4 on cotton.

Publications: (see section 4)

Heather Hope Wilkinson

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
2014 – present **Associate Dean of Faculties,** Office of the Dean of Faculties and Associate Provost (70%)
2014 – 2017 **Associate Department Head**, Plant Pathology and Microbiology, Texas A&M University
2014 – present **Professor,** Plant Pathology and Microbiology, Texas A&M University 2013 – 2014 **Faculty Fellow**, TAMU Office of the Provost and Executive Vice President (30%) 2012 - 2013 **ADVANCE Administrative Fellow,** Assistant Provost for year, Texas A&M University (30%)
2005 -2014 **Associate Professor,** Plant Pathology and Microbiology, Texas A&M University.

Awards and Honors
2016 **Association of Former Students Distinguished Achievement Award –Teaching, College Level**
2015 – 2016 **College of Agriculture and Life Sciences Critical Thinking Fellow**, Texas A&M University
2013 – 2014 **Faculty Fellow**, Office of the Provost and Executive Vice President 2012 -2013 **ADVANCE Administrative Fellow,** Texas A&M University

Departmental Service
2016 **PLPM Epidemiologist Search Committee,** Member
2015 – 2016 **PLPM Promotion and Tenure Committee,** Chair
2014 – present **PLPM & BESC Curriculum and Assessment Committee,** Chair 2012 – present **BESC Professional Board,** Faculty liaison
2012 – 2014 **PLPM Undergraduate Committee**, Member

College Service
2017 **Dean and Vice Chancellor Search Committee**
2014-2017 **Grand Challenge Council,** Member – Faculty group tasked with advising Executive Associate Dean for College of Agriculture and Lifesciences
2012 **STEMing for Greatness** – Minority recruiting into STEM fields within COALS

University Service
2013 – present **Posse Foundation Faculty Mentor** -Posse Foundation
2013-2014 **Faculty Fellow,** Office of Provost and Executive Vice President, QEP Implementation and Benchmarking & Accreditation Reporting
2012-2013 **Assistant Provost, ADVANCE Administrative Fellow,** Office of Provost and Executive Vice President, QEP Implementation and Benchmarking & Accreditation Reporting
2011-present **Council of Principal Investigators (CPI)**, **Subcommittees:** Executive

Committee Member (AY 2012, AY2013); Price Waterhouse Cooper (PwC) Administrative Review (AY 2014); Graduate Education Committee (AY 2016)

Scientific Community Service

2013 – 2016 **Fungal Genetics and Biology**, Associate Editor

Journal reviews (*ad hoc;* numbers not tracked)

1999-present Ecology, Ecological Monographs, Evolution, Fungal Genetics and Biology, Industrial Crops and Products, Journal of Applied Ecology, Mycologia, Mycological Research, New Zealand Journal of Agricultural Research, Oikos, Physiological and Molecular Plant Pathology, Phytopathology, PLOS One, Toward Best Practices

Teaching

2000 – present **Course Instructor,** BESC 201, BESC 367, BESC 403, BESC 411, BESC 484, PLPM 691

1999 – present **Undergraduate Research Experiences** – 45 students to date

2013 – present Total funding to Wilkinson from instructional grants: $ 97,000

Research Funding

2000 – present Total Funding from research grants with Wilkinson as PI or a co-PI: **$**3,206,231 Total Funding to Wilkinson lab from these research grants (above): $1,159,500

Awards and Honors

2016 **Association of Former Students Distinguished Achievement Award – Teaching, College Level**

2015 – 2016 **College of Agriculture and Life Sciences Critical Thinking Fellow**, Texas A&M University

2013 – 2014 **Faculty Fellow**, Office of the Provost and Executive Vice President

2012 -2013 **ADVANCE Administrative Fellow,** Texas A&M University

2010 -2012 **AgriLife Advanced Leadership Fellow**, Texas A&M

Publications (see section 4)

Jason E. Woodward

Associate Department Head, Extension
Texas A&M AgriLife Research and Extension Center
1102 E. FM 1294, Lubbock, Texas 79403
e-mail: jewoodward@ag.tamu.edu; office: 806-746-4053; fax: 806-746-4057

EDUCATION

Ph.D. Plant Pathology, University of Georgia, August 2006
M.S. Plant Pathology, Oklahoma State University, December 2002
B.S. Biology, Southwestern Oklahoma State University, December 1999

PROFESSIONAL RECORD

Professor, Extension Plant Pathologist and Associate Department Head, Texas A&M AgriLife Extension Service. Sep. 2017 – present.
Professor of Plant Pathology, Texas Tech University Department of Plant & Soil Science. Sep. 2017 – present.
Associate Professor, Extension Plant Pathologist and Associate Department Head, Texas A&M AgriLife Extension Service. Sep. 2015 – Aug. 2017.
Associate Professor and Extension Plant Pathologist, Texas A&M AgriLife Extension Service. Sep. 2011 – Sep. 2015.
Associate Professor of Plant Pathology, Texas Tech University Department of Plant & Soil Science. Sep. 2011 – Aug. 2017.
Assistant Professor and Extension Plant Pathologist, Texas Cooperative Extension Service. Jul. 2006 – Aug. 2011.
Assistant Professor of Plant Pathology, Texas Tech University Department of Plant & Soil Science. Jul. 2006 – Aug. 2011.
Graduate Research Assistant, University of Georgia Department of Plant Pathology, Coastal Plain Experiment Station, Tifton, GA. Jan. 2003 – Jun. 2006.
Graduate Research Assistant, Oklahoma State University, Department of Entomology & Plant Pathology, Stillwater, OK. Aug. 2000 – Dec. 2002.

INVITED PRESENTATIONS (International 8, National 22, Statewide 265)

Qingyi Yu

Associate Professor
Plant Molecular Biologist
Texas A&M AgriLife Research Center
Department of Plant Pathology & Microbiology
Texas A&M University System
17360 Coit Road
Dallas, TX 75252
Phone: (972) 952-9225
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:

2015 – present	Associate Professor, Texas A&M AgriLife Research Center, Department of Plant Pathology & Microbiology,
2013 – 2015	Assistant Professor, Texas A&M AgriLife Research Center, Department of Plant Pathology & Microbiology,
2005 – 2013	Affiliate graduate faculty, Department of Biology, University of Texas – Pan American
2004 – 2009	Affiliate graduate faculty, Department of Molecular Biosciences and Bioengineering, University of Hawaii at Manoa, Plant Molecular Biologist, Hawaii Agriculture Research Center
2003-2004	Post-doctoral Research Associate, Hawaii Agriculture Research Center.

Other Professional Activities:

2016-present Editorial board member, *Genes*

Research Interests:

- Genetics and genomics of warm-season turfgrasses
- Genomics of plant sex chromosomes
- Genomics of biomass yield traits in energy cane

Joshua S. Yuan

Professor and Director
Synthetic and Systems Biology Innovation Hub
Department of Plant Pathology and Microbiology
Department of Chemical Engineering (Adjunct)
Faculty of Texas A&M Energy Institute
Program in Bioenvironmental Sciences
Graduate Program in Molecular and Environmental Plant Sciences
Institute for Plant Genomics and Biotechnology
Address: 2123 TAMU, College Station, TX 77843
Office Phone: 979 845 3016; Cell Phone: 510 919 7668
Email: syuan@tamu.edu
Lab Website: http://people.tamu.edu/~syuan
Synthetic & Systems Biology Innovation Hub: http://synbio.tamu.edu

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CURRENT POSITION

2017 – **Professor**, Texas A&M University, College Station, TX

- Establish and lead a recognizable multidisciplinary and multi-institute program in processing biomass and lignin into renewable fuels and chemicals
- Lead a campus-wide energy and environmental engineering initiative to engage national labs and other partners to compete major interdisciplinary grants from federal, state, and industrial funding opportunities
- Lead a total of >$12 million federal initiatives as PI and over $14 million federal, state, and local research efforts during the past five years
- Develop a broad design-based engineering program focusing on chemical, computational, systems and synthetic biology analyses to understand the fundamental mechanisms and to guide the design of bioprocesses, biocatalysts, microorganisms, plants, and materials for energy, environment, and health applications
- Reveal how the polymer chemistry of lignin impacts the interaction with guest materials and rheological properties of the polymer blend, which further defines the performance of various materials including carbon fibers and asphalt binder modifiers
- Develop and lead a multidisciplinary program in model-guided design and engineering of photosynthesis and terpene biosynthesis pathways for energy and health applications
- Generate a strong publication record in peer-reviewed journals like PNAS, Green Chemistry, Journal of Materials Chemistry A, Nature Review Genetics, PLOS Genetics, etc.
- Develop and teach one of the first holistic courses on biotechnology for biofuels and bioproducts at the time to enrich broad curriculum at Texas A&M University
- Develop and teach a cutting-edge Genome Informatics course, Genome Informatics, to enrich the curriculum of bioenergineering, plant pathology, and others

- Mentor graduate students and postdocs, four of whom have become independent faculty
- Lead the commercialization of multiple technologies and promote business development
- Engage corporate partners to develop capital investment and research funding to drive commercialization
    - Serve as editors, board members, panel members, paper and grant reviewers

LEADERSHIP EXPERIENCE

2015 – **Director,** Synthetic and Systems Biology Innovation Hub (SSBiH)
Texas A&M University (TAMU), College Station, TX

- Lead the efforts to integrate expertise and resources around the campus and the nation to develop multidisciplinary grants and major center grants like Bioenergy Science Centers
- Coordinate with TAMUS Government Relationship to identify new opportunities for university faculty and lead the team building to respond to these opportunities; Successfully land more than $10 million major interdisciplinary grants with several teams
- Coordinate and develop industrial partnership and industry-sponsored research initiatives
- Organize events and strategies to promote transdisciplinary research, engage various partners, and broaden opportunities for SSBiH
- Promote interdisciplinary research and lead an intellectual, technology, and facility center for the implementation of systems and synthetic biology to serve broad stakeholders, to enhance research excellence, and to enable the new biomanufacturing and advanced manufacturing initiatives across the campus
    - Lead the commercialization efforts to promote local business development
    - Manage the budget, personnel, and resources for a sustainable campus unit

2013 – **Chief Scientific Advisor,** SynShark LLC

- Lead the scientific development and commercialization of squalene production, extraction, and separation technologies to complete the entire supply chain
- Coordinate with business partners for product development, technology advances, marketing strategies, capital raising, and government relationship
- Raised Phase I funding and engaged strategic partners for investment, product and corporate development

PREVIOUS POSITIONS

2013 – 2017 **Associate Professor,** Texas A&M University, College Station, TX
2008 – 2013 **Assistant Professor**, Texas A&M University, College Station, TX
2004 – 2008 **Director,** Institute of Agriculture (UTIA) Genomics Hub
Genomics Scientist, Department of Plant Sciences,
University of Tennessee, Knoxville, TN

- Lead a technology and facility core to enable campus-wide research using genomics technologies
- Manage the budget, personnel, and resources to ensure the sustainable development of

Genomics Hub as a campus unit

- Collaborate with faculty members and integrate multidisciplinary expertise in campus to develop research and grants using omics technologies
- Initiative and develop grants for bioenergy, bioproducts, biorefining, and bioprocess engineering
- Train technicians and graduate students
- Guest lecture in different classes for genomics-related topics

RECOGNITION

- **Excellence in Innovation Award**, Texas A&M University System, 2017
- First Place Award for SynShark LLC, Ag Biotech Entrepreneurial Showcase, North Carolina Biotechnology Center, 2015
- **BMC Bioinformatics All Time Most Viewed Article** 2012 – 2014, **Second Most Viewed** Now: https://old.biomedcentral.com/bmcbioinformatics/mostviewed/alltime
  Yuan et al., Statistical analysis of realtime PCR
- Squaliform from SynShark LLC, National and Global Innovation Award, Techconnect, 2014
- BMC Bioinformatics Most Viewed Article of the Year, in 2011 and 2012:
  Yuan et al., Statistical analysis of realtime PCR

SYNERGISTIC ACTIVITIES

2017	Review Panel	NSF CBET BBBE
2016	Session Chair	Two Sessions for AICHE Annual Conference
2014 – 2015	Review Panel	NSF CBET Sustainable Energy
2014	Session Chair	Special Session in Synthetic Biology, 36th Symposium for Biotechnology for Fuels and Chemicals
2011 – 2015	Review Panel	US DOE JGI CSP and Synthetic Biology
2011 – 2013	Board of Director	MidSouth Comp Biol & Bioinformatics Society
2010	Guest Editor of Special Issue	Biofuels
2009	Chair	US-China Bioenergy Forum, the Third US-China Relationship Conference
2008 – 2016	Associate Editor	BMC Research Notes

INVITED PRESENTATIONS (32 since 2009)

PUBLICATIONS: (see section 4)

Xin-Gen (Shane) Zhou

Texas A&M AgriLife Research
1509 Aggie Drive, Beaumont, TX 77713
xzhou@aesrg.tamu.edu, (409) 752 2741 x 2210

Education

Degree	Institute	Major	Year
Ph.D.	Oklahoma State University	Plant Pathology	2000
M.S.	Zhejiang University	Plant Pathology	1988
B.S.	Zhejiang University	Plant Pathology	1985

Profession Experience

2015 - Present **Associate Professor,** Texas A & M AgriLife Research and Extension Center, Beaumont, TX. Epidemiology and integrated management of diseases in conventional and organic rice.

2009 - 2014 **Research Assistant Professor**, Texas A & M AgriLife Research and Extension Center, Beaumont, TX. Epidemiology and integrated management of diseases in conventional and organic rice.

2000 - 2009 **Postdoctoral Research Associate**, University of Maryland College Park, Lower Eastern Shore Research and Education Center, Salisbury, MD. Epidemiology and management of diseases of cucurbits.

1996 - 2000 **Graduate Research Assistant (Ph.D.)**, Oklahoma State University, Wes Watkins Agriculture Research and Extension Center, Lane, OK

1995 - 1996 **Associate Professor** and **Institute Deputy Director**, Plant Protection Research Institute, Shanghai Academy of Agricultural Sciences, Shanghai, China

1990 - 1995 **Assistant Professor**, Plant Protection Research Institute, Shanghai Academy of Agricultural Sciences, Shanghai, China

1988 - 1990 **Research Associate**, Plant Protection Research Institute, Shanghai Academy of Agricultural Sciences, Shanghai, China

Professional Affiliations

American Phytopathological Society (APS); APS Southern Division

Awards and Honors

2016 Grant Review Panelist for the Louisiana State Research and Development Competitive Program

2016 Grant Review Panelist for the International Foundation for Science, Sweden

2010 Grant Review Panelist for the USAID Middle East Regional Cooperation (MERC) Program

Professional Service

2015 - Present Senior Editor, *Plant Health Progress*

2012 - Present Section Editor, *Plant Disease Management Reports*

2016 - Present Beaumont Center's UAVs (Drones) Operation Review Committee

2014 - Present Integrated Plant Disease Management Committee of the APS
2014 - Present Biological Control Committee of the APS
2014 - Present Panel Chair of Plant Protection Committee for the 2016 Rice Technical Working Group (RTWG) Meeting
2014 - Present Panel Chair of Rice and Wheat Blast Symposium for the 2016 RTWG Meeting
2014 - Present Member of Local Arrangement Committee for the 2016 RTWG Meeting
2013 - Present Chair of Information and Displays Committee for Annual Beaumont and Eagle Lake Field Days
2014 - Present Chair/member of Annual Beaumont Field Day Theme Committee
2009 - Present Advisory Board for the Asian Plant Growth Promoting Rhizobacteria (PGPR) Society.

Selected Grants (total 37 grants and contracts, $3.1 million)
2015 - 2018 USDA/NIFA OREI (PI). Sustainable and Profitable Strategies for Integrated Pest Management in Southern Organic Rice. $ 1 million
2010 - 2017 TRRF (PI). Rice Disease Research and Management. $412,000
2013 - 2015 USDA/NIFA SARE (Co-PI). Improving Soil Quality to Increase Yield and Reduce Diseases in Organic Rice Production. $225,000
2012 - 2013 USDA ARS (PI). Organic Rice Disease and Nutrient Management Research. $100,00
2010 - 2013 USDA/NIFA SRIPM (PI). Developing Biologically Based Management Strategies for Integrated Control of Sheath Blight in Southern Rice. $185,928

Mentorship
- Undergraduate and Graduate Students: 4 Ph.D. students, 4 M.S. students, 10 undergraduate students
- Postdoctoral Fellows: 4 postdocs
- Visiting students and Scientists: 14 graduate students and faculty from four countries

Publications (total 260)
Refereed journal articles and book chapters: 39
Conference proceedings articles: 34
Non-refereed, peer-reviewed technical articles: 105
Outreach publications and service: 83

Presentations (total 159)
Contributed Papers/Posters: 86
Invited Seminars: 44
Invited Public Presentations: 29

TEXAS A&M University®

Appendix E:
Recent Faculty Publications

Appendix E: Faculty Publications (2012 – 2017)

David N. Appel

Refereed Journal Articles

McBride, S., Appel, D.N., Pontasch, F.M., Gregg, L., and O.J. Alabi. 2017. Disease Notes: First report of tobacco ringspot virus infecting an American hybrid grape cultivar in Texas. *Plant Disease* 101:1062.

Montague, T., Hellman, E.W., Appel, D., and M. Krawitzky. 2015. Asexual propagation of grapevine transmits Pierce's Disease pathogen (*Xylella fastidiosa*) to rooted cuttings. *International Journal of Fruit Science* 16: 135-149

Stewart, L.R., Morrison, M.L. Hutchinson, M.R., Appel, D.N., and R.N. Wilkins. 2014. Effect of a forest pathogen on habitat selection and quality for the endangered golden-cheeked warbler. *Wildlife Society Bulletin* 38:279 - 287.

Stewart, L.R., Morrison, M.L., Appel, D.N., and R.N. Wilkins. 2014. Spatial and temporal distribution of oak wilt in golden-cheeked warbler habitat. *Wildlife Society Bulletin* 38:288-296.

Extension Publications

Appel, D., and A. Brown. 2017. Grapevine Trunk Diseases. Texas A&M AgriLife Extension, EPLP-034.

McBride, S., and D.N. Appel. 2017. Fire Blight of Ornamental Pears. Texas A&M AgriLife Extension, EPLP-029.

McBride, S. and D.N. Appel. 2016. Hypoxylon Canker of Oaks. Texas A&M AgriLife Extension, EPLP-030.

McBride, S., and D.N. Appel. 2016. Rapid Decline of Post Oaks in Texas. Texas A&M AgriLife Extension, EPLP-033.

Appel, D.N., Cameron, R.S., Wilson, A.D., and Johnson, J.D. 2014. How to identify and manage oak wilt in Texas. How-To-SR-1, U.S. Department of Agriculture, Forest Service, Southern Research Station, New Orleans, LA.

Appel, D.N. 2012. Pathogen biology and epidemiology, pages 22-24, in, J. Kamas, ed., Pierce's Disease Overview and Management Guide: a resource for grape grower in Texas and other eastern U.S. growing areas. Texas AgriLife Extension Service. 103 pp.

Appel, D.N. 2012. Diagnosis of Pierces's disease, pages 24-29, in, J. Kamas, ed., Pierce's Disease Overview and Management Guide: a resource for grape grower in Texas and other eastern U.S. growing areas. Texas AgriLife Extension Service. 103 pp.

Appel, D.N., and J. Lewis. 2012. Further expansion of the pathogen into the Texas High Plains, pages 30 – 31, in, J. Kamas, ed., Pierce's Disease Overview and Management Guide: a resource for grape grower in Texas and other eastern U.S. growing areas. Texas AgriLife Extension Service. 103 pp.

Books, Reviews and Book Chapters

Juzwik, J., and D. Appel.2016. Oak Wilt. Pages 129 – 133, in, Bergdahl, A.D., and Hill, A., tech. cords. Diseases of trees in the Great Plains. Gen. Tech. Rep. RMRS-GTR-335. Fort Collins, CO. USDA Forest Service, Rocky Mountain Research Station. 229 pp.

McBride, S., and Appel, D. N. 2015. Phymatotrichopsis Root Rot. In: "Compendium of Grape Diseases, Disorders, and Pests" Second Edition. W. F. Wilcox, W. D. Gubler, and J. K. Uyemoto, eds., APS Press. St. Paul Minnesota.

Technical publications

McBride, S., Appel, D.N., Pontasch, F.M., Gregg, L., and O.J. Alabi. 2017. Survey for grapevine leafroll associated virus 3 in Texas vineyards. *Phytopathology* 107:1-2

McBride, S. and D.N. Appel. 2016. Hypoxylon Canker of Oaks. Texas A&M AgriLife Extension. EPLP-030.

Appel, D.N. and K. L. Ong. 2015. The results of survey for citrus greening on the Upper Gulf Coast of Texas. *Phytopathology* 105 (Suppl. 2):S2.1.

McBride, S.A. and D. N. Appel. 2015. The control of cotton root rot in Texas winegrapes with the fungicide flutriafol. *Phytopathology* 105 (Suppl. 2):S2.7.

Appel, D.N. 2014. Long term trends and epidemiology of Pierce's Disease in Texas. Page 86, in, Technical Abstracts of the 65th ASEV National Conference, June 23-27, 2014, Austin, TX.

Kurdyla, T., Pham, J., McBride, S., and D.N. Appel. 2014. Survey and detection of *Phytophthora ramorum*, the Sudden Oak Death pathogen in Texas. *Phytopathology* 104:S2.6.

McBride, S., Appel, D., and K. Ong. 2014. A clinical perspective on public plant health trends in Texas. *Phytopathology* 104:S2.7.

McBride, S., Lewis, J.L. Kamas, J., and D.N. Appel. 2014. Promising strategies for managing cotton root rot of winegrapes in Texas. Page 165, in, Technical Abstracts of the 65th ASEV National Conference, June 23-27, 2014, Austin, TX.

McBride, S., Lewis, J.L. Kamas, J., Black, M., and D.N. Appel. 2013. Field trials for control of *Phymatotricopsis omnivore* in grapevines in Texas. Phytopathology 103:7-7.

McBride, S., Richards, C., Appel, D., and J. Pase. 2012. Identification of a potential pyrophilous fungus following a forest fire in Bastrop, TX. *Phytopathology* 102:S4.78.

Popular Publications

Appel, D.N. 2015. Bacterial leaf scorch on common woody plants of Texas landscapes. TNLA Green 17:7-9.

Martin B. Dickman

Yurong Lia, Mehdi Kabbage Wende Liua, and Martin B. Dickman. 2016. Aspartyl Protease-Mediated Cleavage of BAG6 Is Necessary for Autophagy and Fungal Resistance in Plants. The Plant Cell, Vol. 28: 233–247.

Yurong Li, Brett Williams, Martin Dickman. 2016. Arabidopsis B-cell lymphoma2 (Bcl-2)-associated athanogene 7 (BAG7)-mediated heat tolerance requires translocation, sumoylation and binding to WRKY29. New Phytologist. doi: 10.1111/nph.14388.

Mehdi Kabbage, Ryan Kessens and Martin B. Dickman. 2016. A plant Bcl-2-associated athanogene is proteolytically activated to confer fungal resistance. Microbial Cell, Vol. 3, No. 5, pp. 224 – 226.

Okubara. P.A., **Dickman**, M.B.and Blecht, A.E. 2014. Molecular and Genetic Aspects of Controlling the Soilborne Necrotrophic Pathogens Rhizoctonia and Pythium. Plant Science

Williams ,B., Verchot, JM, and **Dickman**, M.B. 2014. When Supply Does Not Meet Demand-ER Stress and Plant Programmed Cell Death. Frontiers in Plant Science 5:1-5.

Yarden, O., Veluchamy, S., **Dickman**, M.B. and Kabbage, M. 2014. *Sclerotinia sclerotiorum* catalase SCAT1 increases tolerance to oxidative stress, regulates ergosterol levels and controls pathogenic development. Physiol. Mol. Plant Pathol. 85:34-41.

Liang, X., **Dickman**, M.B. and Becker, D.F. 2014. Proline Biosynthesis is Required for Endoplasmic Reticulum Stress Tolerance in *Saccharomyces cerevisiae*. Journal of Biological Chemistry (In press)

Kabbage, M; Williams, B., **Dickman**, MB. 2013. Cell death control: The interplay of apoptosis and autophagy in the pathogenicity of *Sclerotinia sclerotiorum.* PLoS Pathogens 9: e1003287

Dickman, M.B. and Fluhr, R. 2013. Centrality of host cell death in plant-microbe interactions. Annu. Rev. Phytopathol. 51: 25.1-25.28.

Zhu W, Wei W, Fu Y, Cheng J, Xie J, Li, G, Yi, X, Kang. Z, **Dickman**, M.B. and Jiang, D.. (2013). A secretory protein of necrotrophic fungus *Sclerotinia sclerotiorum* that suppresses host resistance. PLoS ONE 8: e53901.

Criscitiello, M.F., **Dickman**, M.B., Samuel, J.E., and de Figueiredo P. 2013. Tripping on acid: Trans-kingdom perspectives on biological acid use in immunity and pathogenesis. . PLoS Pathogens 9: e1003402.

Dickman, M.B. and de Figueiredo, P. 2013. Death be not proud—cell death control in host fungal interactions. PLoS Pathogens 9: e1003542

Ye, Changming; Chen, Shaorong; Payton, Mark; **Dickman**, Martin; Verchot-Lubicz, Jeanmarie. 2013. TGBp3 triggers the unfolded protein response and SKP1 dependent programmed cell death. Molecular Plant Pathology 14:241-255.

Ye, C., Kelly, V., **Dickman**, M.B. and Verchot, J. 2012. SGT1 is induced by the *Potato virus X* TGBp3 and enhances virus accumulation in *Nicotiana benthamiana* Molecular Plant 5: 1151-1153.

O'Connell, R., et al., 2012. Life-style transitions in plant pathogenic *Colletotrichum* fungi deciphered by genome and transcriptome analyses. Nature Genetics 44, 1060-1065.

Daniel J. Ebbole

Matar KA, Chen X, Chen D, Anjago WM, Norvienyeku J, Lin Y, Chen M, Wang Z, Ebbole DJ, Lu GD. 2016. WD40-repeat protein MoCreC is essential for carbon repression and is involved in conidiation, growth and pathogenicity of *Magnaporthe oryzae*. Curr. Genet. doi:10.1007/s00294-016-0668-1.

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Kranthi Mandadi

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Herman Scholthof

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Gao, S.-J., Damaj, M.B, Park, J.-W., Beyene, G., Buenrostro-Nava, M.T., Molina, J., Wang, X., Ciomperlik, J.J., Manabayeva, S., Alvarado, V.Y., Rathore, K.S., Scholthof, H.B., and Mirkov, T.E. (2013). Enhanced gene expression in sugarcane by co-expression of virus-encoded RNA silencing suppressors. PLoS ONE 8(6):e66046.

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Karen-Beth Scholthof

(2013-present). Graduate Students are Underlined.

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Mandadi, K. K. and **Scholthof, K.-B. G.** 2013. Plant immune responses against viruses: How does a virus cause disease? *Plant Cell* 25: 1489-1505.

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Irigoyen, S. C., **Scholthof, K.-B. G**., and Mandadi, K. K. 2018. Genomic approaches to analyze alternative splicing, a key regulator of transcriptome and proteome diversity in *Brachypodium distachyon*. *Methods Mol. Biol.* 1667:73-85.

Pyle, J. D., and **Scholthof, K.-B. G.** 2018. De novo generation of helper virus-satellite chimera RNAs results in disease attenuation and satellite sequence acquisition. Virology, in press.

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Mandadi, K. K., Christensen, S., Schmelz, E., and **Scholthof, K-B. G**. *Panicum mosaic virus* modulates ROS homeostasis, defense hormone signaling and fatty-acid profiles in *Brachypodium distachyon.* In preparation.

Other Publications

Scholthof, K.-B. G. 2013. *Agricultural History*: Interview. *Agricultural History* 87:194-200.
Scholthof, K.-B. G. 2014. Book Review: *Molecular Life of Plants*, by R. Jones, H. Ougham, H. Thomas, and S. Waaland. *Quarterly Review of Biology* 89:185-186.
Scholthof, K.-B. G. 2015. Book Review: *Atlas of the Great Irish Famine* edited by J. Crowley, W. J. Smyth, and M. Murphy. *Agricultural History* 89:112-114.

Libo Shan

Selected Publications:

- Mang H., Feng, B., Hu, Z., Boisson-Dernier, A., Franck, C.M., Meng, X., Xu, G., Wang, T., **Shan, L.**, and He, P. (2017) Differential regulation of two-tiered plant immunity and sexual reproduction by ANXUR receptor-like kinases. ***The Plant Cell***. In press.

- Yu, X., Feng, B., He, P. and **Shan, L**. (2017) From chaos to harmony: responses and signaling upon microbial pattern recognition. ***Annual Review of Phytopathology***. 55: 109–137.

- Cox, K. L., Meng, F., Wilkins, K. E., Li, F., Wang, P., Booher, N. J., Chen, L. Q., Zheng, H., Gao, X., Zheng, Y., Fei, Z., Yu, J. Z., Isakeit, T., Wheeler, T., Frommer, W. B., He, P., Bogdanove, A. J., and **Shan, L.** (2017) TAL effector-mediated induction of a SWEET sucrose transporter confers susceptibility to bacterial blight of cotton. ***Nat Commun*.** DOI: 10.1038/ncomms15588.

- Li, F., Li, M., Wang, P., Cox, K. L., Duan, L., Dever, J.K., **Shan, L**. Li, Z., and He, P. (2017) Regulation of cotton drought responses by a MAP kinase cascade-mediated phosphorylation of GhWRKY59. ***New Phytologist*** 215: 1462-1475.

- Feng, B., Ma, S., Chen, S., Zhu, N., Zhang, S., Yu, B., Yu, Y., Le, B., Chen, X., Dinesh-Kumar, S.P., **Shan, L**., and He, P. (2016) PARylation of the forkhead-associated domain protein DAWDLE regulates plant immunity. ***EMBO Reports*** 17: 1799-1813.

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- Li, B., Meng, X., **Shan, L.,** and He, P. (2016) Transcriptional regulation of plant pattern-triggered immunity. ***Cell Host & Microbe*** 19: 641-650.

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- Meng, X., Chen, X., Liu, C., Yu, X., Gao, X., Torii, U. K., He, P. and **Shan, L**., (2015) Differential function of *Arabidopsis* SERK family receptor-like kinases in stomatal patterning. ***Current Biology*** 25: 2361-2372.

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- Li, B., Jiang, S., Yu, X., Cheng, C., Chen, S., Cheng, Y., Yuan, J., Jiang, D., He, P**.,** and **Shan, L**. (2015) Phosphorylation of a trihelix transcription repressor ASR3 by MPK4 negatively regulates *Arabidopsis* immunity. ***The Plant Cell*** 27: 839-856.

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- Lin, W., Li, B., Lu, D., Chen, S., Zhu, N., He, P., and **Shan, L.** (2014) Tyrosine phosphorylation of BAK1/BIK1 mediates *Arabidopsis* innate immunity. ***Proc Natl Acad Sci U S A***. 111: 3632-3637.

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- Cui, F., Wu, S., Sun, W., Coaker, G., Kunkel, B. N, **Shan, L**. (2013) The *Pseudomonas syringae* type III effector AvrRpt2 promotes pathogen virulence via stimulating

Arabidopsis Auxin/Indole Acetic Acid protein turnover. ***Plant Physiology*** 162: 1018-1029.

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- Gao, X., Li, F., Li, M., Kianinejad, A., Dever, J., Wheeler, T., Li, Z., He, P., and **Shan, L.** (2013) Cotton *GhBAK1* mediates Verticillium wilt resistance and cell death. ***Journal of Integrative Plant Biology*** 55: 586-96.

- Lu, D., Lin, W., Gao, X., Wu, S., Cheng, C., Avila, J., Heese, A., Devarenne, T., He, P., and **Shan, L**. (2011) Direct ubiquitination of pattern recognition receptor FLS2 attenuates plant innate immunity. ***Science*** 332: 1439-1442.

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- Wu, S., Lu, D., Kabbage, M., Wei, H., Swingle, B., Dickman, M., He, P., and **Shan, L.** (2011) Bacterial effector HopF2 suppresses *Arabidopsis* innate immunity at the plasma membrane. ***Mol. Plant Microbe Interact.*** 24: 585-93.

Brian D. Shaw

Selected Publications (last 3 years):

Note:*PI's graduate student; **PI's research assistant (technician); ***PI's undergraduate student. My name underlined indicates I was the PI and corresponding author on the project..

M. R. Mendoza, A. Payne, S. Castillo, M. Crocker, **B. D. Shaw**, H. B. Scholthof. 2017. Expression of separate proteins in the same plant leaves and cells using two independent virus-based gene vectors. Frontiers in Plant Science 8:1808

T. Isakeit, *B. Commer, **B. D. Shaw**, M. Brown and C.Neely. 2017. First Report of Leaf Spot of Barley Caused by *Drechslera gigantea* in the United States. Plant Disease: 101 1548.

*Z. Schultzhaus, W. Zheng, Z. Wang, R. Mourino-Perez and **B. D. Shaw**. 2017. Phospholipid Flippases DnfA and DnfB Exhibit Differential Dynamics within the *A. nidulans* Spitzenkörper. *Fungal Genetics and Biology.* 99:26-28.

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*Z. Schultzhaus, *L. Quintanilla, ***A. Hilton, and **B. D. Shaw**. 2016. Live Cell Imaging of Actin Dynamics in the Model Filamentous Fungus *Aspergillus nidulans* Using Lifeact. *Microscopy and Microanalysis.* 22: 264-274.

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*D. Chung, **S. Upadhyay, ***B. Bomer, H. H. Wilkinson, D. J. Ebbole, **B. D. Shaw**. 2015. *Neurospora crassa* ASM-1 complements the conidiation defect in a *stuA* mutant of *Aspergillus nidulans*. *Mycologia*: 107:298-306.

*Z. Schulthaus, **B. D. Shaw.** 2015. Endocytosis and Exocytosis in Hyphal Growth *Fungal Biology Reviews.* 29: 43-53.

*Z Schultzhaus, ***H Yan and **B. D. Shaw**. 2015 *Aspergillus nidulans* flippase DnfA is cargo of the endocytic collar, and plays complementary roles in growth and phosphatidylserine asymmetry with another flippase, DnfB. *Molecular Microbiology*, 97 18-32. (Includes Journal Cover Illustration)

*D. Chung, **S. Upadhyay, ***B. Bomer, H. H. Wilkinson, D. J. Ebbole, **B. D. Shaw**. 2015. *Neurospora crassa* ASM-1 complements the conidiation defect in a *stuA* mutant of *Aspergillus nidulans*. *Mycologia*: 107:298-306.

J.-H. Shin, J-E Kim, M. Malapi-Wight, Y-E. Choi, **B. D. Shaw** and W-B Shim. 2013. Protein phosphatase 2A regulatory subunits perform distinct functional roles in the maize pathogen *Fusarium verticillioides. Molecular Plant Pathology*. 14:518-529.

X. Zhou, H. Zhang,G. Li, **B. D. Shaw**, J.-R. Xu. 2012. The Cyclase-Associated Protein Cap1 Is Important for Proper Regulation of Infection-Related Morphogenesis in *Magnaporthe oryzae*. *PLoS Pathogens* 8: e1002911.

*D.-W. Chung, C. Greenwald, **S. Upadhyay, S. Ding, H. H. Wilkinson, D. J. Ebbole, and **B. D. Shaw.** 2011. *acon-3*, the *Neurospora crassa* ortholog of the developmental modifier, *medA*, complements the conidiation defect of the *Aspergillus nidulans* mutant. *Fungal Genetics and Biology.* 48: 370-376.

Invited Book Chapters and Reviews

*Z. Schulthaus, **B. D. Shaw.** 2015. Endocytosis and Exocytosis in Hyphal Growth *Fungal Biology Reviews.* 29: 43-53.

***Tyler Johnson (**B. D. Shaw**). 2014. Mysterious Fungi: Investigating the Growth of Filamentous FungiExplorations, The Texas A&M University Undergraduate Journal. 6: http://issuu.com/tamu_hur/docs/explorations_volume_6_extended.

***L. Puckett (**B. D. Shaw**). 2013. Fungus Among Us: Hitting a Moving Target. Explorations, The Texas A&M University Undergraduate Journal. 5: 47-49.

B. D. Shaw, *Da-Woon Chung, *Chih-Li Wang; *Laura A. Quintanilla and **Srijana Upadhyay. 2011. A Role for Endocytic Cycling in Hyphal Growth. *Fungal Biology* **115:** 541-546.

Won-Bo Shim

Recent Peer-Reviewed Publications (2017~2013)

The following designations highlight the authorship and contributions: **P** Post-doctoral scholars, **G** Graduate students, and **U** Undergraduate students, and **§** Corresponding author.

1. Huan Zhang[G], Mala Mukherjee[P], Jung-Eun Kim[P], Wenying Yu, and Won Bo Shim[§]. 2017. Fsr1, a striatin homolog, forms an endomembrane-associated complex that regulates virulence in the maize pathogen *Fusarium verticillioides*. *Molecular Plant Pathology* (*In Press* - DOI: 10.1111/mpp.12562)
2. Mansuck Kim[G], Huan Zhang[G], Charles Woloshuk, Won-Bo Shim and Byung-Jun Yoon. 2017. Computational prediction of pathogenic network modules in *Fusarium verticillioides*. *IEEE/ACM Transactions on Computational Biology and Bioinformatics* (*In Press* - DOI 10.1109/TCBB.2015.2440232)
3. Angelyn Hilton[G], Huanming Zhang[U], Wenying Yu, and Won Bo Shim[§]. 2017. Identification and characterization of pathogenic and endophytic fungal species associated with Pokkah Boeng disease of sugarcane. *The Plant Pathology Journal* 33 (3): 238-248.
4. Jing Dai, Hyun-Soo Kim, Adrian Guzman, Won Bo Shim, Arum Han. 2016. A large-scale on-chip droplet incubation chamber enables equal microbial culture time. *RSC Advances* 6 (25): 20516-20519.
5. Wenhui Zheng, Huawei Zheng, Ying Zhang, Qiurong Xie, Xu Zhao, Xiaolian Lin, Wenying Yu, Guodong Lu, Won-Bo Shim, Jie Zhou, and Zonghua Wang. 2016. The retrograde trafficking from endosome to trans-Golgi network mediated by retromer is required for fungal development and pathogenicity in *Fusarium graminearum*. *New Phytologist* 210 (4): 1327-1343.
6. Chihli Wang, Won-Bo Shim, and Brian Shaw. 2015. The *Colletotrichum graminicola* striatin ortholog Str1 is necessary for anastomosis and is a virulence factor. *Molecular Plant Pathology* 17 (6): 931- 942.
7. Ji Hyung Kim, Wookseok Choi, Seon-Mi Jeon, Taeho Kim, Areumi Park, Junseong Kim, Soo-Jin Heo, Chulhong Oh, Won-Bo Shim, and Do-Hyung Kang. 2015. Isolation and characterization of *Leptolyngbya* sp. KIOST-1, a basophilic and euryhaline filamentous cyanobacterium from an open paddle-wheel raceway *Arthrospira* culture pond in Korea.

Journal of Applied Microbiology 119: 1597-1612.

8. Youngdeuk Lee, Chulhong Oh, Soo-Jin Heo, Do-Hyung Kang [§], and Won-Bo Shim [§]. 2015. Highly potent saccharification of *Arthrospira maxima* glycogen by fungal amylolytic enzyme complex from *Trichoderma* species J113. *Biofuels Research* 8:1868-1876.
9. Chengkang Zhang, Jianqiang Wang, Hong Tao, Xie Dang, Yang Wang, Miaoping Chen, Zhenzhen Zhai, Liping Xu, Won-Bo Shim, Guodong Lu, Zonghua Wang. 2015. FvBck1, a component of cell wall integrity MAP kinase pathway, is required for virulence and oxidative stress response in sugarcane Pokkah Boeng pathogen. *Frontiers in Microbiology* 6: 1096.
10. Mansuck Kim[G], Huan Zhang[G], Charles Woloshuk, Won-Bo Shim, and Byung-Jun Yoon, 2015. Computational identification of genetic subnetwork modules associated with maize defense response to *Fusarium verticillioides*. *BMC Bioinformatics* 16 (Suppl 13): S12.
11. Carlos Ortiz[G], Casey Richards[U], Ashlee Terry[U], Joseyln Parra[U], and Won-Bo Shim[§]. 2015. Genetic variability and geographical distribution of mycotoxigenic *Fusarium verticillioides* strains isolated from maize fields in Texas. *The Plant Pathology Journal* 31 (3): 203-211.
12. Seon-Mi Jeon, Ji Hyung Kim, Taeho Kim, Areumi Park, Se-Jong Ju, Soo-Jin Heo, Chulhong Oh, Md. Abu Affan, **Won-Bo Shim**, and Do-Hyung Kang. 2015. **Morphological, Molecular, and Biochemical Characterization of Monounsaturated Fatty Acids-Rich Chlamydomonas sp. KIOST-1 Isolated from Korea**. *Journal of Microbiology & Biotechnology* 25: 729-737.
13. Chengqi Zhang, Yun Chen, Yanni Yin, Huan-Hong Ji, Won-Bo Shim, Yiping Hou, Mingguo Zhou, Xian-Dong Li, and Zhonghua Ma. 2015 A small molecular species specifically inhibits Fusarium myosin I. Environmental Microbiology. 17(8): 2735-2746.
14. Qin Gu, Chengqi Zhang, Fangwei Yu, Yanni Yin, Won-Bo Shim, and Zhonghua Ma. 2015. Protein kinase FgSch9 serves as a mediator of the TOR and HOG pathways and regulate multiple stress responses and secondary metabolism in *Fusarium graminearum*. *Environmental Microbiology* 18:2661-2676.
15. Youngdeuk Lee, Ji-Hyun Lee, Won-Bo Shim, Don Anushka Sandaruwan Elvitigala, Mahanama De Zoysa, Su-Jin Lee, Soo-Jin Heo, Jehee Lee, Do-Hyung Kang, and Chulhong Oh. 2104. Molecular cloning, over-expression and enzymatic characterization of an endo-acting β-1,3-glucanase from marine bacterium *Mesoflavibacter zeaxanthinifaciens* S86 in *Escherichia coli*. *Ocean Science Journal* 49: 425-432.
16. Jennifer Jooyoun Kim, Young-Kyung Kwon, Ji Hyung Kim, Soo-Jin Heo, Youngdeuk Lee, Su-Jin Lee, Won-Bo Shim, Won-Kyo Jung, Jung-Ho Hyun, Kae Kyoung Kwon, Do-Hyung Kang, Chulhong Oh. 2014. Effective microwell plate-based screening method for microbes producing cellulase and xylanase and its application. *Journal of Microbiology & Biotechnology* 24: 1559 – 1565.
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Arabidopsis, *Journal of the American Society for Horticultural Science*, 2011, 136(1):23-34.

45. Danner H, Boeckler GA, Irmisch S, ***Yuan JS***, Chen F, Gershenzon J, Unsicker SB, Köllner TG: Four terpene synthases produce major compounds of the gypsy moth feeding-induced volatile blend of *Populus trichocarpa*. *Phytochemistry*, 2011, 72(9):897-908.

Book Chapters

46. Ryan D. Syrenne*, Weibing Shi**, C. Neal Stewart Jr., ***Joshua S. Yuan****, 'Omics' Platforms: Importance of 21st Century Genome-enabled Technologies, as Book Chapter in press in Seed Developmental Research for Improved Seed Quality and Crop Yield.

Xin-Gen (Shane) Zhou

Refereed Journal Papers

Kumar, K. V. K., S. K. R. Yellareddygari, M. S. Reddy, J. W. Kloepper, K. S. Lawrence, X. G. Zhou, H. Suddin, and M. E. Miller. 2012. Efficacy of Bacillus subtilis MBI 600 against sheath blight caused by Rhizoctonia solani and on growth and yield of rice. Rice Science 19 (1):55-63.

Zhou, X. G. and K. L. Everts. 2012. Anthracnose and gummy stem blight are reduced on watermelons grown on a no-till hairy vetch cover crop. Plant Disease 96:431-436.

Hua, Y., H. Guo, X. G. Zhou, X. Li, N. Ma, C. Chai, X. Qiao, and L. Li. 2013. Correlations between soluble sugar and phenol contents in leaves and pear scab resistance. J. Plant Path. Microb. 5: 213-216.

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Zhang, D., Y. Lan, X. G. Zhou, L. Chen, S. C. Murray, and G. Zhang. 2015. Research imagery and spectral characteristics of rice sheath blight using three portable sensors. 2015 ASABE Annual International Meeting, Paper No. 152190801, 10 pages. Doi: 10. 13031/aim. 20152190801.

Handiseni, M., Y. K. Jo, K. M. Lee, and X. G. Zhou. 2016. Screening brassicaceous plants as biofumigants for management of Rhizoctonia solani AGI-IA. Plant Disease 100:758-763.

Handiseni, M., W. Cromwell, M. Zidek, X. G. Zhou, and Y. K. Jo. 2017. Use of brassicaceous seed meal extracts for managing root-knot nematode in bermudagrass. Nematropica 47:55-62.

Handiseni, M., X. G. Zhou, and Y. K. Jo. 2017. Soil amendment with Brassica juncea plant tissue reduces sclerotia formation, viability and aggressiveness of Rhizoctonia solani AG1-IA toward rice. Crop Protection 100:77-80.

Uppala, S. and X. G. Zhou. 2017. Field efficacy of fungicides for management of sheath blight and narrow brown leaf spot. Crop Protection 104:72-77.

Zhang, D., X. G. Zhou, J. Zhang, Y. Lan, C. Xu, and D. Liang. 2017. Detection of rice sheath blight using an unmanned aerial system with high-resolution color and multispectral imaging. PLoS ONE 12: (in press).

Book Chapters

Bagavathiannan, M., V. Singh, X. G. Zhou, Z. Ganie, B. Valverde, L. Avila, E. Marchesan, A. Merotto, G. Zorrilla, N. B. NBurgos, and J. Norsworthy. 2017. Rice Production in the Americas. In: Rice Production Worldwide, Chauhan, B. S., Jabran, K. And Mahajan, G. Ed. Springer International Publishing. 563 pages.

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Appendix F: 18 Characteristics of the Ph.D. Program

18 Characteristics of the PLPM Ph.D. Program

Characteristic										
		12-'13	13-'14	14-'15	15-'16	16-'17	12-'15	13-'16		
1	# Degrees/Yr	6	5	3	4	nd	4.7	4		
							3-Yr Average			
		03-'05	04-'06							
2	Grad. Rate (10yrs)	90%	66.7%							
		03-'05	04-'06							
3	Time to Degree (PhD)	5.1	4.9							
		12-'13	13-'14	14-'15	15-'16	16-'17				
4	Employment	6	5	3	4	nd				
5	Admission Criteria	See section 5.0 Teaching								
		FY12	FY13	FY14	FY15	FY16				
6	% FT Students	100%	100%	95.6%	96.2%	nd	*Student stipends reported			
7	Ave. Instit Support*			19067.8	20041.3		**% students tuition covered by dept			
8	% FT with Instit Support**			100%	95%					
9	# Core Faculty			16	17	17				
10	Student/Core Ratio			1.0	1.4	1.4				
11	Core Fac Publications			65	71	nd				
12	Core Fac Ext Grants	Core fac Rec			Ave. Funds/Core			Tot Ext Funds		
		14-'15	15-'16	16-'17	14-'15	15-'16	16-'17	14-'15	15-'16	16-'17
		8.33	8	nd	377285	351807	nd	9432132	8443376	nd
		14-'15	15-'16							
13	Faculty Teaching Load	14.6	18.5							
14	Faculty Diversity		14-'15		15-'16		16-'17			
			Male	Female	Male	Female	Male	Female		
		Wh	10	2	10	2	10	2		
		Blk	0	0	0	0	0	0		
		His	2	0	2	0	2	0		
		Other	2	1	2	1	2	1		
15	Student Diversity		14-'15		15-'16		16-'17			
			Male	Female	Male	Female	Male	Female		
		Wh	7	3	3	2				
		Blk	1	0	0	0				
		His	2	0	1	0				
		Other	9	4	8	2				
16	Date of last APR	2011								
17	Ext. Prog. Accred.	NA								
		12-'13	13-'14	14-'15	15-'16	16-'17				
18	Student Publications	20	24	22.1	25.1	nd				

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Appendix G: Course Lists for BESC, ENST, and USAL majors

BIOENVIRONMENTAL SCIENCES DEGREE PLAN

Texas A&M University | **COLLEGE OF AGRICULTURE AND LIFE SCIENCES** | 2014 Catalog | Plant Pathology & Microbiology

Name _____ **Date Enrolled** _____

Student ID _____ **Catalog** _____

MAJOR COURSEWORK (14 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
BESC	201	3		
PLPA	301/303	3/1		
GENE	310 315	3		
BESC	481-900	1		
BESC	484-900	3		

BIO-ENVIRONMENTAL GROUP (CHOOSE ANY 18 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
BESC	204	3		
BESC	314	3		
BESC	320	3		
BESC	357	3		
BESC	367	3		
BESC	401	3		
BESC	402	3		
BESC	403	3		
BESC	489	3		
SCSC	405	4		

LIFE & PHYSICAL SCIENCE REQUIREMENTS (28 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
BIOL[1]	111	3/1		
BIOL[1]	112	3/1		
CHEM	101/111	4		
CHEM	102/112	4		
CHEM[2]	222/242	3/1		
RENR	205/215	3/1		
SCSC	301	4		

COMMUNICATION (6 HOURS)[3]

COURSE	NO.	HRS	SEM	SUB/TRANS
ENGL	104	3		

IMPORTANT-See Notes and other degree requirements on back

MATHEMATICS (9 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
MATH[3]		3		
MATH[3]		3		
STAT	302	3		

LANGUAGE, PHILOSOPHY, & CULTURE (3 HOURS)[3]

COURSE	NO.	HRS	SEM	SUB/TRANS

CREATIVE ARTS (3 HOURS)[3]

COURSE	NO.	HRS	SEM	SUB/TRANS

SOCIAL & BEHAVIORAL SCIENCES (3 HOURS)[3]

COURSE	NO.	HRS	SEM	SUB/TRANS

CITIZENSHIP (12 HOURS)[3]

COURSE	NO.	HRS	SEM	SUB/TRANS
HIST	105	3		
HIST	106	3		
POLS	206	3		
POLS	207	3		

GENERAL ELECTIVES (9 HOURS)[4]

COURSE	NO.	HRS	SEM	SUB/TRANS
		3		International or
		3		Cultural Diversity

TECHNICAL ELECTIVES (15 HOURS)[5]

COURSE	NO.	HRS	SEM	SUB/TRANS
				3hrs 300/400 level

ENVIRONMENTAL STUDIES DEGREE PLAN
COLLEGE OF AGRICULTURE AND LIFE SCIENCES

Texas A&M University | 2014 Catalog | Plant Pathology & Microbiology

Name _____ **Date Enrolled** _____

Student ID _____ **Catalog** _____

MAJOR FIELD REQUIREMENTS (29 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
BESC	201	3		
BESC	367	3		
RENR	205	3		
RENR	375	3		
ESSM	309	3		
SCSC	301	4		
WFSC	301	3		
RENR -OR- ESSM	405, 470 351	3		
BESC	481	1		
BESC	484-900	3		

LIFE & PHYSICAL SCIENCE REQUIREMENTS (8 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
BIOL[1]	111	4		
CHEM	101/111	4		

COMMUNICATION (6 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS
ENGL	104	3		

MATHEMATICS (9 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
MATH[2]		3		
MATH[2]		3		
STAT	303	3		

LANGUAGE, PHILOSOPHY, & CULTURE (3 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS

CREATIVE ARTS (3 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS

IMPORTANT-See Notes and other degree requirements on back

SOCIAL & BEHAVIORAL SCIENCES (3 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS

CITIZENSHIP (12 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS
HIST	105	3		
HIST	106	3		
POLS	206	3		
POLS	207	3		

GEOGRAPHY REQUIREMENT (10 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
GEOG	201	3		Int'l/Cult Diversity
GEOG	203	4		
GEOG	304	3		

ENVIRONMENTAL POLICY ELECTIVES (15 HOURS)[3]

COURSE	NO.	HRS	SEM	SUB/TRANS
				3hrs 300/400 level
				3hrs 300/400 level

NATURAL RESOURCES ELECTIVES (12 HOURS)[4]

COURSE	NO.	HRS	SEM	SUB/TRANS
				3hrs 300/400 level

GENERAL ELECTIVES (10 HOURS)[5]

COURSE	NO.	HRS	SEM	SUB/TRANS
		3		Int'l/Cult Diversity
		3		
		3		
		1		

DEGREE PLAN APPROVED:

Student Signature

Advisor Signature

Date

Date

COMMENTS:

FOREIGN LANGUAGE COMPLETE: Y N

COMPUTER USAGE COMPLETE: Y N

NOTES:

1. **SCIENCE**: Take either BIOL 111 or BIOL 101 (4 hours).

2. **To be selected from the University Core Curriculum** (http://core.tamu.edu).

3. **ENVIRONMENTAL POLICY ELECTIVES:** Please list the courses you have taken or plan to take as Environmental Policy electives after consulting with an advisor for direction in this area. Course Choices: **AGEC 344, 350, 429; AGSM 355; BESC 314, 357; ECON 202, 203, 323, 412, 435; ENTO 315, 210, 431; ESSM 406; GEOG 401, 406; PHIL 205, 314, 483; PLAN 365, 414; POLS 329, 331, 340, 342, 347, 440; SOCI 312, 328; WFSC 303.**

4. **NATURAL RESOURCES ELECTIVES:** Please list the courses you have taken or plan to take as Natural Resources electives after consulting with an advisor for direction in this area. Course Choices: **AGSM 301, 337; BESC 204, 320, 401, 403; ENTO 201, 313, 320, 403, 424; ESSM 301, 309, 320, 420; HORT 301; POSC 427; RENR 410, 444; RPTS 316, 426, 460; WFSC 304, 403, 405, 418, 420.**

5. **GENERAL ELECTIVES:** Please list the courses you have taken or plan to take (10 hours).

Texas A&M University Graduation Requirements

FOREIGN LANGUAGE: Students entering TAMU will have completed two years of foreign language in high school or demonstrate proficiency through an examination in a second language other than English. Otherwise, students must take a two semester sequence for University credit ANY 101 or 102 courses in CHIN, CLAS, FREN, GERM, ITAL, JAPN, MODL, RUSS, SPAN. This credit CANNOT satisfy the Humanities requirement.

INTERNATIONAL AND CULTURAL DIVERSITY: Students must complete six (6) hours of credit from approved course work as listed in the undergraduate catalog.

WRITING/COMMUNICATION INTENSIVE COURSES: Students MUST complete 2 Writing/Communication Intensive courses within their discipline.

A minimum GPR of 2.00 must be maintained in all TAMU coursework and within the Major Field of Study.
36 of the 120 hours needed to graduate must be at the 300-400 level.

UNIVERSITY STUDIES (ENVIRONMENTAL BUSINESS) DEGREE PLAN

Texas A&M University | **COLLEGE OF AGRICULTURE AND LIFE SCIENCES** | 2014 Catalog | Plant Pathology & Microbiology

Name _____ **Date Enrolled** _____

Student ID _____ **Catalog** _____

MAJOR CONCENTRATION REQUIREMENTS (14 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
BESC	201	3		
BESC	367	3		
BESC	481-900	1		
BESC	484-900	3		
RENR	205/215	4		

CONCENTRATION ELECTIVES (CHOOSE ANY 9 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
BESC	204	3		
BESC	314	3		
BESC	320	3		
BESC	357	3		
BESC	489	3		
PLPA	301/303	4		

LIFE & PHYSICAL SCIENCE REQUIREMENTS (8 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
BIOL[1]	111	4		
CHEM	101/111	4		

COMMUNICATION (6 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS
ENGL	104	3		

MATH & LOGICAL REASONING (6 HOURS)

COURSE	NO.	HRS	SEM	SUB/TRANS
MATH[2]		3		
MATH[2]		3		

LANGUAGE, PHILOSOPHY, & CULTURE (3 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS

CREATIVE ARTS (3 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS

IMPORTANT-See Notes and other degree requirements on back

SOCIAL & BEHAVIORAL SCIENCES (3 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS

CITIZENSHIP (12 HOURS)[2]

COURSE	NO.	HRS	SEM	SUB/TRANS
HIST	105	3		
HIST	106	3		
POLS	206	3		
POLS	207	3		

RANGELAND ECOLOGY & MGMT MINOR (16 HOURS)[3]

COURSE	NO.	HRS	SEM	SUB/TRANS
ESSM	314	3		
ESSM	302,303, or 304	3		
ESSM -or- RENR	415 -or- 410	4		
ESSM[3]		3		
ESSM[3]		3		

BUSINESS MINOR (18 HOURS)[4]

COURSE	NO.	HRS	SEM	SUB/TRANS
ACCT	209	3		
ISYS	209	3		
MGMT	209	3		
MGMT	309	3		
FINC	409	3		
MKTG	409	3		

GENERAL ELECTIVES (20 HOURS)[5]

COURSE	NO.	HRS	SEM	SUB/TRANS
		3		Int'l/Cult Diversity
		3		Int'l/Cult Diversity
		3		
		3		
		3		
		3		
		2		

DEGREE PLAN APPROVED:

Student Signature

Advisor Signature

Date

Date

COMMENTS:

FOREIGN LANGUAGE COMPLETE: Y N

COMPUTER USAGE COMPLETE: Y N

NOTES:

1. **SCIENCE**: Take either BIOL 111 or BIOL 101 (4 hours).
2. **To be selected from the University Core Curriculum** (http://core.tamu.edu).
3. **RLEM MINOR:** Students REQUIRED to take the following: ESSM 314; 3 hours from ESSM 302, 303, or 304; 4 hours from ESSM 415 or RENR 410. Additional 6 hours of ESSM coursework to be selected from ESSM 301, 316, 317, 320, 416, or 420 after consulting with an Academic Advisor. Only grades of "C" or better will be accepted for credit.
4. **BUAD MINOR:** All courses listed under the BUAD Minor are required courses. Only grades of "C" or better will be accepted for credit.
5. **GENERAL ELECTIVES:** Please list the courses you have taken or plan to take (20 hours).

Texas A&M University Graduation Requirements

FOREIGN LANGUAGE: Students entering TAMU will have completed two years of foreign language in high school or demonstrate proficiency through an examination in a second language other than English. Otherwise, students must take a two semester sequence for University credit ANY 101 or 102 courses in CHIN, CLAS, FREN, GERM, ITAL, JAPN, MODL, RUSS, SPAN. This credit CANNOT satisfy the Humanities requirement.

INTERNATIONAL AND CULTURAL DIVERSITY: Students must complete six (6) hours of credit from approved course work as listed in the undergraduate catalog.

WRITING/COMMUNICATION INTENSIVE COURSES: Students MUST complete 2 Writing/Communication Intensive courses within their discipline.

A minimum GPR of 2.00 must be maintained in all TAMU coursework and within the Major Field of Study.
36 of the 120 hours needed to graduate must be at the 300-400 level.

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Appendix H: Undergraduate BESC Internships

BESC 484 Internships (Fall 2011 - Fall 2017)

Name	Location
Fall 2011	
Fossett, Tyler	Texas Transport Instit. Auto Traffic Air Pollution
Moroz, Stephanie	Three Rivers Dental Group
Valencia, Anabel	SCSC - Dr. Mullet (& Susan Hall), Sorghum
Holder, Kallie	PLPM - Dr. Gonzalez
Morris, Randall	Morris Underground Construction, Victoria, TX
Eijsink, Kinnie	PLPM - Kenerley
Locke, Sydney	PLPM - Kolomiets
Perry, Chase	PLPM - Kolomiets
Cardenas, Nichole	PLPM - Dr. Magill
Mock, Kelli	PLPM - Dr. Magill
Harrison, Kristina	PLPM - Dr. Shan
Zuniga, Vanessa	PLPM - Shan
Garcia-Gonzalez, Jesus	HORT - Dr. Volder, effects of soil chelating agents
Sorensen, Dane	Bio_Aquatic Testing (TCEQ NELAP lab) - Carrolton, TX
Wann, Maggie	Study Abroad - Univ. of South Wales, Australia
Terry, Ashlee	PLPM - Dr. Shim
Richards, Casey	PLPM - Dr. Shim
BarreraChristina	SCSC - Dr. Hons, biofuels
Erickson, Timothy	SCSC - Dr, Christine Morgan, soil characterization.
Leyton, Saryah	TAMU Sustainability Office
Ypina, Maria	PLPM - Dr. Yuan
Castillo, Monica	PLPM - Dr. Yuan
Spring 2012	
Holley, Whitney	Keep Brazos Beautiful (non-profit) - Amy Reed
Nicewonder, Angela	Keep Brazos Beautiful (non-profit) - Amy Reed
Lenihan, Mary	Keep Brazos Beautiful (non-profit) - Amy Reed
Alander, Kerstin	Walt Disney Program - Conservation Education
Cochrane, Roger	PLPM - Dr. Defig, Hlth Care Challenges & Tech
Saucedo, Elizabeth	College Station Water Services Dept.
Foster, Dominique	Urgent Care Center, Pasadena, TX - Phys Asst.
Berezoski, Thomas	Dr. M. Alam - Food Protein Research Center
Corley, Chase BIOL -	Dr. L. Griffing, ER movments in plant cell
Berry, Amy	Brazos Valley Rehabilitation Center - Phys Ther
East, Erica	St. Joseph Regional Health Center

Gale, Audrey PLPM -	Dr. Magill, Genetics and Agriculture
Osmon, Cherise	PLPM - Dr. Shan, immune response in plants
Garcia, Jose	PLPM - Dr. Shan, immune response in plants
Beard Brandi	USA Environmental company, Environ Consult.
Thompson Jeffrey	Terrabon (biofuels analytical lab) - MixAlco
Garcia Bethany	Land use, acquisition, environ. Conoco Philips
Knight Jacob	PLPM - Dr. Yuan, secondary metabolite enginr.
Beto, Min	PLPM - Dr. Kolomiets/Christensen, maize ZmLOX10
Saen, Martin	TAMU Environ. Health & Safety Dept.
Myklebust, Heather	Central Texas Ear, Nose, Throat, College Station
Price, Meghan	PLPM - Dr. Appel, Air Sampling, Toxic Mold

Summer 2012

Wagner, Micah	PLPM: Dr. DeWitt, Pesticide impact on Fish/Turtles
Pineda, Stephanie	BACT Taiwan Program, Dr. Ebbole
Rhodes, Shelby	BACT Taiwan Program, Dr. Ebbole
Calvert, Kaylen	Luminant Power Corp, wastewater & Env Regs.
Arend, Krystal	Arcotex Oil & Gas, water analy, Gainesville, TX
Tate, Brittany	Sanderson Farms, production & regs, Waco, TX
Kulak, Trey	NASA/JSC/Bioastronautics Contract, MEI Tech.
Padron, Vanessa	BURS: Dr. Mirkov, citrus greening disease
Lopez, Pablo	Natural Composites Inc, bio-waste, Dominican Rep
Sandoval, Gabriela	Texas State Aquarium, Exhibit host, WFSC double
Wall, Sean	Sand Hill Ranch, wildlife ranch, Estelline, TX
Moeller, Mark	Study Abroad: AGSM Belgium
McConnell, Morgan	SCSC: Soil Characterization Lab, D. Prochaska
Wingert, Jennifer	SCSC: Dr. Terry Gentry, E. coli, microbial path.
Natividad, Vanessa	Study Abroad: RENR Fiji/Australia
Ray Austin	Biology Internship, Kalu Yala Valley, Panama
MackieRyan	Sumsaren Wildlife Educ. Program, South Africa
Cabrera, Fernanda	Study Abroad: WFSC Dominica
Kocian, Preston	City of Bryan Geographic Info. Svcs (COBGIS)
Garcia, Joel	BURS: Dr. Kenerley, Trichoderma virens
Drab, Dillon	PLPM: Dr. Kolomiets, corn & lipoxgenase genes
Segoviano, Migel	BURS: Dr. Kolomiets, maize & Aspergillus flavus
Dawodu, Lanre	PLPM: Dr. Kolomiets, Aspergillus flavus
Flores, Elizabeth	PLPM: Dr. Kolomiets, corn & lipoxgenase genes
Holmes, Colton	Terracon, groundwater data, remediation, Houston
Rychetsky, Lacy	Walmart Pharmacy, Pre-Pharm student, Corpus Christi
McCarthy, Marissa	PLPM: Texas Plant Disease Diagnostic Clinic

Rafique, Ummer	Navy Laboratory Technician School, San Antonio
Bryan, Calvin	White River National Forest Intern, Minturn, CO
McClellan, Jessica	Anchorage Alaska Zoo Intern
Ellis, Luke	ANRP Congressman Sessions, Washington, DC
Hilton, Angelyn	BURS: Dr. Shaw, Aspergillus nidulans
Moncada-Monsivais, Daisy	BURS: Dr. Shaw, Aspergillus nidulans
Ralston, Zachary	Skanksa USA Building Inc LEED, Houston, TX
Robison, Blake	Trinity River Authority, water quality, Livingston, TX
Muha, David	Nucor Steel, environ monitoring, Jewett, TX
McDermott, Marcus	TCEQ Mickey Leland Internship Program
Lozano, Marizela	PLPM: Dr. Yuan, algae biofuels, lipid production
Rosales, Jacob	PLPM: Dr. Yuan, algae biofuels, lipid production
Cortez, Mario	PLPM: Dr. Yuan, algae biofuels, lipid production
Oh, Hae Jin	PLPM: Dr. Yuan, algae biofuels, lipid production
Smedley, Brittany	TCEQ: Air Permits Division, Austin, TX
St. Peter, Raymond Cruz	OCNG: Dr. Heath Mills, environ. Microbiology
Sexton, Taylor	St. Joseph Med Center, Emergency Technician

Fall 2012

Garcia, Nathan	College Station Water Services Dept.
Mendoza, Gregory	College Station Water Services Dept.
Pham, Justin	PLPM: Dr. Appel, Pierce's Disease in grapes
Burris, Sarah PLPM:	Dr. DeWitt, toxic mutagens on fruit flies
Carson, Kalynd	Keep Brazos Beautiful, environmental safety
Noker, Christina	TWRC Wildlife Rehabilitation Center, Houston
Carrizales, Cassandra	Keep Brazos Beautiful, environmental curriculum
Bodkin, Raven	Metroplex Hospital, Killeen, TX. Medical staff.
Nig, Lindsey	College Station Public Works Dept, Recycling
Greenway, Emily	College Station Water Services Dept.
Moreno, Andrew	CLVM: Dr. Ball, peptide chemistry techniques
Flores Elizabeth	TAMU Office of Sustainability
Chalaire, Wade	SCSC: Dr. Gentry, Water testing & microbial
Franco, Olivia	PLPM: Kolomiets, functional genomics of maize
Miller, Lindsey	PLPM: Kolomiets, plant fungal interactions
Peery, Oksana	Argon, LLC. Anchorage, Alaska. Water Testing.
Uselton, Thomas	ANRP: National Assoc. of State Dept of Agriculture
Barrera, Ashley	PLPM: Shan, signal transduct. pthways in host responses
Liu, Jun	PLPM: Shan, signal transduct. pthways in host responses
Falck, Alyssa	PLPM: Dr. Shim, Corn Pathogens
Drollinger, Ashton	Turbomachinery Laboratory, steam turbines

Sullivan, Young	PLPA: Dr. Starr, seedling diseases & resistance
Baughn, Victoria	PLPA: Dr. Starr, bacterial blight
Hong, Hyung	PLPM: Dr. Yuan, hydrocarbon terpenoids in plants
Lin, Michael	PLPM: Dr. Yuan, Bacterial Engr. for Biomass
Larsen, Patricia	PLPM: Dr. Wilkinson, screening isolates from extreme environments

Spring 2013

Pinon-Velasquez, Arturo	Wellborn Road Veterinary Medical Center
McAfee, Jonathan	Howdy! Farm coposting program, environ science
Elizalde, Analicia	Shipman ENT & Associates
Escareno, Jessica	TAMU Physicians Clinic
Beard, Traci	Texas Water Resources Institute
Wright, William	Dr. J. Samuel, Microb. & Molecular Pathogenesis
Smith, Rachel	Bryan ISD, curriculum intern
Grable, Kaitlin	PLPM - Dr. E. Pierson, plant-beneficial microbe
Winfrey, Brittany	Keep Brazos Beautiful org.
Godinez, Rosa	Keep Brazos Beautiful org.
Sommers, Colt	College Station Water Services Dept.
Lira, Alvin	TAMU Sustainability Office
Crispin, Cristina	PLPM - Dr. Kolomiets, Aspergillus flavus & maize
Reinhard, Miranda	TAMU Sustainability Office
Alexander, MaryFrances	Howland Engineering & Surveying Co.
Scott, Morgan	ANRP - Austin - State Rep. Dawanna Dukes
Knowles, Logan	PLPM - Dr. Shan, Arabidopsis disease resistance
Rankin, Aaron	College Station Water Services Dept.
Fuentes, Estefany	College Station Water Services Dept.
Eggleston, Chris	Keep Brazos Beautiful org.
Burrow, Jaime	Keep Brazos Beautiful org.
Beard, Kristin	Terracon, geotechnical & Enivironmental Srvcs
Campos, Isabel	PLPM - Dr. Starr. Bacterial Blight of Cotton

Summer 2013

MacNames, Ross	WFSC Study Abroad: Dominica
Buckner, Jessica	GEOG Study Abroad: Costa Rica & Nicaragua
Kost, Olivia	TX Parks & Wildlife, Enchanted Rock State Natural Area
Hatch, Joseph	Messina Hof Production/Vineyard Intern
Berkowitz, Victoria	PLPM: Dr. Gonzalez, BURS, Tailocin pathogenicity in Burkholderia
Buchner, Nathanael	City of Bryan Environmental Services Dept.

Douglas, Matthew	College Station Recycling Program
Maki, Cody	College Station Water Services Department
Malanowski, Agnessa	TAMU Geochemical & Environ. Research lab
Ables, Eric	Monument Chemical, Advanced Aromatics (solvents), Baytown
Black, Lyndy	US Army Corps of Engineers - Fort Worth, forest resources
Chilcoa, Paige	Chromatic Industries Inc., Conroe, TX: petrochemicals
Curtiss, Leah	San Jose Stables (Timmerloh, Germany), Agricultural Waste removal
Kelly, Patrick	USDA Cotton Pathology Research Lab
King, Crystal	Kenerley Project: Fracking
Middlebrooks, Mark	College Station Police, Pharmaceutical disposal
Shea, Jordan	USDA Cotton Pathology Lab
Posey, Andrew	USDA Cotton Pathology Lab
Terry, Kirsten	Barbers Hill ISD, energy management & sustainability
Hobbs, Jacob	Global Steel and Flame Cutting Services (off-shore rigs), The Woodlands
Konvalin, Lauren	Titanium Environmental Services, LLC (Longview)
Allen, Kara	USDA Southern Plains Ag. Research Center, cotton genomics
Godinez, Rosa	Keep Brazos Beautiful
Moncus, Justin	CCM Contracting Services: Water runoff & regulations
Sinnott, Mindy	Keep Brazos Beautiful
Liendo, Sarah	Keep Brazos Beautiful
Miles Tiffany	Blackland Research & Extension Center, Temple
Roldan Anais	Global Alternative Fuels, El Paso, TX (biodiesel)
Flatt, Christy	Texas Parks & Wildlife, Dickinson, TX
Gutierrez, Alison	Gruene Environmental Companies, Austin, TX
Burgess, Mariah	PLPM: Dr. Shaw, Ascomycete fungi
Johnson, Tyler	PLPM: Dr. Shaw, Aspergillus nidulans fungus
Brake, Ashley	PLPM: Dr. Ong, Rose Rosette virus
Eureste, Elani	BESC China Study Abroad
Arcibar, Maria	BESC China Study Abroad
Biaggi Ondina, Camila	BESC China Study Abroad
Butchers, Nikki	BESC China Study Abroad
Gonzalez, Jacqueline	BESC China Study Abroad
Williamson, Christopher	BESC China Study Abroad
Graves, Russ	Lower Colorado River Authority (Water Resource Mgmt)
Loth, Erin	Silver Creek Materials (recycling & frack water), Ft. Worth
Lundquist, Matt	Oasis Petroleum, Houston, Natural Gas contracts

Marsh, Andrea	Texas Worm Ranch, Dallas, compost & organic waste mgmt.
Andrews, Joel	PLPM: Dr. Yuan, BURS, algae biofuels
Mackie, Ryan	PLPM: Dr. Yuan, Unknown project with Syrenne
Lou, Danny	PLPM: Dr. Yuan, algae biofuels
Ghan, Justin	PLPM: Dr. Kolomiets, Hormones in corn crops
Babaz, Ryan	PLPM: Dr. Yuan, hydrocarbons from algae
DuPont, Rebecca	Geochemical & Environmental Research Group (GERG)

Fall 2013

Ghan, Justin	PLPM: Dr. Kolomiets, Hormones in corn crops
Babaz, Ryan	PLPM: Dr. Yuan, hydrocarbons from algae
DuPont, Rebecca	Geochemical & Environmental Research Group (GERG)
Hill, Brian	PLPM: Dr. Kolomiets, corn and corn pathogens
Campos, Hilda	Keep Brazos Beautiful
Garcia, Alex	SCSC: Dr. Morgan, visible near infrared spectroscopy and soil
Chavez, Amanda	Keep Brazos Beautiful
Carlson, Morgan	SCSC: Dr. Jessup, wild hybridization of Napiergrass & wild Pennisetum
Ooi, Jane	PLPM: Dr. Shim, fungal pathogens of crops, molecular biol
Schmitt, Benjamin	Keep Brazos Beautiful
Schaper, Matthew	Keep Brazos Beautiful
Nguyen, Cam-Tu	PLPM: Dr. Kolomiets, corn pathogens
Bomer, Brigitte	PLPM: Dr. Shaw, conidal fungi (Aspergillus nidulans)
Castro, Carolina	PLPA: Dr. Shim, corn or sorghum pathology/mycotoxicology
Forero, Laura	TAMU Office of Sustainability

Spring 2014

Osorio, Giselle	USDA Lab, Cotton Pathology, Dr. Bell
Glasenapp, Jennifer	College Station Water Services
Kajeh, Pedram	BIOL - Zebra Finches 3D Brain Imaging & DNA
Schaffer, Austin	Geochemical Environ. Research Group (GERG)
Medina, Candice	ANRP Program - US Dept. of Agriculture, Intergovernmental Affairs Office
Sprunger, Rachel	SCSC - Dr. Sam Feagley, Soil Analysis
Trubenbach, Alexis	ENTO - Dr. Micky Eubanks, insect ecology & specie interaction
Horgan, Andy	PLPA - Dr. Kolomiets, *Aspergillius flavus*

Alpuerto, Jacob	HEB Pharmacy Technician
Haegelin, Brianne	SCSC - Dr. Joe Storlien, impact of nitrification inhibitor on soil green house gas emissions
Melito, Samantha	SCSC - Soil Characterization Lab (Prochaska)
Collee, Aurelie	SCSC - Dr. Russell Jessup, biofuel pelletization (Napier grass)
Fuentes, Alexa	Keep Brazos Beautiful
Upham, Katherine	Keep Brazos Beautiful
Higgs, Kirsten	PLPA - Dr. Kolomiets, Maize Lipoxygenase
Esquivel, Marissa	SCSC - Dr. Sam Feagley, soil analyses
Jones, Cleveland	TAMU Mktg & Communication Intern
Cardenas, Ana	Howdy Farm, Sustainable agriculture
Scribner, Alexa	PLPA - Dr. B. Pierson, microbial processes & communication
Randel, Jennifer	Ellwood Texas Forge Navasota, Sampling & Retention Pond monitoring
Loughlin, Meghan	PLPA - Dr. Kolomiets, Maize Lipoxygenase
Bond, Mason	Texas Parks & Wildlife Washington on the Brazos

Summer 2014

Belz, Randi	PLPM: Dr. Appel, Sudden Oak Death
Gordon, Gage	Surgical Asst. Brazos Valley Oral & Maxofacial Surgery
Fanning, Austin	State Rep. Kyle Kacal's Office
Salinas, Dennis	USDA Internship (Insect Control& Cotton Disease Research Unit)
Yonamine, Mary Ann	PLPM: Dr. Gross, degradation of lignin for biofuel production
Castro, Melissa	Keep Brazos Beautiful
Longcrier, Christy	Keep Brazos Beautiful
Mandujano, Christina	Keep Brazos Beautiful
Ingram, Megan	Environment Texas (Research & Policy Center)
Dellenback, Katie	Aquatic Pool Management, San Antonio
Ragan, Randi	Sabine River Authority, Environmental Svcs Lab
McElveen, Connor	New York State Department of Environmental Conservation
McKnight	Patrick McKnight's Water Well Service
Gadd, Ashley	Armand Bayou Nature Center, Houston, Tx
Jones, Tyler	Austin Parks And Recreation, Aquatic Intern
Winata, Andrew	BESC Study Abroad, China
Smith, Chastity	BESC Study Abroad, China

Johnson, Zaira	BESC Study Abroad, China
Pozo, Lilian	BESC Study Abroad, China
Quiroga, Samantha	BESC Study Abroad, China
Garza, Stephanie	BESC Study Abroad, China
Payne, Alexandria	UT Environmental Science Institute REU
Soh, Jocelyn	ENTO: Dr. Tomberlin, Chrysoma rufifacies
Cortez, Eric	BIOL: Dr. R. Jones, Zebrafish
Liston, Michael	BIOL: Dr. Mariana Mateos, wasps & bacteria
Langley, Rebecca	WFSC Study Abroad, Costa Rica
Gonzalez, John	AGSM Study Abroad, Belgium
Harper, Allison	AGSM Study Abroad, Belgium
Wilkins, Juliana	BIOL Study Abroad, Costa Rica
Hinojosa, Michael	WFSC Study Abroad, Dominica
Ponder, Kelsie	EPA Region Six, Dallas, TX.
Taylor, James	PLPM: Dr. Kenerley (BURS), Trichoderma virens
Kasper, Britney	OTG Solutions, wind turbine technology
McLeod, Garrett	TAMU Facilities Services, Environmental Planning
Jamieson, Pierce	PLPM: Dr. Kolomiets (BURS), Maize & Aspergillus
Spaulding, Kelly	PLPM: Dr. Kolomiets, LOX10 in maize
Santana, Stephanie	HORT Howdy Farm, sustainable agriculture
Sfikas, Scott	College Station Utilities, Water Treatment
Martinez, Jonathan	TAMU Office of Sustainability
Tow, Benjamin	A&M Health Science Center, Immune Response to Brain
Trauma, Temple, TX	
Gott, Forrest	Dental Shadowing, Lindale, TX
Blize, Kayla	Dental Shadowing, The Woodlands, TX
Dawson, Danielle	Orthopedic Surgery, Dr. Coupe, The Woodlands, TX
Garfield, Austin	UT Health Science Center ER, San Antonio
Tran, Jamie	Vision Source Eyecare, North Richland Hills
Gwinn, Jessica	PLPM: Dr. Ong, TPDDL
Schimelpfening, Allison	PLPM: Dr. Ong, TPDDL
Vela, Andres	NYATI Conservation Corps, South Africa
Luecken, Audrey	3TM Consulting, LLC
Scruggs, Julia	Houston Zoo
Rhodes, Jennifer	Makarios, Dominican Republic (schoolroom clinic)
Glavy, Nathan San	Antonio Water Systems
Tredaway, Tara	Evergreen Recycling, Ft. Worth, TX
Schwope, Whitney	BESC Study Abroad, China/Taiwan
Beall, Colton	BESC Study Abroad, China/Taiwan
O'Donnell, Brett	BESC Study Abroad, China/Taiwan

Midkiff, Caitlin	BESC Study Abroad, China/Taiwan
Snider, Jay	Akurate Dynamics, insulation environ. Impact
Flores, Jessica	Thomas Analytical laboratory, environ. Testing
Vega, Edgar	PLPM: Dr. Shaw, Aspergillus nidulans
Smith, Cody	Environmental Field Technician, SWCA
Morris, Kevin Rowlett,	TX Public Works Dept., water services
Bailey, Tyler	Terracon Consultants, Inc.
Frank, Jordan	Terracon Consultants, Inc.
Pendleton, Drew	Gruene Environmental Companies
Faulkner, Garrett	TAS Environmental Services, Longview, TX
Khalid, Thuba	Geo Environmental Consultants, Inc. Houston, TX
Tariq, Minahial	ESSM: Dr. Jason Vogel, plant hydraulic conductivity
Graham, Phillip	SCSC: Dr. Wight, gas emissions from sorghum biofuel production
Rob, Mounita	TAMU Stable Isotopes for Biosphere Science lab
Overshiner, Sarah	PLPM: Dr. Yuan

Fall 2014

Escobedo, Jennifer	PLPM: Dr. Appel, plant diagnostics & fungicide analysis
Skidmore, Madison	Little Beakers Science Lab, science education
Nixon, Caroline	PLPM: Dr. Dewitt, water & soil sampling Loblolly Lake
Linares, Loises	Howdy Farm, rainwater harvesting & pest control
Santana, Stephanie	Howdy Farm, rainwater harvesting & pest control
Robinson, Kelsey	USDA-ARS, Fungal pathogenicity in cotton
Frank, Jordan	Terracon, environmental consulting, Houston
Fleming, Jessica	PLPM: Dr. Kenerley, fungal volatiles
Harris, Rachel	PLPM: Dr. Kolomiets, oxylipins & fungi/plant communications
Rodriguez, Mary	PLPM: Dr. Shan, plant pathology
Buechele, Thomas	Phase Engineering, environ. Assessments, Houston
Martinez, Jonathan	TAMU Office of Sustainability
Wornson, Emily	TAMU Office of Sustainability
McIntosh, Caitlyn	Keep Brazos Beautiful
Kirby, Jimmy	Scott & White Endoscopy technician

Summer 2015

Adkisson, Brandon	Soil and Water Courses in Belgium
Johnson, Adam	Environmental Specialist
Richardson, Nicolas	Environmental and Regulatory Technician

Toalson, Katie	Sampling for Sudden Oak Death pathogen in previously contaminated nurseries in Texas
Lindsley, Briana	Estuary Research through BURS Program
Pickwell, Kaylee	Establishing Developmental Instability as an Indicator of Environmental Health
Correale, Anthony	Student Worker / Lab Technician at the Testing Lab
Eden, Taylor	Researching Fusaric Acid, Race 4, at the USDA station
Jurach, Joshua	Biological Science Intern for USDA
Park, Sung Jik	Wastewater Treatment
Zapletal, Eva	USDA Microbiology Lab Intern
Jackson, Edward	EHS Team Member at DPR Construction
Mitts, Caitlyn	Water quality outreach
Shepherd, Bryce	Water Quality Intern
Trcka, Taylor	Screening for EPA compliance of construction materials at Boral Industries
Castillo, Sean	Utilizing Viral Vectors to Determine Co-expression Capable Hosts
Castorena, Matthew	Environmental Monitoring for Mobile clean rooms at Fujifilm Diosynth biotechnologies
Harpole, Annette	Animal Caretaker and Public Correspondent for Bryan Animal Center
Porter, Jason	Animal stewardship and conservation
Stamps, rittany	Wildlife and Fisheries Research
Garza, Brittany	Agronomic research at the Agrilife Res. Station Beeville
Hubbert, Micah	RC Wetlands Operations at TRWD Summer 2015
Richardson, Tyler	Summer internship at The Bug Master pest control services company.
Xu, Xiaolin	Working in Soil Fertility and Nutrient Cycling research Group
Goodman, Cooper	Endophytes and Drought Resistance in Subtropical Turfgrass
Birchfield, Leanne	Lab technician for soil & water analytical laboratory. Phase 1 analysis, basic fertility of soil, drinking water analysis.
Chapman, Laura	Production/Vineyard Intern
Hatch, James	Detecting electrical conductivity and spatial differences in soils using an EM38 device
Roberts, Christopher	Enviromental Analysis through Developmental Instability
Clark, James	Intern at Baer Engineering
Hawkins, Taylor	Exploring water remediation efforts in Denton County
Mendieta, Luis	Interning along with Environmental Consultants

Wollenburg, James	Sampling and monitoring environmental impacts of oil field activities with EOG Resources, Inc.
Gustafson, Andrew	Knocking Out Glycoside Hydrolase Gene in T. Virens
Contreras, Gabriel	BURS Scholar
Neal, Timisha	Host-Pathogen Interactions
Steeghs, Victor	Research Assistant
Trejo, Javier	Work with professor and assistant professors in their lab.
Wei, Kevin	Effects of Plant Pathogens and Plant Response
Fanning, Aaron	Shadowing Orthodontists at Johnson, Collins,Capps Orthodontics
Johnson, Neena	Collecting Data for the Development of Heart Disease
Nguyen, Lillian	Summer Crew Internship
Santhosh, Roshan	EMT-Basic training with 80 hours of clinicals AND Shadowing Allergists (M.D.)
Hoelscher, Layton	Environmental Studies Internship with NASA
Krenek, Colleen	Environmental Compliance work at Sunoco Logistics
OQuinn, Taylor	Environmental compliance mapping on federal permits and air regulations on emissions.
Wolfskill, Michael	Assisting environmental project manager at CIMA Services
Brant, Shelby	Exploring the Chinese Nation, Nature, and Ecology
Cruz, Priscila	Classroom/Field Experience in China
Gonzalez, Luz	China BESC Study Abroad Program
Tran, Tri	BURS Program
Baradia, Bilal	Involving sustainable features in an agricultural setting
Beeman, Skye	Managing the Sustainability of the Howdy! Farm
Hanna, Tamara	Small scale sustainable vegetable and fruit production
Orr, Angela	locating gene responsible for the swo mutation in *Aspergillus nidulans* (funded by the BURS program)
Smith, Avery	Recording cell growth dynamics for Dr. Shaw
Liu, Wenting	Study abroad in Korea
Wang, Zhenglu	Korea - Study Abroad
Macias, Jose	Gene mutation in the fungi Fusarium verticilioides
Acosta Mayra	Intern for the office of Congressmen Ruben Hinojosa
Bennett, John	Review of T-REX's Facility and Emissions Permits
Brooks, Natalie	Environmental, Health, and Safety Management Intern at Cargill Salt
Hargrove, Guy	Screening for COC and PCL levels at contaminated sites
Spahr, Lydia	Environmental education and conservation, Sky Ranch Ute Trail, Lake City, Colorado.
Khan, Nishma	Undergraduate Research Assistant

Sidhu, Dilsherpreet	Selection and analysis of transgenic *Nicotiana tabacum* with engineered terpene biosynthesis.
Smith, Nicolas	Paramedic Certificate Program

Fall 2015

Eubanks, Kathleen	Research and Development
Orquera, Gabriela	Administrative Duties and Field Work
Stamps, Brittany	Research the Ecological Systems, Quantitative Analysis
Sosebee, Seth	Maize Breeding
Miranda, Alyson	Exploring Human Capital and Energy Policy at the DOE
Zapleta, Eva	Biological Science Aid in Microbial Ecology
Caton, Benjamin	Chemical, Fertilizer, and seed sales rep and applicator
Cole, Shelby	Environmental Engineer Intern at Arkema Chemical
Scott, Connor	Creation of presentation materials for government officials and stakeholders
Stowe, Kyle	Researching phloem hormonal and oxylipin changes induced by armwyorm feeding- Dr. Kolomiets' Lab.
Washington, Lorenzo	Molecular Plant Pathology Intern
Kaufman, Jennifer	Researching Plant Defenses Against Insect Threats
Strickland, Jacob	Municipal Water Services Intern
Pizzini, Jason	Waste Water Management
Beck, Kacy	Undergrad Invasive Species Research
Moeller, Katharina	Examining the Capabilities of Drosophila flies to be immune to Wasps
Bailey, Tyler	Assisting Texas Living Waters Project Team (National Wildlife Federation)
Breyman, Dylon	Event Cooridinator for Keep Brazos Beautiful
Gay, Contessa	Brazos County Environmental Education at KBB
Braun, Brady	Water Quality Monitoring and Marking
Martinez, Ivy	Working in Dr. Shim's lab
Duvall, Freymuller	Payton Research project on a plant pathogen
Heinrich, Ethan	Learning TCEQ regulations in the field
Bennett, Isabella	Assisting the Office of Sustainability Staff at TAMU
Hussein, Hussein	Graduate student research assistant
Mehlmann, Mackenzie	Campus Marketing Intern

Spring 2016

Christense, Brian	Office of Sustainability at Texas A&M
Craven, Brooks	Howdy Farm
Trahan, Christopher	Howdy Farm

Turner, Megan Howdy Farm
Ibarra, Alejandra Texas A&M University
Carter, Cierra Department of Environmental & Occupational Health; School of Public Health, Texas A&M Health Science Center
Kolander, Monique Texas A&M: College of Veterinary Medicine & Biomedical Sciences, Department of Veterinary Physiology & Pharmacology
Schenewer, Melissa Texas A&M University
Benwell, Katrina Texas A&M University
McWilliams, Kelsey Texas A&M University
Ayala, Oscar Dr. Kolomiets
Gold, Christopher Dr. Kolomiets
Gayre, Lauren Dr. Kolomiets
Trejo, Vivian Dr. Magill
Vaughan, Sarah Texas A&M University Department of Soil and Crop Sciences
Murray, Samantha Department of WFSC, Ecological Systems Laboratory
Hogan, Alexuis Dr. Yanan Tian
Doran, William TEEX-EST
Edward, Elena TAMU Mycology Research Lab
Brooks,Ykeara Northwestern Mutual
Nguyen, Kevin Rodgers, Miller, & Rodriguez, PC
Gest, Chelsea CVS intern
Gonzalez, Liliana St. Joseph's

Summer 2016

Arbuthnot, Rebecca Texas A&M Effects of Increased Salinity and Decreasing Dissolved Oxygen on Molly Fish
Foster, Joseph Texas A&M BUR's internship
Johanson, Tomas Department of Plant Pathology and Microbiology A Multivariate Analysis of the Indirect Effects of Predator-Driven Adaptation to Body Morphology in Mosquito Fish at Texas A&M
Vasselli, Joseph BESC Undergraduate Research Scholars, Effects of the BCL-2 Gene in Transgenic Plants
Eubanks, Christian Texas A&M, Investigation of Acid Seepage in an Unconfined Aquifer
Kilpatrick, Sanders Texas A&M University, Recreation Survey of Boaters on Lake Travis
Smith, Hagan TAMU Soil and Crop Department Laboratory and field research assistant
Hammond, Brianna Undergraduate Research Project, Water Contamination

Rushing, Leika Agrilife Research, Phages of Acinetobacter
Khouri, Colette City of El Paso Environmental Services Department Intern
Clancy, Ryan EnSafe Inc.,Regulatory work for EnSafe's client, Lockheed Martin
Niehus, Brent CIMA Services, Environmental Construction/Hazardous waste removal/ Remediation
Hernandez, Victoria Ageiss Inc., Support the AFCEC Environmental Restoration and Compliance Program
La Rue, Blake Tactical Safety Institute/Bracken Guns, Analysis of Texas Gun Sales / Firing Range Mgt and Compliance with Local, State and Federal Regulations
Giedraitis, Michael Brazos Valley Museum of Natural History Environmental Education/Museum Curation Intern
O'Neill, Collin Texas AgriLife Extension Service, Student Worker Cotton Extension Program
Schwerdfeger, Sarah Thomas Anal., Soil & Water Sampling Lab Technician
Cavender, Bryan R SR Technologies Inc. Laboratory Technician
Luetge, Lindsey Alpha Testing Inc, Environmental Site Assessment Intern
Bracamontes, Gaston ENERCON Performing Phase 1 Environmental Site Assessments
Atencio, Zachary Chemsol Services, Ensuring the legal disposal of hazardous materials through Chemsol Services
Jones, Daniel TAMU PLPM BURS Researching virulence of *Colletotrichum graminicola* in Maize in the day vs. light-to-dark-transition
Rocha, John PLPM Pathology and Microbiology BURS Characterizing Maize Lipid Signaling Genes in Resistance to Mycotoxin Accumulation
Benitez, Marvin BESC Undergraduate Research Scholars (BURS) at TAMU PLPM Dep. Assisting in Undergrad Research through the BURS Program
Martinez, Valeria Texas A&M- Department of Plant Pathology and Microbiology Undergraduate Research Assistant
Mehlmann, Mackenzie Dallas Zoo, Guest Experience intern at the Dallas Zoo
Penn, Dalton Inspectorate North America Petroleum Product Lab Technician
Pina, Alci-Lou Cosmetic Surgery Associates Supervise Dr. Capriotti's surgeries
Bancroft, Matt Bayou Preservation Association, *E.coli* testing for the Bayou Preservation Association
Carpenter, Chase Texas Commission on Environmental Quality, Edward's Aquifer Protection Program
Jones, Dancie Bayou Preservation Association, Water Quality Investigator

Chau, Thuy Texas Commission on Environmental Quality, Screening for Clean Water Act compliance at the TCEQ

Laferriere, Spring TCEQ, Working on active waste section projects conducting field work and writing project reports at the TCEQ in San Antonio.

Payne, Marie Centro de Investigaciones Agronómicas, Universidad de Costa Rica, Sanitation of Refrigeration Units Through Fungicides

Watford, Matthew Texas Conservation Corps Leading individuals in environmental restoration and maintenance

Dominguez, Haniel The L.I.F.E Project Student Learning Instructor

Millar, Emily Sierra Club,Environmental Communications for Lone Star Chapter of Sierra Club

Crocker, Megan BESC Undergraduate Research Scholar (BURS), Determining Co-Expression Abilities of TMV and TBSV in Tomato Plant Cells

Bloomer, Brice American Conservation Experience Conserving parks in Arizona with ACE

Falcone, Christopher Idaho River Journeys Raft Guide and Preservationist on the Middle Fork of the Salmon River

Benson, Kathryn Audubon Naturalist Society Summer Environmental Education Intern

Hamberg, Alexis Research Intensive Community for Undergraduates (RICU) Horsemint Trap Crop for Cotton Fleahopper Research

Ibarra, Alejandra Research Intensive Community for Undergraduate, Analyzing impact of dfTAT dipeptide

Mohammad, Waajid Research Intensive Community for Undergraduate Impact of Meiosis on Cryptococcal Dissemination into the Host Brains Cells

Smith, Teleri TAMU Research Intensive Community for Undergraduates Summer Program, Research Assistant/ Team leader for Dr. He's RICU Summer research

Vahle, Jessica Texas A&M University, RICU: Isolation and Characterization of Plant Mutants and Immunology

Donhauser, Nicole BURS Fungal development research at TAMU

Hankinson, Briana BURS Undergraduate research opportunity

Warren, Stephon Texas A&M University, Using genetic marking tools (GFP & PCR) to identify and track proteins

Tickner, Macey Fasken Oil and Ranch, Ltd. Assist in evaluating and remediating adverse environmental conditions encountered in employer’s oil, gas, ranching and real estate development activities.

Roberts, Bailey Stout Energy Inc. Testing soil, air and water quality in various fields in compliance with the TCEQ and RRC

Anderson, Patrick Sabine River Authority of Texas, Laboratory Analyst for the Sabine River Authority of Texas

LeMaster, Trent TAMU PLPM Department, Functional Analysis of a gene present in *Fusarium verticillioides*

Quinto, Laurel Modern Geosciences Due diligence for environmental consulting.

Cunningham, Grace Trinity Watershed Management, Field assistance and community outreach for the Trinity Watershed Management

Cecil, Scott Aqua-Tech Laboratories Inc. Laboratory Technician

Walding, Brady Offshore Technology Research Center, Maintaining and analyzing test models at the OTRC

Osadebe, Ifeoma American Campus Community, Property Sustainability/Environmental ResLife Coordinator

Hawk, Tracy Plant Disease Diagnostic Lab Koch's postulate on what is believed to be *C. theobromicola*

Motloch, Jonathan Plant Disease Diagnostic Laboratory Mycological Study

Hernandez, Leticia Environmental Health & Safety, Listing stormwater signage for Texas A&M EHS

Cardona, Erik RiceTec, Recording data of rice fields at RiceTec

Gowin, Kelby Clydeco, Inc. Researching different land and seeing if there have been any damages to the property before leasing the mineral rights.

Karnei, Kolton Andy's Irrigation, Service Technician for Andys

Gaur, Kriti A Study of the Carbon Concentrating Mechanism in Algae: Examining Potential Inorganic Carbon Transporters in Transgenic *Chlamydomonas reinhardtii* for Enhanced Terpenoid Production

Fall 2016

Burns, Benjamin PLPM: Diagnosis and Analysis of Pierce's Disease in Texas grapevines

Ayala, Victoria Disney College Program: Exploring conservation techniques and technologies implemented at Disney

Bales, Jeff Agricultural and Natural Resources Policy (ANRP) Internship Program - Office of U.S. Congressman Brian Babin: Congressional Intern in the Office of U.S. Congressman Brian, Babin

Barker, Olivia Soil and Crop Science Soil Sampling

Shaffer, Jonathan GEOG 491-500 Research Experience: Earth Science Undergraduate Research Experience

Romo, Stephanie PLPM BURS Undergraduate Research Assistant

Jonker, Franko PLPM BURS: the role of two maize lipoxygennases, LOX4 AND LOX5 in responding to the fungal elicitor chitin

Boyle, Conan Texas Plant Disease Diagnostic Lab General Lab and Diagnostic Work

Espinoza, Genaro H-E-B Pharmacy: Communication with Doctors and patients, filling prescriptions, and patient health screenings
Ferrence, Janelle The Urban Interface Animal handling & nature conservation education for TUI
Khouri , Colette TAMU Environmental Health and Safety Fall Intern
Ni, Joyce Nothgate Juice Joint Green Restaurant Association Awareness
Bonilla, Andrea Dr. Joshua Yuan's Lab: Plant research assistant
LaRue, Andre PLPM: biomass feed stock and terpene extraction.

Spring 2017

Williams, Jonathon SolarCraft: Improving assembly and application of solar systems at Solarcraft
Pasket, Amber Advanta SeedsStudent Technician
Dundas, Jeff Earth Gallery Farms LLC: Horticultural Assistant at Earth Gallery Farms LLC
Martinez, Lili TEEX Environmental Health and Waste Water Student
Vertil, Bianca U SDA Grants & Agreements Intern
Palmer, Cameron College Station Utilities/ Waste Water Treatment FacilityWaste Water Treatment Intern
Rando, Philip USDA-ARS Biological Studies Assistant
Giles, Katie City of College Station - Waste Water Services
Vega, Miguel J4 Engineering: AutoCad Draftsmen for J4 Engineering
Chikhliya, Urvi Brenham Clinic: Medical Scribe/Job Shadowing
Burgart, Austin Voith Holding Inc.Conduct research and newsletters on NA regulatory topics
Selensky, Brett Solitude Lake Management General Lake and Fisheries Management at Solitude Lake Management
Samantha, Stover Naval Facilities Engineering Command Hawaii at Pearl Harbor Student trainee (HAZ WASTE DIS HLPR)
Allen, Hannah NC Texas Council of Governments Environment and Development Intern at the NCTCOG
Craven, Brooks JM Lord Inc Pest Crop Advising/ Certified Crop intern
Boyd, Ethan Texas Comptroller Working for the Texas Legislature
Musick, Shiann Texas A&M Department of Environmental Health and Safety Learning About Environmental Compliance and Regulation at the TAMU EHS Office
Qiu, Alice Zihui Texas A&M Environmental Health & Safetyoutreach regarding environmental issues and compliance requirements for EHS.
Bustetter, Jon Texas A&M Developing outreach programs for Texas A&M environmental department.

Griffith, David TAMU Environmental Health and Safety Environmental Health and Safety Intern
Velazquez, Nicolas Fungal Genetics and Host Resistance Fungal Genetics and Host Resistance Project
Crone, Makaylee TAMU The effect of xenobiotics on honey bee feeding
Sorenson, Kaitie Baylor University: Using Gene Sequence Data to Determine How Titanium Dioxide Nanoparticles Affect Freshwater Ecosystems
Ferreira, Jasmin Dept of Wildlife & Fisheries Does Spiroplasma, a protective bacterium of Drosophila flies, damaged the gut of a wasps that parasitizes the fly?
Ihekere, eff PLPM: Participating in a Graduate Research Project as an undergraduate lab assistant
Kusak, Kelley PLPM BURS: Characterizing three genes of maize for their effect in local and long-distance signaling following insect feeding
Park, Rachel PLPM BURS: Characterize the hormone and oxylipin composition of two maize mutants during their wound response
Giron, America PLPM Assisting in laboratory procedures
Marines, Valerie PLPM
Laxton, Cinnamon Texas A&M University: Population differences of the Hawksbill Sea Turtles (*Eretmochelys imbricata*) throughout the year world-wide.
Beach, Madalyn Texas A&M Department of Animal Science Undergraduate Research Assistance in the Effects of Age and Exercise on Equine Skeletal Muscle Project
Stevens, Jason Utilities and Energy Services and Residence Life: Impact sustainability practices at the largest university in Texas
McBride, Rachael Aggie Research Scholars Program: Tree growth-climate relationship of three sub-alpine tree species from the Nepal Himalayas and Alaska, USA

Summer 2017

Farrell, Lindsey BESC BURS: Oak Wilt disease control
Potter, Ross BURS Department of Plant Pathology and Microbiology at TAMU Tracking Effectiveness of Fungicide Injections Against Oak Wilt on the Madrone Ranch
Aviles, Teresa Uvalde COOP Assistant Controller
Wiley, Justin Texas Dept. Of Transportation: Environmental / Engineering Tech for the San Antonio TxDOT
Everitt, Morgan PLPM: Engineering an Ergothioneine biosynthetic pathway to develop enhanced fungal production systems
Menchaca, Makenzie BURS Scholar Research Assistan in the Ebbole Lab
Murphy, Sophia Texas A&M University: *Magnaporthe (Pyricularia) oryzae* Gene Family Protein Sequence/Function/Structure
Delgado, Michael Drill Green Petroleum Products: Research for more ecologically responsible petroleum use.

Large, Christopher	AES Drilling Fluid	HS&E Intern
Jones, Riley	PLPA	Aiding in daily lab tasks and learning basic lab protocol
Fales, Diane	Earth Galley Farms	Earth Galley Intern
Hambrick, Erin	USDA- Agricultural Research Service: Procurement	
Polvadore, Erin	USDA ARS: Assisting in ARS Business in the Western region of the US	
Worthy, Jayson	Drake Environmental, LLC	Field Intern
Barajas, Gabriela	Dallas Zoo: Zoo Environmental Internship	
Housley, Rachel	San Antonio Zoo: Citizen Science Intern	
King, Daniel	Canadian River Cattle Co. LP	Assisting in range management at the Colorado River Ranch
Kirchman, Michelle	Houston Zoo	Collegiate Conservation Program Internship
Saathoff, Eric	Port Houston	Intern, Environmental Affairs
Brewer, Caralie	Universidad San Fransisco de Quito	Water Threats and Conservation in the Paramo
Lee, Andrew	PLPM: Assistant in the Plant Virology Lab	
Zowey, Lidyard	Gapforce: Ecological Survey of the Andros Barrier Reef for the Bahamas National Trust and AGRRA	
Capo, Samuel	Hidden Grove Homestead: Sustainable Farming Apprentice	
Fauver Nicholas	NetSpend: Reviewing Security Parameters for companies	
Douglas, Collin	PLPM:	Determining the Relationship of SM1 and SIR1 genes in ISR
Marquez, Arturo	Texas A&M School of Public Health, Program for Research and Outreach-Engagement on Nutrition and Health Disparities Solutions, Data management and data cleaning of dynamic GPS data, Assist with GIS component	
Andrew, Adewumi	PLPM: Working on Understanding the Role of Light to Dark Transitions in *C. graminicola* Infection of Maize	
Burdick, Gwendolyn	BURS Program: Screening Oxylipins for Novel Long-Distance Signaling Activity in Maize Research	
Butler, Austin	BURS Program	
Lichtenberger, Edward	PLPM	Experiment with Anthracnose Leaf Blight
Lyons, Letts	Brenna	PLPM Undergrad research opportunity regarding light to dark transitions in plants
Votion, Kellie	Molecular Biology of Plant Defense Responses Characterizing the Function of Phytohormones Contained in Insect Regurgitant	
Gott, Ethan	Tonya M Allen, DDS, PA	Dental Office Intern for small town general dentist
Meyer, Katharina	R.T. Foust, D.D.S., PLLC	Dental Assistant

Oakley, Kale General Dynamics: Environmental Health and Safety Engineer
Seberger, Tanner Apache Corporation EHS Technician at Apache Corp
Barnes, Anais TCEQ: Compliance with State Environmental Laws
Honnerlaw, Kyle City of Killeen Environmental Services, DepartmentEnvironmental Services Assistant
Stockdale, Caroline TCEQ: Air Permits Intern
Thane, Adam City of Cedar Park, Texas: Public Works Intern at City of Cedar Park, Texas
Hasse, April Student Conservation Association: Houston Wetlands Restoration Team Member
Nguyen, Tiffany Citizen's Environmental Coalition CEC Office Intern
Reed, Margaret Harris County Precinct One Summer Conservation Education Intern
White, Kye The Nature Conservancy, Summer nature preserve intern
Donovan, Allison BURS Localization of protein AN1950 in *Aspergillus nidulans*.
Pircher, Ryan Texas Water Resource Institute: Water quality monitoring at the TWRI
Porter, William Texas A&M University: Research on Hyphal Tip Growth
Guerra, Brisa Texas AgriLife Extension Service, Observing factors affecting the presence and growth of *Pithomyces chartarum*.
Hughes, Gregory Texas Plant Disease Diagnostic Lab (Research Annex): Working on the identification of the rose rosette virus in several Texas counties
Jernigan, Blaine C&S Consulting,Environmental Consulting
Richards, Davis Burl's Collision Center, Environmental Specialist
Salcedo, Marco Aquatech, Water Treatment Division of Entech Sales and Service, Inc. Working under a Water treatment Operations Manager and his daily duties
Tabor, Shane Westward Environmental, Inc., Environmental Consultant in training at Westward Environmental
Broussard, Allison Huntsman Performance Products, Environmental Engineering
Cates, Garrett Enviro-Ag Engineering, Enviromental Compliance for CAFO's
Killion, Savannah Bell Helicopter, Environmental Health & Safety Intern at Bell Helicopter
Moore, Cody Kirksey Machine, Quality Analyst

Fall 2017

Shaver, Jared	WFSC Testing to see how different techniques of pesticide application affect the yaupon plant
Hutson, Heather	Keep Brazos Beautiful
Kuhn, Matthew	City of College Station,Testing water samples
Lazear, Allison	USDA ARS Research Animal Technician
Katherine, Swisher	City of Bryan/BTU Utilities City of Brian Safety and Training Intern
Raul, Garza	Christus Spohn Hospital, Working in the hospital lab and shadowing different individuals
Szabuniewicz, Julia	Agricultural and Natural Resource Policy Internship Program (ANRP),Interning for the Office of Congressman John Ratcliffe
White, Brandon	Robertson County EMS Paramedic
Barker, Olivia	Aggie Research Scholar: Undergraduate Researcher (SOCI) - positive effects of community gardens
Bunsen, Michael	TAMU Department of Geography, The Causes and Implications of Homelessness in Colorado
Allinson, Nicholas	PLPM: Fungal Hyphae-Growth Research
Fischer, Johanna	Nutrition and Health of 17th-Century Sailors Research Analyst
Kramer, Zoey	Sword Lab - Texas A&M University Research Assistant - colonization of fungal endophytes in cotton

TEXAS A&M University®

Appendix I: Recent BESC Graduates and locations

Appendix I- Recent BESC Graduates and Positions

Since 2011, 490 students have graduated from BESC.

Most information is retreaved from Linkedin.com. Empty cell means there is no person found in record; "not updated" means there is record of accout, but no updated information indicating current occupation. Certain information comes from FACEBOOK account. --- Alice Qiu 11/14/2017		
PLPM BESC former graduates name	current occupation	location
2017		
Barajas, Gabriela Rosa		
Laxton, Cinnamon Brandi	no updates	
Nguyen, Tiffany Le, *Cum Laude*		
Salcedo, Marco Antonio	Environmental Professional Gruene Environmental Companies	Austin, Texas
Adkisson, Brandon Shaun, *Magna Cum Laude*	Studies at Boston College Law School (FACEBOOK)	
Bancroft, Matthew Douglas	Environmental Professional in Training at Phase Engineering	Houston, Texas Area
Beach, Madalyn Dene		
Benwell, Katrina Jean	no updates/Works at Biron Gymnastics(FACEBOOK)	
Birchfield, Leanne Alicia	enrollment advisor at Austin Community College	Austin, Texas Area
Bracamontes, Gaston Emilio		
Burgart, Austin Zachary		
Bustetter, Jon Weston	Drainage Inspector at City of Bryan	Bryan, Texas
Chau, Thuy N	coastal wetland restoration intern at Texas Sea Grant	Houston, Texas Area
Chikhliya, Urvi Manish	Project Manager at ScribeAmerica	Dallas, Texas
Christensen, Brian Thomas	MPH Candidate, Environmental & Occupational Health	College Station, Texas
Craven, Brooks J	Scout/Trainee at Wilbur-Ellis	Lemoore, California
Espinoza, Genaro		
Eubanks, Christian Huntt	no updates	
Ferrence, Janelle Helene		

Foster, Joseph Theodore		
Gay, Contessa Nicole	St. Mary's Law School	Austin, TX
Giles, Katie Frances	Environmental Project Technician at Gruene Environmental Companies	Austin, Texas Area
Gold, Christopher Allan	Environmental Inspector at Compliance Resources, Inc	Austin, Texas Area
Goodman, Cooper Bryant		
Gowin, Kelby Wade		
Hamberg, Alexis Brooke	Recruitment consultant at Spencer Ogden	Houston, Texas Area
Harpole, Annette Grace	Park Ranger (Interpretation) at National Park Service	Houston, Texas Area
Ibarra, Alejandra Sarahi		
Ihekere, Jeff Chidi		
Johnson, Neena	law school (Alice's personal knowledge)	
Jonker, Franko		
Khouri, Colette Mariam	Field Scientist at Terracon	Dallas/Fort Worth Area
Laferriere, Spring Annette, *Magna Cum Laude*	Environmental Scientist at Tetra Tech Industries	Bryan/College Station, Texas Area
Lindsley, Briana Elaine	Environmental Risk Analyst at JPMorgan Chase & Co.	Dallas/Fort Worth Area
Luetge, Lindsey Elizabeth	Environmental Scientist at APTIM (formerly CB&I Capital Services)	Austin, Texas Area
Martinez, Lili	Environmental health and safety intern at TAMU Engineering Extension Service till July 2017	College Station
Miranda, Alyson Micole, *Summa Cum Laude*	Business Analyst at McKinsey & Company	Houston, Texas Area
Mohammad, Waajid	Software Implementation Consultant at The Reynolds and Reynolds Company	Houston, Texas Area
Musick, Shiann Michelle	no updates	
Roberts, Christopher Kenneth	Customer Sales Associate at H E B Grocery Co	Cypress, Texas
Romo, Stephanie	Undergraduate Research Assistant at Department of Plant Pathology and Microbiology	Bryan College station
Selensky, Brett Caleb	Field Technician at Lake Management Services, LP(FACEBOOK)	

Sommers, Kenneth Colten	Environmental Specialist at Triumvirate Environmental	Greater Boston Area
Sorenson, Kaitie Ruth		
Stevens, Jason Alexander		
Vasselli, Joseph Garrett	graduate Student in PLPM	College Station
Vega, Miguel		
Zapletal, Eva, *Magna Cum Laude*	College Preparatory Science Teacher IDEA Public Schools	Austin Texas
2016		
Anderson, Patrick Hasting		
Bonilla, Andrea Lisseth	no updates	
Boyle, Conan Michael	Waste Chemist at SET Environmental, Safety Management Systems(FACEBOOK)	
Burns, Benjamin Thomas	Field Inspector at Compliance Resources, Inc	Austin, Texas Area
Cantu, Jose Ishmael		
Cardona, Erik	Shift Supervisor at CVS Health	Houston, Texas
Carter, Cierra Denise	Graduate Student at Texas A&M University	College Station
Castorena, Matthew Raul	Quality Control Microbiologist at FUJIFILM Diosynth Biotechnologies	College Station
Cecil, Scott Adams	Technician at Raba Kistner, Inc.(FACEBOOK)	
Dominguez, Haniel		
Eubanks, Kathleen Elizabeth	Graduate Student at Louisiana State University	Greater New Orleans Area
Hammond, Brianna Jenelle	Investigator I at Harris County Public Health	Houston, Texas Area
Hankinson, Briana Rachelle O	no updates	
Hawk, Tracy Elizabeth	Graduate Student at University of Arkansas	Fayetteville Arkansas
Hernandez, Victoria Clarissa	Environmental Scientist at AGEISS Inc.	San Antonio, Texas Area
Johanson, Tomas E.	Program Assistant, Translator, Data Manager, Environmental Health Master's Student	College Station
LeMaster, Trent Alexander	Research assistant at Texas A&M University(FACEBOOK)	
Long, Alexis Sabrina, *Cum Laude*	Worked at Banks & Banks, Attorneys at Law, P.C.(FACEBOOK)	
Macias, Jose Salvador	no updates	

Niehus, Brent Lawrence	Environmental Specialist at CIMA Services LP	Houston, Texas Area
Orr, Angela Elaine, *Magna Cum Laude*	Lead Receptionist at Waggie Pet Zone	College Station, Texas
Porter, Jason Gregory	Chemical Officer at Army National Guard	Plano, Texas
Quinto, Laurel Miranda, *Magna Cum Laude*	BS- Environmental Science law student	Boulder, Colorado
Rocha, John Sebastian	Operations Manager at LMC	College Station, Texas
Schwerdfeger, Sarah Renee	Project Manager at Terracon Consultants Inc.	Austin, Texas Area
Watford, Matthew Franklin	no updates	
2016		
Cavender, Bryan Smith	no updates	
Clancy, Ryan Gallagher		
Falcone, Christopher James		
Fanning, Aaron Cutler	Sales Representative at Graybar	Roanoke, Texas
Hernandez, Leticia	Assistant at Green Planet, Inc.	Dallas
Hubbert, Micah Taylor		
Martinez, Valeria	Software Engineer at Eddily	San Francisco Bay Area
Motloch, Jonathan Taylor	PLPM Extension employee	College student
Murray, Samantha Jane	Former Lab Technician at Thomas Analytical(Facebook)	
Nguyen, Lillian Elizabeth	Gasoline Environmental Analyst (Lonestar) at 7- Eleven	Houston, Texas Area
Osadebe, Ifeoma	Project Coordinator/Manager at Fercam Group Environmental Consulting	Houston, Texas Area
Penn, Dalton Shea	Chemist at INSPECTORATE AMERICA CORP	Houston, Texas Area
Sidhu, Dilsherpreet Singh	Technical Services Project Manager at Clean Harbors	Fremont, California
Smith, Hagan Lee		
2016		
Acosta, Mayra Alejandra	Procurement Specialist at Schlumberger	Lewisville, Texas
Adkison, Erin Claire, *Cum Laude*		
Ansell, Sloane Alexandra	Sales and Marketing Development	San Francisco Bay Area

Beall, James Colton	ESE Partners, Inc.	Houston, TX
Beck, Kacy Elizabeth		
Beeman, Skye Marie	Environmental Scientist at Mounce & Associates	Dallas/Fort Worth Area
Brooks, Natalie Corinne	EHS Consultant at EnSafe	Memphis, Tennessee
Brooks, Ykeara Lashundra	no updates	
Castillo, Sean Philip, *Magna Cum Laude*	Communicable Disease Intern at Texas Department of State Health Services	San Antonio
Chapman, Laura Michelle	Project Manager at Dunham Engineering, Inc.	College Station, Texas
Duvall-Freymuller, Payton, Cum Laude	Extension Assistant at Texas Plant Disease Diagnostic Lab	College Station, Texas
Edwards, Elena Lee, *Magna Cum Laude*		
Garza, Brittany Nicole		
Gest, Chelsea M	no updates	
Gonzalez, Liliana		
Gustafson, Andrew Anand, *Summa Cum Laude*		
Gwinn, Jessica Kay, *Magna Cum Laude*		
Hatch, James Darrell		
Hinojosa, Michael	Occupational Health Intern at Chevron	Houston, Texas Area
Hogan, Alexuis Rayshell	no updates	
Horgan, Andrew McCutchen, *Cum Laude*		
Khan, Nishma Z	Full Stack Developer at Infosys	Indianapolis, Indiana
Kolander, Monique Heather, *Magna Cum Laude*	Environmental Scientist at Mounce & Associates	Carrollton Texas
Langley, Rebecca Therese, *Magna Cum Laude, Undergraduate Research Scholar*	Health, Safety, Environment Intern at Altice USA	Tyler Texas
Liu, Wenting	Second year MPH student in Environmental Health	College Station, Texas
McIntosh, Caitlyn Rose	not updated	

McWilliams, Kelsey Lynn, *Magna Cum Laude*		
Nguyen, Kevin Quoc		
Payne, Alexandria Nicole, *Cum Laude, Undergraduate Research Scholar, Honors Fellows*	PhD candidate at Entomology TAMU	College Station, Texas
Peel, Lauren Elizabeth, *Magna Cum Laude*	Environmental Scientist at Health and Environmental Sciences Institute (HESI)	Washington D.C. Metro Area
Pickwell, Kaylee Corrine, *Cum Laude*	Worked at Tetra Tech(FACEBOOK)	
Price, Hannah Dawn, *Cum Laude*	Central Staff Intern at Fourteenth Court of Appeals	Houston, Texas
Richardson, Nicolas Carl	not updated	
Rodriguez, Mary Jean, *Cum Laude, Undergraduate Research Scholar*		
Santhosh, Roshan Kumar	not updated	
Scott, Connor Alan	not updated	
Scruggs, Courtney Elizabeth	Compliance Analyst at JDEC Solutions LLC	Houston, Texas
Smith, Avery Ryan	Research Technician at Kelly Scientific	Baytown
Smith, Nicolas James	not updated	
Stowe, Kyle Alexander		
Tran, Jamie		
Trejo, Vivian Marie	not updated	
Vaughan, Sarah Nicole, *Cum Laude*		
Wang, Zhenglu	M.S. at TAMU Environmental Engineering	College Station, Texas
2015		
Baradia, Bilal Abdulgafur		
Brant, Shelby Nicole		
Breyman, Dylon Shane	Environmental compliance at PETROLEUM WHOLESALE L.P.	Spring, TX
Burgess, Mariah K.		
Elissetche, Luis Roberto	not updated	

Ergas, Adam Quinn	Environmental & Analytical Scientist at Oxidor Laboratories	Dallas/Fort Worth Area
Gadd, Ashley Renee	Safety Specialist at MD Anderson Cancer Center	Houston, Texas Area
Gonzalez Beaudion, John Lee, *Undergraduate Research Scholar*	Master's Candidate at St. Edward's University	Austin, Texas
Hanna, Tamara Gabrielle	Recruiter at Becker Wright Consultants	Austin, Texas Area
Hargrove, Guy G.		
Hawkins, Taylor Braden		
Hussein, Hussein	Health System Administration Intern at CHI St. Luke's Health	Houston, Texas Area
Jackson, Edward Allen	Project Engineer at DPR Construction	Austin, Texas Area
Jones, Tyler Dunlap	Program Coordinator at CLEAResult	Austin, Texas Area
Jurach, Joshua Cody	Lab Technician at USDA ARS	College Station, Texas
Liston, Michael Isaac	Staff Scientist at ATC Group Services LLC	Dallas, Texas
Martinez, Ivy Michelle	Sales Entertainment Group at AT&T	Austin, Texas Area
Mitts, Caitlyn Renee	Natural Resources Specialist II at Texas Commission on Environmental Quality	Amarillo, Texas
Orquera, Gabriela Nicole	Environmental Scientist at GHD	Baton Rouge, Louisiana
Park, Sung Jik		
Pizzini, Jason Douglas	Research Assistant at UT Health Science Center	San Antonio, Texas Area
Presswala, Mustafa Zoeb	not updated	
Richardson, Tyler K.		
Scully, Christian Martin		
Steeghs, Victor Jesus	Staff Scientist at Baer Engineering & Environmental Consulting, Inc.	Austin, Texas Area
Strickland, Jacob Shane	Front Desk Specialist at Holiday Inn Club Vacations	Flint, TX
Trejo, Javier		
Wei, Kevin Hong		
Wilkins, Juliana Elizabeth		
Wolfskill, Michael Riley	Environmental Scientist at URS Corporation	Austin, Texas Area

Zhang, Huanming	Part-time digital Desk Producer	Mediacorp Campus, Singapore
2015		
Binoy, Bincy		
Clark, James Conrad		
Crawford, Taylor Wells		
Cruz, Priscila		
Forero, Laura Cristina		
Hoelscher, Layton James		
Jones, Cleveland		
Krenek, Colleen Elizabeth	Air Permit Specialist at the Texas Commission on Environmental Quality	Austin, Texas Area
Mendieta, Luis Antonio		
Neal, Timisha Deandrea	Financial Advisor at Alltran	College Station, Texas
Nixon, Caroline Leigh	Environmental Inspector at City of College Station	College Station, Texas
Pendleton, Drew Dabney	PhD candidate, Toxicology at TAMU	College Station, Texas
Shepherd, Bryce Albert	Environmental Scientist for Alpha Testing Inc.	Dallas/Fort Worth Area
Toalson, Katie Luise		
Vecera, Mason David	not updated	
Wollenburg, James Robert	Environmental Consultant at EOG Resources	San Antonio, Texas
2015		
Barton, Michelle Rene	Water Treatment Specialist at Ecowater by Dupure	Houston, Texas
Beascochea, Andres Oscar	Data Analyst at CSL Services Inc.	Sicklerville, New Jersey
Blize, Kayla Nicole		
Cisewski, Katherine Ann	Fitness Instructor at TAMU Rec Sports	College Station, Texas
Esquivel, Marissa Elaine	Corps Member at City Year	San Antonio, Texas
Farooqui, Soofia M	RNA Synthesis & Processing Tech I at Sigma Genosys Inc	Houston, Texas
Ferrell, Krista Lee	Biology teacher at DESOTO INDEPENDENT SCHOOL DISTRICT	Dallas/Fort Worth Area

Fleming, Jessica Michelle, *Magna Cum Laude*	Program Coordinator in the Air Quality Division at TCEQ	Austin, Texas
Flores, Jessica Estelle	Risk and Compliance coordinator at Texas A&M AgriLife	College Station, Texas
Garfield, Austin Alan	Software Training Specialist at eClinicalWorks	Westborough, Massachusetts
Graham, Phillip Thomas	Waste Coordinator at SET Environmental, Inc.	Houston, Texas Area
Haegelin, Brianne Noel	Science Teacher at Morton Ranch HS	Katy, Texas
Herron, Chamin Lakei		
Johnson, Tyler Bernard, *Summa Cum Laude, Undergraduate Research Scholar*	Master student at Colorado State University	Colorado
Lopez, Antonio Ferman		
Mahavadi, Srikaran	Law school student at University of Houston law center	Houston, Texas
Martinez, Jonathan		
Medina, Candice Renee	Graduate Research Assistant at Texas A&M University	College Station, Texas
Morris, Kevin Andrew		
O'Donnell, Brett Horton	J.D. Candidate, University of Virginia School of Law	Charlottesville, Virginia
Osborne, Olivia Faye		
Pacheco, Daniel James	Second Lieutenant, United States Marine Corps	United States Marine Corps
Privett, Troy Michael	Data analyst at RJN Group	Dallas/Fort Worth Area
Rob, Mounita Mohani	Consultant at ERM: Environmental Resources Management	Dallas/Fort Worth Area
Santana, Stephanie Sandy	not updated	
Simmang, Haley Nicole		
Soh, Jocelyn		
Sprunger, Rachel Miranda	Environmental Specialist at Blanton & Associates	Austin, Texas
Taylor, James Talmage	Graduate student at PLPM	College Station, Texas
Tredaway, Tara A	not updated	
Vela, Andres David	not updated	
Willard, Avery Shamar	not updated	

Wooters, Valerie Erin	Geologist/Environmental Scientist at SCS Engineers	Houston, Texas Area
Wright, William Uzzell, Undergraduate Research Scholar		
Yanez, Rubi J	not updated	
Yang, Jennifer S		
2014		
Black, Lyndy Taylor	Park Ranger at U.S. Army Corps of Engineers	Granbury, Texas
Buechele, Thomas Andrew		
Castro, Melissa Sue		
Drab, Dillon Arnold, *Magna Cum Laude, Undergraduate Research Scholar*		
Escobedo, Jennifer Elizabeth		
Garza, Stephanie Lauren		
Gonzalez, Manuel Estevan	EHS Manager at Amazon Fulfillment Center	Houston, Texas
Gordon, Gage Allan	HSE Coordinator at ISN	Dallas, Texas
Gott, Forrest Kendall	not updated	
Harper, Allison Leigh	Environmental Scientist at GHD	Dallas/Fort Worth Area
Harris, Rachel Raymone	Laboratory Assistant at Central Texas College	Killeen/Temple, Texas Area
Higgs, Kirsten Virginia	Environmental Scientist at Terracon	Austin, Texas
Hilton, Jonathan David		
Johnson, Zaira Christina		
Kajeh, Pedram		
Kasper, Britney Ann	Environmental Scientist at Whitenton Group Environmental Consultants	New Braunfels, Texas
Khalid, Thuba		
Kirby, James Michael		
Linares, Moises	Patient Resource Specialist at American Cancer Society	College Station, Texas
Locke, Sydney Lorraine		
Longcrier, Christy Lynn		

Midkiff, Caitlin Ann		
Morgan, Jordan Cristan	Field Environmental Scientist at Terracon	Houston, Texas
Ponder, Kelsie Jane		
Ragan, Randi Elizabeth	Laboratory Analyst at ExxonMobil	Beaumont, Texas
Rhodes, Jennifer Margaret	nursing student	Bryan/College Station, Texas Area
Salinas, Dennis Andrew		
Schwope, Whitney Nicole	Ecologist at Westward Environmental	Boerne, Texas
Skidmore, Madison Ann	Supply Chain CSR - OTG at Hexion Inc.	Houston, Texas Area
Smith, Chastity Monique	Patient Care Coordinator at Hamilton Vein Center	Houston, Texas Area
Tariq, Minahial		
Trubenbach, Alexis Catherine		
Winata, Andrew Shou		
Yonamine, Mary Ann		
2014		
Belz, Randi A	Customer Sales Representative at Arrive Logistics	Austin, Texas Area
Cortez, Eric Anthony	HEB Quality Assurance Lab Technician	San Antonio, Texas
Dawson, Danielle Nicole	not updated	
Fanning, Austin Jarrett	Field Sales Account Executive at Concentra	San Antonio, Texas
Hatch, Joseph Vinson	Licensed Realtor | Moats Team at Keller Williams	Austin, Texas
Posey, Andrew Thomas		
Pozo, Lilian Elizabeth	PSA Quality Control Technician at Toyo Ink America, LLC.	Houston, Texas
Schimelpfening, Allison Therese		
Spaulding, Kelly Christine	not updated	
2014		
Ables, Eric Daniel		
Allen, Kara Michele, *Magna Cum Laude*	Environmental Representative at Chesapeake Energy	San Antonio, Texas Area
Alpuerto, Jacob Joese, *Magna Cum Laude*	Healthcare Recruiter at Medix™	Dallas/Fort Worth Area
Arcibar, Maria Soledad		

Babaz, Ryan Matthew	Environmental Compliance Coordinator at Noble Drilling	Houston, Texas Area
Berkowitz, Victoria Elise, *Magna Cum Laude*	Law Clerk at United States District Court for the Eastern District of Texas	Austin, Texas Area
Biaggi Ondina, Camila Alexandra		
Bomer, Brigitte	Biotechnology, Manufacturing Scientist at Agilent Technologies	Austin, Texas Area
Brake, Ashley Joy	OnSite Specialist at Stryker	Dallas/Fort Worth Area
Butchers, Nikki Jean		
Campos, Isabel		
Cardenas, Ana Maria	Environmental Scientist at ESE Partners	Bryan/College Station, Texas Area
Castro, Carolina Ysabel	Environmental Scientist at Trileaf Corporation	Austin, Texas Area
Collee, Aurelie Sabine	LCMS Chemist /Analyst II	Greater Denver Area
Curtiss, Leah Catherine		
Dupont, Rebecca Lynn		
Escareno, Jessica Marie	Graduate Assistant at University of Memphis	Memphis, Tennessee
Eureste, Elani Marie	Quality Assurance Lab Tech II at HEB Dairy Plant	San Antonio, Texas
Flatt, Christy Lynn, *Magna Cum Laude*	Associate Environmental Coordinator at Cheniere Energy, Inc.	Houston, Texas Area
Fuentes, Alexa Gisela	not updated	
Greenway, Emily Frances	Media Tech Prep II, Fuji Film Diosynth Biotechnology	Bryan/College Station, Texas Area
Grumbles, Alyse Nicole, *Magna Cum Laude*	Health Hazard Analyst at Shell	Houston, Texas
Jones, Larentia Nicole		
Karns, Dylan Douglas		
Kelly, Patrick J, Magna *Cum Laude*		
Kost, Olivia Ann	Fish & Wildlife Technician at Texas Parks and Wildlife Department	Lubbock, Texas Area
Lira, Alvin Antonio	Legislative Data Analyst at Bloomberg Government	Washington D.C. Metro Area
Loth, Erin Marie, *Cum Laude*		

MacNames, Ross Philip, *Magna Cum Laude*	Project Manager at Consolidated Consulting Group	Dallas/Fort Worth Area
Maki, Cody Robert	Graduate Student Researcher at Texas A&M University	Bryan/College Station, Texas Area
Middlebrooks, Mark, *Summa Cum Laude*		
Moncus, Justin Ray		
Nguyen, Cam-Tu Thi		
Noker, Christina Marie		
Osorio, Giselle Maria		
Rafes, Courtney Anne		
Randel, Jennifer Leigh		
Reinhard, Miranda F, *Summa Cum Laude*	Staff Scientist, ESA Services | Natural/Cultural Resource Services at Terracon	Austin, Texas Area
Rhodes, Shelby Corinne, *Magna Cum Laude*	Plant Diagnostic Technician	Texas Plant Disease Diagnostic Lab
Scribner, Alexa Alaine		
Shaffer, Austin Jeffrey		
Shea, Jordan McClendon	Environmental Coordinator at MGC Advanced Polymers, Inc.	Richmond, Virginia Area
Upham, Katherine Jo	Natural Resource Specialist at Railroad Commission of Texas	Austin, Texas Area
2013		
Baughn, Victoria Faith		
Burrow, Jaime Ruth	Water Quality Inspector	Houston, Texas Area
Campos Hayakawa, Hilda Elena		
Carlson, Morgan Nicole	Graduate Research Assistant at Texas A&M University	College Station, Texas
Chavez, Amanda Alejandra	Substitute Teacher at CSISD at College Station Independent School DIstrict	College Station, Texas
Commer, Blake Erin		
Dawodu, Abdul-Lateef Oluwakayode		
Eggleston, Christopher Dale	Environmental Specialist III at City of Dallas	Dallas/Fort Worth Area
Garcia, Alex		
Ghan, Justin Pierce		

Gutierrez, Alison A	Supervisor, Food Safety & Quality Assurance at ARYZTA	Greater Chicago Area
Hill, Brian J	Supervisor at MD Toxicology	San Antonio, Texas Area
Keener, Bryan Alexander	Staff Scientist at NTG Environmental	Odessa/Midland, Texas Area
Konvalin, Lauren Rebekah	Environmental specialist at Titanium Environmental Services, LLC till 2016/04	Longview, Texas
Mackie, Ryan Wayne	Staff Geologist at Partner Engineering & Science, Inc.	Dallas/Fort Worth Area
Marsh, Andrea Lauren	Horticulture Systems Specialist at Fluence Bioengineering	Austin, Texas Area
Miles, Tiffany Alexis		
Ooi, Jane Ee	not updated	
Rodriguez, Daniel		
Roldan, Anais Margarita		
Schmitt, Benjamin Andrew	HSSEA Support at Wood Group	Houston, Texas Area
Schmitt, Kyle Andrew	Production Engineering Technician at Oasis Petroleum	Houston, Texas Area
Thompson, Nicholas Adam		
2013		
Buchner, Nathanael Thomas		
Cochrane, Roger Thomas, *Cum Laude*	Environmental Health and Safety Specialist	Houston, Texas
Douglas, Matthew Evan		
Godinez, Rosa Marina		
Gonzalez, Jacqueline Elizabeth		
Lou, Danny Xavier Chin Fung		
Malanowski, Agnessa		
Pinon-Velasquez, Arturo Tobias	Veterinary Assistant at South 40 Equine	College Station, Texas
Rankin, Aaron Jamaal	Validation Analyst at Lockheed Martin	Dallas/Fort Worth Area
Sexton, Taylor B	Healthcare Policy.Legislative Research. Creating sustainable informed solutions through collaborative research	Dallas/Fort Worth Area
Sinnott, Mindy L	Environmental Scientist at Tetra Tech	Greater Denver Area

Williamson, Christopher Carroll	R&D Lab Technician at DuPont	Orange, Texas
2013		
Arend, Krystal Renae		
Beard, Traci Nicole		
Bryan, Calvin Ross, Cum Laude	U.S. Forest Service Wilderness Ranger Trail Crew Supervisor	Boulder, Colorado
Butler, Sarah Lena, *Cum Laude, University Honors, Foundation Honors*	Legal Intern at Multnomah County District Attorney's Office	Portland, Oregon
Calvert, Kaylen Elaine	Environmental Specialist at QPSE	Houston, Texas Area
Carrizales, Cassandra Mariel		
Carson, Kalynd Blair		
Crispin, Cristina Inez	Department Manager - Floral at H-E-B	Houston, Texas
East, Erica Catherine, Cum Laude		
Elizalde, Analicia		
Ellis, Luke Travis	Home Teacher at Brookwood Community	Houston, Texas Area
Erickson, Timothy Andrew		
Flores, Elizabeth Jean	Planner III, Austin Resource Recovery at City of Austin	Austin, Texas Area
Franco, Olivia Ann		
Fuentes, Estefany Karina	ESL Teacher at Bryan ISD	College Station, Texas
Gordon, Travis James		
Grable, Kaitlin Alexandra	Water Programs Outreach Coordinator at Galveston Bay Foundation	Houston, Texas
Hilton, Angelyn Elizabeth, *Summa Cum Laude, Undergraduate Research Scholar*	PhD student, PLPM, TAMU	College Station, TX
Knowles, Logan Michael	Environmental Scientist at AECOM	Houston, Texas
Liu, Jun		
Lopez, Pablo	Research Assistant at Texas A&M University	Bryan/College Station, Texas Area
McCarthy, Marissa Lynne		

McConnell, Morgan Lee		
Mendoza, Gregory Allen		
Moeller, Mark Stephen	HSE Manager at PepsiCo Texas Tech University	San Antonio, Texas Area
Moreno, Andrew Franki	Environmental Specialist at Kuraray America, Inc.	Houston, Texas
Natividad, Vanessa	Junior Superintendant at Bonner Carrington	Houston, Texas Area
Pineda, Stephanie Marie	Operations Team Lead and Tech Assistant at Calendars.com	Austin, Texas Area
Pyle, Jesse Dylan, *Honors Fellows, Magna Cum Laude*	PhD Candidate at Harvard University	Boston, Massachusetts
Rychetsky, Lacy Larae		
Segoviano, Migel Anjel	Avionics Technician at United States Air Force	Medical Lake, Washington
Smith, Rachel Denise		
Tate, Brittany Latrice		
Uselton, Thomas Jack		
Wann, Maggie		
Winfrey, Brittany Lecarra		

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Appendix J:
PLPM Graduate Student Handbook

Plant Pathology & Microbiology

PLPM

TEXAS A&M UNIVERSITY

Graduate Student Handbook

TEXAS A&M UNIVERSITY

College of Agriculture & Life Sciences
Department of Plant Pathology & Microbiology

Fall 2018

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The Aggie Code of Honor

An Aggie does not lie, cheat, or steal or tolerate those who do

WELCOME TO THE DEPARTMENT OF PLANT PATHOLOGY & MICROBIOLOGY!

The decision to pursue graduate studies is one of the most important choices you will make in your career path. You are mapping the course of your future. With your undergraduate degree, you could have entered the workforce as a scientist, but by continuing your education you are enhancing your future professional opportunities. By choosing graduate studies you have decided that you want to be a leader in the arena of life science research, teaching, and/or extension.

We are pleased to have you join our department to pursue your goals. We feel that plant pathology and microbiology offers exciting opportunities that are likely to continue to increase in the future. The national and global food supply and the quality and safety of our food will become increasingly important in the future.. The potential to reduce the effects of plant pathogens, increase the beneficial uses of microorganisms for generating or improving bio-based products and the use of microorganisms to solve environmental problems is just beginning to be realized. You have chosen a career that will offer you an exciting variety of opportunities.

Rest assured our faculty, are committed to providing you with the best training possible. Graduate study will be different from your experiences as an undergraduate. Our goal is not so much to provide you with masses of information, but to help you learn how to learn. The "facts" of science change continually, so you are starting a process that will continue throughout your lifetime as a scientist. Our success will be measured by how well you develop the discipline, the self-confidence, and the ethical standards necessary for your future success. Much of what we teach will be by apprenticeship methods. There is considerable "art" in scientific research, teaching and extension. The best way to teach this is by the laboratory rotations, laboratory classes, seminar courses, field trips, and the research experiences you have when you join a laboratory. Therefore, our best advice to you is to start to wean yourselves from textbooks and other crutches of undergraduate education. Now more of your learning should be from the primary literature and from your personal contacts with professors, technical staff, and fellow students. Our primary purpose as University faculty is to share our knowledge and skills with students. We feel it is best to do this by including you in our current research, teaching, and extension activities.

Welcome to the Department!

Dr. Leland (Sandy) Pierson III

Professor & Department Head

Roles & Responsibilities

I. STUDENT

Graduate students are expected to be actively involved in and committed to the pursuit of excellence in all aspects of their academic and research endeavors during their tenure within the Department. Students should strive to maintain and enhance an environment conducive to the highest levels of scholarship and scientific inquiry. As important members of the Department, graduate students are expected to attend, support, and fully engage in department events and activities. In particular, department full participation of graduate students in seminars, assignments to any department committees, and the graduate student organization are essential. Academic excellence, advanced studies, and research pursuits are to be pre-eminent goals for every graduate student. Each student will be responsible for these additional requirements:

1. Know and follow the specific degree requirements of the Texas A&M University and the Office of Graduate and Professional Studies.
2. Know and follow the specific degree requirements established by the Department of Plant Pathology and Microbiology.
3. Enroll in the appropriate course work to complete your specific degree plan and maintain full- time status if receiving an assistantship or scholarship.
4. Maintain the appropriate levels of academic achievement to continue in the graduate program. Graduate students must maintain a minimum grade point ratio (GPR) of 3.00 on a scale of 4.00 in all courses required by their degree plan.

Departmental degree requirements for the M. S. and Ph. D. include satisfactory advanced study and research as determined in consultation with the Major Professor and student Advisory Committee. The M.S. (Master of Science) and Ph. D. (Doctor of Philosophy) are research degrees and must be approached as such. These degrees are not granted solely for the completion of course work, residence, and (or) technical requirements, although these also must be met. These degrees are awarded upon the completion of an independent research project with the accompanying thesis or dissertation. The Master of Agriculture or M.S. without a thesis is based upon the requirements presented by the Office of Graduate and Professional Studies. These degrees and the requirements for successful completion of each are described in detail at the following link: http://catalog.tamu.edu . Another helpful link is the Office of Graduate Studies and Professional Studies: http://ogs.tamu.edu

II. STUDENT'S ADVISORY COMMITTEE

The selection of a Major Professor is one of the most important decisions a graduate student will make. This person will act as mentor, thesis or dissertation advisor, research director, and mediator on behalf of the student to the departmental administration. Also, the student's Advisory Committee shall be selected jointly by the student and their Major Professor, who will serve as the Chair of the Advisory Committee. The Committee will be composed according to the regulations established by the Office of Graduate and Professional Studies as described in the Graduate Catalog. The graduate committee shall provide guidance and advice to the student. Specifically, the graduate committee will work with the student to develop a degree plan which meets the individual needs of the student and satisfies all requirements of the University, the Office of Graduate and Professional Studies, the College of Agriculture and Life Sciences (COALS), and the Department of Plant Pathology and Microbiology.

The committee will also work with the student to develop an appropriate Research Proposal for M.S. or Ph.D. degree programs; and provide advice and counsel during the research. The responsibility of the committee, working in concert with the Department Head, is to judge the academic qualities of the student and the student's work. This shall be accomplished through the required preliminary examination (Ph.D.) and final oral examinations (M.S.) and oral defense of thesis or dissertation (M.S. and Ph.D.). Each of these examinations will result in a pass or fail decision by the graduate committee. The graduate committee will meet with the student no less than once every 12 months. Written records of each meeting must be kept. Graduate students will be responsible for ensuring the appropriate forms are submitted. See the ADH or Department Staff for instructions. In addition, once a year a progress evaluation will be filed with the Associate Department Head for Graduate Programs.

III. DEPARTMENTAL GRADUATE ADVISOR

The role of the Departmental Graduate Advisor is to provide orientation, advice, and interim guidance to incoming graduate students prior to selection of a Major Professor. Accordingly, students who have not selected a Major Professor should seek the advice and counsel of the department Graduate Advisor, especially with regard to registration for course work.

Dr. Daniel Ebbole
Professor & Graduate Advisor
312B LF Peterson
Email: d-ebbole@tamu.edu
Tel: 979-845-4831

IV. DEPARTMENT CURRICULUM AND ASSESSMENT COMMITTEE

The Curriculum and Assessment Committee (CAC) is responsible for deliberations concerning graduate degree programs in PLPM. Duties include coordination of graduate course content, review of proposed new courses, and other significant changes in the graduate curriculum, and recruitment of graduate students. The Graduate Recruiting Committee actively engages in recruiting efforts and evaluation of applications for Departmental assistantships and scholarships, and regularly reports all progress to the CAC and the Associate Department Head (ADH).

A primary responsibility of the students themselves is to ensure compliance with the system of requirements and deadlines in this manual and provided by the Office of Graduate and Professional Studies (OGAPS). If students fail to adhere to the guidelines, they and their Major Professor will be notified by the Departmental Staff, or the ADH. If a student consistently fails to make satisfactory progress in their degree program, the Department Head will take the matter into consideration for further action.

V. ASSOCIATE DEPARTMENT HEAD FOR GRADUATE PROGRAMS

The Associate Department Head for Graduate Programs (ADH) serves in an advisory capacity to the Department Head for all matters dealing with graduate student affairs, curriculum development, and classroom instruction. The ADH also serves as liaison between the Head and the CAC and Graduate Recruiting Committee. In these capacities, the ADH serves as a voting member of these committees. Routine academic matters and normal operation will be administered by the ADH, with regular reporting to the Head.

Dr. Won Bo Shim
Professor & Associate Department Head
202J LF Peterson
Email: wbshim@tamu.edu
Tel: 979-458-2190

GRADUATE DEGREE REQUIREMENTS

I. COURSE REQUIREMENTS

All students are expected to fulfill University requirements as outlined in the TAMU Graduate Catalog and to complete the degree requirements of the Department of Plant Pathology and Microbiology as outlined in this document. Be aware that our graduate curriculum is constantly evolving, so that changes may occur and be implemented prior to being altered in this Handbook. Therefore, you are encouraged to consult with the Graduate Advisor, your Major Professor, the Associate Department Head for Graduate Programs (ADH), and the Office of Graduate and Professional Studies (OGAPS) during the preparation of degree plans, thesis or dissertation proposals, and other important stages of your academic career.

Helpful links regarding Graduate courses:

http://catalog.tamu.edu/
The Graduate Catalog has detailed course descriptions.

http://ogs.tamu.edu
The Office of Graduate and Professional Studies is the site for forms that are required for various phases of your graduate career.

http://plantpathology.tamu.edu
Departmental website, and additional course information

Course Requirements continued…

All incoming students, regardless of previous background or experiences, are **required to take the following courses.** The courses are designed to be taken in sequential order to prepare students for a modern understanding of plant pathology.

Fall Semester

PLPA 601 (3)** Introduction to Plant Pathology
PLPA 613 (1) Advanced Plant Pathology Laboratory
PLPA 616 (2) Methods in Molecular Biology of Plant-Microbe Interactions
PLPA 681 (1) Seminar in Plant Pathology
PLPA 685 (variable credit) Special Topics, for rotating students

Spring Semester

PLPA 604 (1) Fungal Pathogenesis
PLPA 605 (1) Bacterial Pathogenesis
PLPA 606 (1) Viral Pathogenesis

Summer Semester

PLPA 626 (2) Diagnosis of Plant Disease
or
PLPA 623 (3) Diseases of Field Crops

Fall Semester

PLPA 607 (1) Pathogen Strategies
PLPA 608 (1) Signaling and Resistance
PLPA 609 (1) Plant Biochemical Defenses

A graduate student (domestic or international) is considered full-time if he or she is registered for a minimum of:

- 9 semester credit hours during a fall or spring semester
- 6 semester credit hours in a 10-week summer semester;
  or
- 3 semester credit hours in each five-week summer term

***Indicates the credit hours*

Additional Course Options

NOTE: In addition to the above courses, all students are required to enroll in:

PLPA 690 (1) for two semesters and a second PLPA 681 (1) for their exit seminar. *(seminar information on the next page)*

The Department does offer two **online** courses:
PLPA 603 (3) Plant Disease Management
PLPA 638 (3) Genome Informatics

The Department also offers the **in-class** course:
PLPA 665 (3) Viral Vectors and Gene Therapy

Research credits are taken as PLPA 691. Special topics courses (PLPA 685), such as a rotation in the Plant Disease Diagnostic Clinic are also available.

II. DEPARTMENTAL SEMINAR REQUIREMENTS

PLPA 681. Seminar, 1 credit hour

The intent is to provide instruction in the presentation of formal seminars (abstract preparation, visual aids, etc.) that reflect a critical review of current literature and original research in plant pathology and microbiology.

Requirements

Seminar I. A class designed to discuss the techniques for preparation and presentation of formal seminars. This seminar is required of all entering graduate students. .

Seminar II. Original research in plant pathology and microbiology. M.S. and Ph.D. candidates are required to present a seminar on the original research conducted for their degrees upon completion of the degree program. This seminar will be scheduled as a presentation in the Department's weekly seminar series.

III. MINIMUM REQUIRED CREDIT HOURS FOR GRADUATE DEGREES

A graduate student (domestic or international) is considered full-time if he or she is registered for a minimum of:

- 9 semester credit hours during a fall or spring semester;
- 6 semester credit hours in a 10-week summer semester; or
- 3 semester credit hours in each five-week summer term.

You must register for the appropriate number of hours to obtain the benefits of a full-time student (benefits such as the stipend, health care, and tuition payments). Failure to maintain full time status directly jeopardizes your ability to be funded.

A minimum of 32 semester credit hours of approved courses and research is required for the thesis option Master of Science degree. The M.S. without a thesis options requires 36 hours of courses (excluded are research hours, PLPA 691). For a student who has completed a master's degree at a U.S. institution, a minimum of 64 hours is required on the degree plan for the degree of Doctor of Philosophy. For a student who as completed a baccalaureate degree but not a master's degree program, a minimum of 96 hours is required on the degree plan for the degree of Doctor of Philosophy. The number of required Departmental course credits does not total these TAMU hourly requirements. Thus, a graduate student pursuing a M.S. with a thesis or Ph.D. uses other courses, research hours (PLPA 691), or special topic courses (PLPA 685) to obtain the necessary hours for graduation. Graduate students pursuing a MS (with our without a thesis)

should consult the graduate catalog for the appropriate selection of courses. OGPS has limitations on the number of hours for certain and combination of courses.

DEADLINES FOR COMPLETION OF DEGREE REQUIREMENTS

The Associate Department Head for Graduate Programs will be responsible for tracking student progress through the degree program and will provide timely notices of approaching deadlines. Failure to comply with degree program requirements may result in blocked registration. A student may request an extension of a deadline by written request from the student and Major Professor to the Associate Department Head for Graduate Programs and the Department Head.

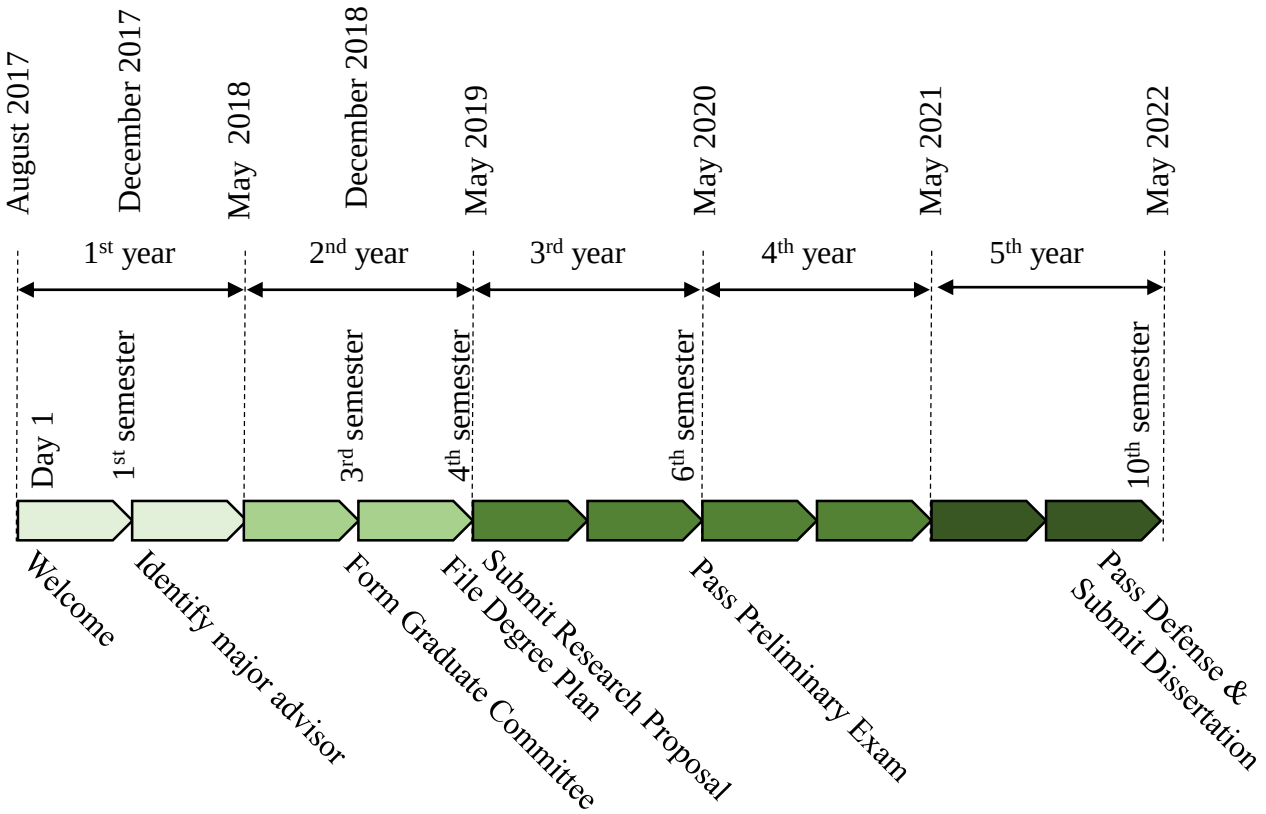
REQUIREMENT	**COMPLETION SEMESTER** ¥	
	M.S.	**Ph.D.**
Identify Major Professor	1st	1st
Committee Formation ♪	2nd	3rd
Degree Plan ☼	2nd	4th
Research Proposal Submitted	3rd	4th
Preliminary Exam	-	6th
Exit Seminar	Last Semester	Last Semester
Final Exam	Established by Major Professor, and Committee	Established by Major Professor, and Committee

¥ *Times are semesters after first enrollment and include summer semesters.*

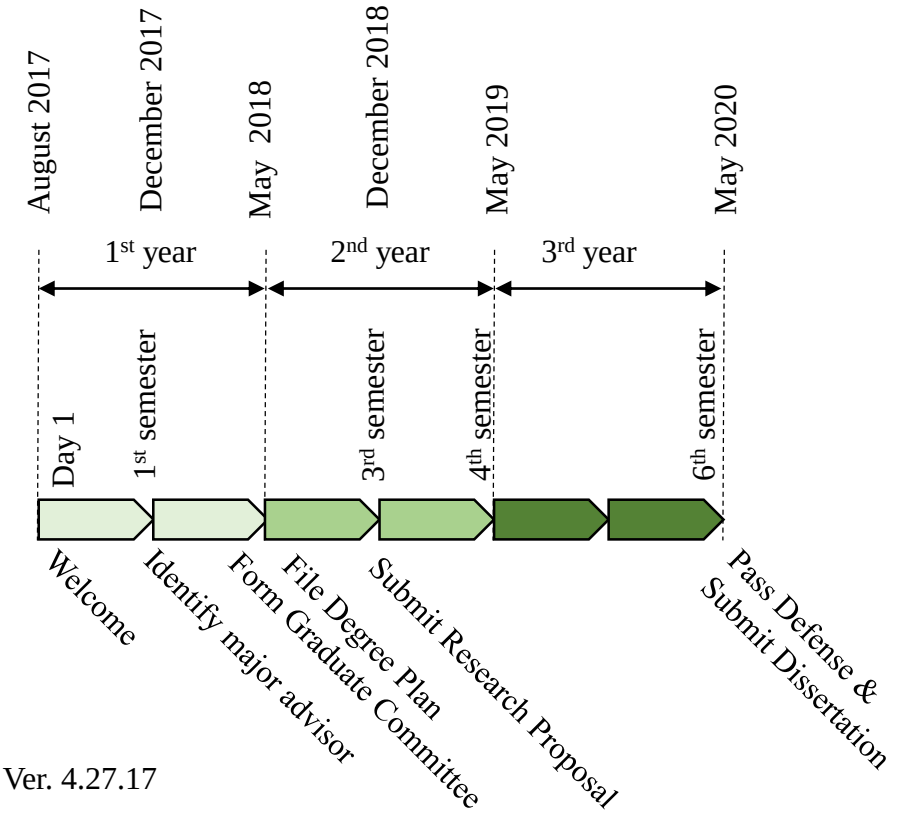
☼ *This requirement is mandated by the College of Agriculture and Life Sciences and non-compliance will result in blocking from registration.*

♪ *Annual Committee meetings are expected to ensure appropriate student progress toward degree. These requirements will be monitored via graduate annual reports to the ADH.*

PLPM Ph.D. Student Graduation Timeline



PLPM M.S. Student Graduation Timeline



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LABORATORY ROTATION SYSTEM

Having new graduate students, especially Ph. D. candidates, spend time working in several different laboratories provides an opportunity for the student to be exposed to different research programs of the Department and adds breadth to their educational experience. This experience also provides students with a basis for choosing a Major Professor and research problem for their thesis or dissertation. The Department of Plant Pathology and Microbiology strongly encourages all students supported by departmental funds and (or) university funds (Graduate Merit or Diversity Fellowships) to undertake five week rotations in up to three different laboratories. These rotations should be completed by the end of the second semester in residence.

A student should spend the first week of their first semester in residence becoming familiar with the research programs of each faculty member. Following discussions with prospective faculty, the student will then submit to the Graduate Advisor a prioritized list of up to three laboratories in which they wish to conduct research. Students may work in two laboratories during the first semester and complete the third rotation in the second semester. Students will be expected to register for PLPA 685 (Directed Studies) credit for these rotations. The laboratory rotation is an educational experience and as such research projects are seldom completed during this short time.

The student and the faculty member will be allowed to extend the rotation experience beyond the allotted five weeks if both have agreed that the student will perform the thesis/dissertation research in that laboratory and the professor will serve as Major Professor.

ANNUAL PROGRESS REPORTING

In addition to the academic requirements, graduate students are required to submit an annual report to the ADH and Department Head. The purpose of this report to 1) acclimate graduate students to the habit of tracking their annual progress 2) to encourage annual holistic discussion of accomplishments/progress between the student and Major Professor and 3) provide the department with data necessary for graduate program assessment. These reports will be requested by the ADH in early summer and will span the academic year (September to August). Information in these reports will be used to follow-up with students and Major Professors about progress toward degree.

GENERAL EMPLOYMENT ISSUES / GRADUATE ASSISTANTSHIPS

Full-time Status Requirements: Students on assistantship must maintain a 3.0 GPA and be enrolled full-time (see attached page from Graduate Catalog). Assistantships require at least 20 hours of service per week.

Pay day is on the first working day of the month. Checks can be picked up from Karen Hodges in Peterson Room l20D or arrangements can be made to have your check deposited directly with your bank.

Graduate students are not eligible for paid vacation or sick leave.

Travel and Leave: If you are attending a meeting or will not be reporting to work, you must complete a travel form and submit it in advance for approval via Concur through SSO sign on.

Students must follow all State of Texas travel rules, which will be provided to you through Krista McCallum in the main office.

Vehicle Usage: Graduate students on assistantships are eligible to drive departmental vehicles for State of Texas business. Any tickets, either parking violations or moving violations, are the responsibility of the driver. IF the driver is negligent in an accident, there is also a possibility of personal liability. Also, procedures for check-out, record-keeping of mileage, etc. must be followed. The loading dock is available for loading and unloading only (15 minute limit-tickets are issued by PTS!)

Safety Issues: Any problems with the building should be reported immediately to Elena Kolomiets in Rm 117D LF Peterson. Accidents or injuries should be reported IMMEDIATELY to both your supervisor and to Linda Brochu. Graduate students will be expected to use good lab safety (using fume hoods, wearing gloves, etc.). Please do not wear gloves or lab coats in non-lab areas (elevators, restrooms; mail/copy rooms. etc.). Pesticide usage is NOT allowed in the Peterson, Borlaug or NMR Buildings-any pest problems should be reported to the administrative office.

Equipment: Equipment in the building is for business use, although phones can be used for personal local calls and e-mail can be used for personal business. The computer lab is available for student use. Copy machines and faxes for personal use can be found in the library. Our fax machines require a code before you can use them and the charge will be assigned to the code.

Parking: The department does not have parking allocations available for graduate students. Student parking can be obtained through Parking, Traffic and Transit.

A MESSAGE FROM THE GRADUATE STUDENT CLUB

The club exists to make life a little easier, both academically and socially, for all graduate students in the department. We try to keep students abreast of any administrative changes that may affect us by calling meetings when necessary, sometimes inviting a faculty member along to give a more detailed explanation if needed. We also set up meetings with visiting scientists to talk over their research on a more personal basis, arid the club takes the visitors to lunch, to give them a taste of the local Texas "culture".

By becoming a graduate student in this department you automatically become a member of the graduate student club. Don't hesitate to ask for advice if there's any way that we can help you along in your program.

So - Welcome! The graduate student club is glad to have you!

Mr. Zach Gorman
Ph.D. Candidate
Plant Pathology & Microbiology
zackgorman@ymail.com

NOTES

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Appendix K: Graduate Student Peer Mentoring Program

TEXAS A&M AGRILIFE RESEARCH | EXTENSION

TEXAS A&M UNIVERSITY

COLLEGE OF AGRICULTURE AND LIFE SCIENCES
Department of Plant Pathology & Microbiology

PLPM Graduate Student Peer Mentoring Pilot Program

Problem:

Beginning grad school can be a really stressful time, especially if you are coming from another school or country. Some students identify with a lab and get started with their research right away, and a few are fortunate enough to have access to guidance from the current graduate students in that lab. However, there are also students that find themselves more reluctant, unsure of where to start, and lacking guidance for simple experience-based tasks and information (e.g., equipment training and tips, where important buildings are located, what each lab studies, how to publish a paper). Not all incoming students are fortunate enough to have a more experienced student or postdoc in their lab that can act as a peer mentor, though. For the latter, navigating through the maze of graduate school (especially the first few semesters) can prove to be quite a challenge.

Proposal: Create a PLPM peer mentorship program

- The graduate student club will provide a pool of volunteers from which the mentors will be paired with incoming students based on their area of research and knowledge of their respective lab space (Borlaug, HORT, or Peterson).
- Mentors will arrange an informal monthly meeting to discuss concerns on a 1 on 1 basis.
- Identify/report issues of concern as an indirect outlet for areas that could be improved.

Benefits: The PLPM mentorship program has the potential to

- Increase graduate student retention.
- Increase camaraderie in the graduate student club.
- Provide new students with an outlet for questions they may be reluctant to ask faculty.
- Decrease time to graduation by educating new students about what they should and shouldn't be prioritizing early on from ANOTHER STUDENT.

Secondary Benefit:

- This can be conveyed to the administration as an addition to the reporting metrics, and has the potential to become standard practice among the college and even the university.
- All students involved will benefit by gaining the working knowledge of the department instead of having to rediscover it for themselves.

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http://plantpathology.tamu.edu

Examples:

- "Here is where the west campus bio store is located. It will be open during the strange hours that the main campus bio store is often closed."
- "Gross lab had the only working sonicator in the building, but its now located in the Pierson lab on west campus. You can contact one of these people to set up a time to use it."
- "You have to apply pressure to the common equipment homogenizer for 1-2 seconds prior to the beginning of the cycle. Otherwise, you will continuously receive an error message."
- "I can help you understand the luciferase assay for the detection of plant immune response using flg22. You will be expected to write a report covering this during one of your PLPA 613 labs. "
- "Posters can be printed many places around campus, but some offer lower prices than others. It's a good idea to go at least one day in advance in case there are issues or you need to reprint."

Requirements/Metrics

- Funding from the department in the amount of ~$20 per mentorship (total <$200) in the form of Starbucks gift cards (or similar) to go toward 2-3 periodic meetings throughout the Fall semester.
- An accountability and impact assessment survey will be issued to the incoming students before and after mentorship to evaluate their levels of comfort and knowledge about graduate school, the PLPM department, and plant pathology, as well as the impact of the mentorship availability.
- This assessment can then be used for review in order to decide if the program should be extended into the next semester or repeated the following year with suggested improvements.

Summary:

- A simple peer-to-peer mentorship program has the potential to greatly benefit the graduate students in our department.

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