Plant Breeding
Graduate Degrees

Distance Education

The College of Agriculture and Life Sciences

As one of the best in the U.S., the College is dedicated to making a positive impact on the world and our faculty and student demonstrate the energy and enthusiasm of that commitment. We look to the future and are working hard to shape a better tomorrow.

Throw away your old perceptions about agriculture. Instead, think of it as something that impacts everything you do. It is the food you eat, the water you drink, the air you breathe, the clothes you wear and the fuel you use.
Distance Education in Plant Breeding

As the global population increases, providing food, fiber and fuel to meet growing demand has become a significant challenge. We are one of the top tier U.S. universities training future plant breeders to meet this challenge and have expanded our effort through our Distance Education Program in Plant Breeding. We seek to alleviate hunger and poverty through the genetic improvement of plants while educating and developing plant breeders worldwide.

Overview

This program is an extension of the existing Plant Breeding programs offered by the Department of Soil and Crop Sciences and the Department of Horticultural Science at Texas A&M University. We offer a (non-thesis and thesis option) and Ph.D. in Plant Breeding completely at a distance to students unable to study on-campus in a traditional setting. This program is designed for individuals employed in private industry, CGIAR centers, government agencies, non-government organizations, and other agriculture professionals who need and desire additional knowledge and training in plant breeding but cannot relocate to a university campus. Distance Education students will take advantage of the same curriculum available to on-campus students with identical course content and professors. Our unique program is designed to deliver a high quality plant breeding education to students across the globe.

Available Degrees

Master of Science in Plant Breeding (Non-Thesis Option)

Description

The non-thesis option M.S. in Plant Breeding requires 36 hours of coursework, four of which are an internship activity at the student’s present company or locale. This is considered a terminal degree for students who do not wish to pursue their education beyond the M.S. level. Courses will vary depending upon the student’s career goals and current situation. Students will work with a graduate advisor to determine which courses best suit their needs. A typical degree plan will include a variety of course work in plant breeding, molecular and environmental plant sciences, statistics, plant pathology, entomology, agricultural economics, and education and human development.

Time for Completion

Since this program is designed for industry professionals who will continue to be employed full time during their graduate studies, typical course load will be 1 to 2 classes per semester. Many factors will effect completion time, but most students can expect to finish within 3-5 years.
**Master of Science in Plant Breeding (Thesis Option)**

*Description*

The thesis option M.S. in Plant Breeding requires 32 semester credit hours of course work and a thesis on original research. Student research can be completed at the student’s location. An on-site Ph.D. scientist, educator, or supervisor who qualifies as an adjunct member of the Texas A&M graduate faculty must be available to serve as co-chair of the student’s graduate advisory committee and be able to direct thesis research locally. Students will have an on-campus co-chair to oversee the academic aspect of their degree. Communication with committee members, examinations, and thesis defense will be conducted via the internet.

**Requirements Leading to the Master of Science Degree**

1. 32 graduate credit hours beyond the B.S. degree; general requirements are:
   a. 23 course hours approved by the student’s advisory committee and the Office of Graduate Studies.
   b. Statistics 651 or equivalent.
   c. An exit seminar discussing research findings (SCCS 681).
   d. No more than 8 hours of SCSC 691 (Research) or SCSC 685 (Directed Studies).
   e. No more than 9 hours of upper level (300 or 400) undergraduate courses and no graduate credit for the following courses required for a B.S. degree:
      - SCSC 101
      - SCSC 105
      - SCSC 301
   f. See Graduate Catalog for additional requirements, [http://tamu.edu/admissions/catalogs/](http://tamu.edu/admissions/catalogs/).

2. A thesis written on original research as directed by student’s advisory committee.

**Time for Completion**

Time for completion will vary depending on number of courses taken per semester and the student’s original research project. Typical completion time will be 3-5 years.

**Ph.D. in Plant Breeding**

*Description*

The Ph.D. in Plant Breeding requires 64 semester credit hours past an M.S. degree in plant breeding or related agriculture field and a dissertation on original research. Student research can be completed at the student’s location. Just as with the M.S. degree, an on-site Ph.D. scientist, educator, or supervisor who qualifies as an adjunct member of the Texas A&M graduate faculty must be available to serve as co-chair of the student’s graduate advisory committee and be able to direct dissertation research locally. Students will have an on-campus co-chair to oversee the academic aspect of their degree. Communication with committee members, examinations, and dissertation defense will be conducted via the internet.

**Requirements leading to the Doctor of Philosophy degree:**

1. 64 graduate credit hours beyond the M.S. degree (or 96 hours beyond the B.S. degree in cases where no M.S. degree is obtained); general requirements are:
a. No set number of course hours is required; however, most committee chairs and advisory committees demand from 32 to 40 semester hours of classroom study, which usually includes courses in fields other than agronomy
b. Graduate seminar (1 hr.)
c. Students who accumulate more that 99 semester credit hours may be required to pay out-of-state tuition on any additional hours.
d. See Graduate Catalog for additional comments.

2. A dissertation written on original research as directed by the student’s advisory committee.

**Course Delivery**

Each course has been uniquely designed by the instructor to provide course content in an accessible, understandable format. All courses will be delivered on-line, completely at a distance via Texas A&M University’s E-learning system. This system utilizes the Blackboard Vista learning platform to allow students to view instructional materials, interact with other students and faculty, and complete assignments and examinations. *(To check your computer’s compatibility with this system visit Texas A&M’s E-Learning (elerning.tamu.edu) and perform the E-Learning Browser Check.)* The web based nature of course delivery allows students to access and complete course material at a time convenient to them.

For thesis option MS students, graduate advisory committee meetings, examinations, and research defense will be handled through electronic communication, including video and teleconferencing. **No campus visit will be required.**

**Costs**

Tuition and fees are set by the university and will vary based on tuition rates, residency, course load and applicable fees. **An estimate** of tuition and fees for a 3 hour course are:

- Texas Resident Tuition and Fees: $1300 per 3 hour course.
- Non-resident Tuition and Fees: $2400 per 3 hour course

Scholarships and financial aid are available through the Office of Financial Aid. Your graduate advisor can suggest other potential sources of funding. In addition, some employers provide financial assistance for their employee’s educational expenses.
Admission Procedure

Applicants should follow all of the guidelines and procedures to apply for graduate studies in a department offering a plant breeding degree at Texas A&M University at College Station using the Texas A&M on-line admission process. On-line application to graduate studies at Texas A&M University can be found at admissions.tamu.edu. The Department of Soil & Crop Sciences and the Department of Horticultural Sciences confer graduate degrees in plant breeding.

Additional items to be provided by the applicant:

M.S. Non-Thesis Option

- A letter of application directed to Wayne Smith, Mike Arnold, or LeAnn Hague providing sufficient background information to demonstrate the student’s commitment and ability to complete an on-line Master of Science (NTO) program and internship, including prospective internship location or activity.

M.S. Thesis-Option and Ph.D.

- A letter of application directed to Wayne Smith, Mike Arnold, or LeAnn Hague providing sufficient background information to demonstrate the student’s aptitude to conduct plant breeding research.
- Identification of the area of plant breeding research to be pursued and its importance to the agricultural industry.
- A one or two-page letter of support from the perspective distance co-chair indicating commitment of facilities and time for the conduct of the proposed research.

Students applying to the Department of Soil and Crop Sciences must send these additional items to the attention of Wayne Smith, Department of Soil and Crop Sciences, 2474 Texas A&M University, college Station, TX 77843-2474 (cwsmith@tamu.edu). Students applying to the Department of Horticultural Sciences must send the additional items to the attention of Mike Arnold, Department of Horticultural Sciences, 2133 TAMU, College Station, TX 77843-2133 (ma-arnold@tamu.edu).
**Included Courses**

The following courses are currently available and included in the distance program.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCSC 304: Undergraduate Plant Breeding</td>
<td>3</td>
</tr>
<tr>
<td>SCSC 306: Crop Production</td>
<td>3</td>
</tr>
<tr>
<td>SCSC 422: Soil Fertility</td>
<td>3</td>
</tr>
<tr>
<td>SCSC 641: Plant Breeding</td>
<td>3</td>
</tr>
<tr>
<td>SCSC 642: Quantitative Plant Breeding</td>
<td>3</td>
</tr>
<tr>
<td>SCSC 643: Quantitative Genetics</td>
<td>3</td>
</tr>
<tr>
<td>SCSC 654: Genomic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>SCSC 660: Experimental Designs</td>
<td>3</td>
</tr>
<tr>
<td>STAT 651, 652, 653: Statistics I, II, II</td>
<td>3 each</td>
</tr>
<tr>
<td>AGEC 314: Marketing Agriculture Production</td>
<td>3</td>
</tr>
<tr>
<td>EHRD 602: Human Resource Development</td>
<td>3</td>
</tr>
<tr>
<td>EHRD 605: Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

**Did You Know?**

**Land Grant Mission**

Texas A&M is a land grant university. That means we offer life-long education to the general public, focus on solving society's problems through research, and provide education in local communities through extension outreach programs.

**Largest in the U.S.**

We are the largest college of agriculture and related sciences in the U.S. (based on number of graduate and undergraduate degrees awarded each year) and are still growing!

**World Class Advising**

We have the most helpful, friendly faculty and staff at Texas A&M, a university known for its “Big as the State of Texas” friendliness. They are not only the best, but are the best at serving others. The College has outstanding academic advisors who really care about the students. We have more advisors than any other college in the University. Students consistently rate our advisors No. 1.
Mission
Educate and develop Plant Breeders worldwide.

Vision
Alleviate hunger and poverty through genetic improvement of plants.

Contact Information

**Wayne Smith**
Department of Soil and Crop Sciences
2474 TAMU
College Station, TX 77843-2474
Tel. 979.845.3450 Fax 979.458.0533
cwsmith@tamu.edu

**Mike Arnold**
Department of Horticultural Sciences
2133 TAMU
College Station, TX 77843-2133
Tel. 979.845.1499
ma-arnold@tamu.edu

**LeAnn Hague**
Distance Education Coordinator
Department of Soil and Crop Sciences
2474 TAMU
College Station, TX 77843-2474
Tel. 979.845.6148 Fax 979.458.0533
leann.hague@tamu.edu

Photo Credits: Soil & Crop Sciences Department, Horticulture Sciences Department, Texas A&M Repository