**IMAGE GGSA**

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**Overview**

**PhD Program**

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The length of time necessary to complete the requirements of the Ph.D. degree is markedly influenced by the student's preparation, particular research interest, and prior experience in the field selected. Four to five years of study beyond the bachelor's degree is commonly expected.

**Courses and Subject Matter Required**

The Ph.D. degree is awarded principally on demonstrated ability to conduct significant and original scientific research. Each doctoral student is required to take 17 credits of [core classes](http://genetics.tamu.edu/current-students/required-and-elective-courses-for-phd) and 9 credits of [elective courses](http://genetics.tamu.edu/current-students/required-and-elective-courses-for-phd) across 3 competency areas. For students entering the program with a bachelor's degree, 96 credit hours of coursework and research credits are required to earn a PhD but 64 credit hours are required for those that have earned a master's degree. Based on the [typical curriculum](http://genetics.tamu.edu/current-students/typical-curriculum), most students complete the didactic coursework during their first three semesters of enrollment to acquire the fundamental knowledge of genetics and supporting fields that Ph.D. candidates in genetics are required to possess. Each doctoral student in genetics must demonstrate mastery of the area selected for research specialization as well as general proficiency in the broad field of genetics by satisfactorily completing written and oral preliminary examinations prior to being admitted to candidacy for the Ph.D. degree.

**The Thesis Committee**

A Thesis Committee supervises a student's coursework and research, examines a student's progress, and approves all documents required for the PhD degree. The Thesis Committee, chaired by the Major Professor, is the primary source of direction and support for a student's research and academic program. The Thesis Committee should be constituted soon after the choice of Major Professor to provide the student with maximum input on course choices. The Thesis Committee must have at least three members in addition to the Major Professor. At least one member must come from a department outside your "home" department. Your Major Professor MUST be a FULL member of the Faculty of Genetics. Students should familiarize themselves with the members of their Thesis Committee as soon as possible. This Thesis Committee will approve the degree plan, read and critique the proposal and thesis/dissertation, and administer the preliminary exam and oral defense. Committee selection must therefore be completed before the degree plan is filed.

**Teaching Experience**

All students are required to participate as a Teaching Assistant (TA) for two semesters, typically during the second and third semesters. All students regardless of source of funding must complete this requirement, as it is an important aspect of professional training. Previous teaching experience at the University level can be used to fulfill this requirement, at the discretion of the Chair of the Faculty of Genetics. Students with this type of experience should submit a written description of the course(s) they taught, what duties were required, and the name and telephone number of the faculty member in charge of the course. All incoming graduate students must complete TA training. Texas A&M University provides a mandatory TA training called Teaching Assistant Training and Evaluation Program (TATEP). All new graduate students will be registered during orientation and must attend. Additionally, Genetics TA's must register for two credits of GENE 697 (Teaching Genetics Labs) every semester they TA.

**The Research Program**

The student should begin planning a suitable project for dissertation research during his or her first year of graduate study. A proposal describing the planned research should be submitted to the Office of Graduate Studies for approval no later than the fifth semester of enrollment. It is desirable that the research program be started during the early semesters; however, the student should balance the time and effort on the special field of dissertation research with the larger areas of knowledge covered by the preliminary examination. The proposal must be approved by the Genetics Advisory Office, the Thesis Committee, the Chair of the Faculty of Genetics, and the Office of Graduate Studies.

**Preliminary Examination /Admission to Candidacy**

The preliminary examination includes a written proposal, a written exam, and an oral examination in which a Ph.D. student's mastery of his or her field of specialization is tested by the student's Thesis Committee. Students should schedule their preliminary examinations before the end of their fifth full semester of graduate study. You must have current cumulative and degree plan GPR's of AT LEAST 3.00 to be eligible for the exam.

The exam is given no earlier than a date when you are within approximately six credit hours of completion of the formal course work (i.e., all course work on the degree plan except 681, 684, 690, 691, and 692 courses) or no later than the semester following the completion of the formal course work on the degree plan. The preliminary examination checklist can be found on the OGAPS website.

The written proposal must be given to the student’s Thesis Committee no later than 2 weeks prior to the oral exam. The student is responsible for scheduling written exams with each member of their Thesis Committee. Individual members of the Thesis Committee may elect to waive their written exam.

Once all portions of the examination are completed, the Major Professor will report the results of the examination in writing using the proper form within ten working days of the scheduled examination date to OGAPS. Note that this form requires the signatures of all Thesis Committee members. Upon receiving the form OGAPS will verify that all eligibility requirements were met and, if so, record the results of the preliminary exam. If post-review of the exam by OGAPS reveals that eligibility requirements were not met, then the student and the Major Professor will be notified of necessary actions (such as repeating the exam) required to rectify any deficiencies. Upon acceptance of a passing preliminary exam by OGAPS, you will be considered a candidate for the PhD degree (advanced to candidacy). **After passing the required preliminary examination, the student must complete all remaining requirements for the degree within four calendar years. Otherwise, you must repeat the examination.**

If the student fails the preliminary examination, there is no obligation for a re-examination. At their discretion, the Thesis Committee (with no more than one member dissenting) may allow one re-examination when adequate time has passed to allow you to address inadequacies emerging from the first examination (normally six months).

*Eligibility Requirements that Cannot be Waived:*

1. You must be registered for the semester during which you plan to take either the preliminary or the final examination (or in which any portion of the exam may fall).

2. You must have an approved degree plan on file with OGAPS.

3. You must have cumulative GPR of 3.00 or above.

4. You must have a degree plan GPR of 3.00 or above.

5. You must have satisfied English language proficiency requirements (non-native English speakers).

6. You must have given your Thesis Committee a copy of your written proposal no later than 2 weeks prior to the oral exam.

7. All committee members must have scheduled or waived the written portion and agreed to attend the oral portion of the exam or have found a substitute. Only one substitute is allowed and it cannot be the Major Professor.

**The Ph.D. Dissertation**

Doctoral studies culminate in the dissertation, which describes a student's research and outlines the unique contribution a student has made to expand the frontiers of knowledge. The dissertation describes the research undertaken by a student during graduate study. It is approved by the student's Thesis Committee. The format of the dissertation is very precisely controlled by OGAPS. Students must refer to the Thesis Manual and follow it exactly, or risk having their manuscript rejected by the Thesis Clerk. The Thesis Manual is available at the OGAPS website. The content of the dissertation is established by the student in consultation with the Thesis committee. The dissertation should be submitted to the student's Thesis Committee at least two weeks prior to the Final Defense. It is important that you NOT WAIT until the last minute to take care of this.

**The Ph.D. Defense**

The final defense provides the student's Thesis Committee with the opportunity to evaluate a student's understanding of his or her research. The final defense consists of a formal public seminar of results presented by the student announced two weeks in advance. The presentation is followed by an oral examination of the candidate by the Thesis Committee. Final changes to the Dissertation are discussed at this time. The final defense must be held within four years of advancement to candidacy. For all students, the defense should be scheduled at least four weeks prior to the OGAPS deadline for submission of manuscripts to the Thesis Clerk. This will allow adequate time for revisions and two weeks for the Chair of the Faculty of Genetics signature.

Students are required to have **at least one first-author peer-reviewed publication accepted before scheduling the Final Defense.** The Doctor of Philosophy degree is awarded based upon the generation of new knowledge, which in the field of genetics is demonstrated by publication in the peer-reviewed literature. If a paper is under revision, an exception to schedule the Final Defense can be requested from the Chair of the Faculty of Genetics. In publications authored by a graduate student in the Genetics Interdisciplinary Program, the students affiliation should be listed as the “Graduate Program in Genetics.” If desired, the student’s home department can be listed as an additional affiliation.

**Required Courses**

(IMG\_0602)

Visit your handbook for details on your typical curriculum

**Required Courses (17 CR)**

- GENE 603 Genetics (4 CR)

- GENE 608 Model Genetic Systems (2 CR)

- Computational genetics (3 CR)\*\*

CSCE 601 Programming with C and Java

BIOL 651 Bioinformatics

STAT 604 Special Problems in Statistics Computations and Analysis

STAT 646 Statistical Bioinformatics

STAT 657 Advanced Programming using SAS

VIBS 613 Evolutionary Bioinformatics

GENE 689 Command Line Skills

- GENE 681 Seminar (2 CR)

- GENE 682 Seminar Presentation (2 CR)

- GENE 685 Research Rotations (1 CR)

- GENE 697 Teaching Genetics Labs (2 CR)

- Research ethics (1 CR) options:

* + • BICH 689, Section 601 Application of Scientific Values in Daily Research Practice

**Elective Courses (9 CR, spread across at least three competency areas\*)**

- Molecular genetics

BIOL 601 Biological Clocks

BIOL 635 Plant Molecular Biology

GENE 626 Analysis of Gene Expression

GENE 631 Biochemical Genetics

GENE 648 Molecular Evolution

GENE 662 Eukaryotic Transcription

GENE 673 Gene Expression

- Quantitative and population genetics

ANSC 628 Animal Breeding

• ANSC 689 Advanced Quantitative Genetics

EEBL 605 Population and Quantitative Genetics

EEBL 606 Phylogenetics and Comparative Biology

• ESSM 689 Quantitative Methods in Ecology, Evolution and

Biogeography

GENE 606 Quantitative Phylogenetics

GENE 612 Population Genetics

GENE 613 Quantitative Genetics

GENE 614 Maximum Likelihood Estimation of Genetic Parameters

GENE 638 Prediction of Genetic Merit

GENE 643 Quantitative Genetics and Plant Breeding

SCSC 641 Plant Breeding

SCSC 642 Plant Breeding II

WFSC 624 Dynamics of Populations

- Statistics and bioinformatics

CSCE 601Programming with C and Java

BIOL 651 Bioinformatics

• GENE 689 Command Line Skills

GENE 689 Metagenomics

STAT 604 Special Problems in Statistics Computations and Analysis

STAT 643 Biostatistics I

STAT 644 Biostatistics II

STAT 646 Statistical Bioinformatics

STAT 651 Statistics in Research I

STAT 652 Statistics in Research II

STAT 657 Advanced Programming using SAS

VIBS 613 Evolutionary Bioinformatics

WFSC 670 Excel Biometry

- Organismal genetics

ANSC 624 Mammalian Developmental Genetics

BIOL 601 Biological Clocks

BIOL 606 Microbial Genetics

BIOL 610 Evolution

BIOL 611 Developmental Genetics

BIOL 652 Epigenetic Mechanisms

BIOL 698 Behavior, Genes, Evolution

GENE 633 Conservation Genetics

GENE 677 Genes and Diseases

MARB 668 Evolutionary Biology

MSCI 630 Pathogenesis of Human Disease

- Genomics

BIOL 650 Genomics

EEBL 607 Evolutionary Genomics

GENE 620 Cytogenetics

GENE 629 Applied Animal Genomics

GENE 654 Analysis of Complex Genomes

GENE 655 Analysis of Complex Genomes-Lab

• GENE 689/BIOL 689 Bacterial Genomics

VTPP 638 Analysis of Genomics Signals

VTMI 664 Mammalian Genome Modification for Biomedical Research

• Courses with the number 689 are ‘special topics’. Many of these are held regularly but have not yet received a course number.

\*\*Approved courses meeting requirements. Alternative courses must be approved by the Genetics Curriculum Committee.

**Student List**

(IMG\_2602)

**2017 Class**

Angela F Bernardini (PICTURE)

Jorden N. Holland (PICTURE)

Jonathon R. Leach (PICTURE)

Joshua E. Meehan (PICTURE)

Sarah J. Oleary (PICTURE)

Timothy M. Sveeggen (PICTURE)

**2016 Class**

Kevin R. Bredemeyer (PICTURE)

Advisor: Dr. William Murphy

Joseph J. Dubie (PICTURE)

Advisor: Dr. Katju Vaishali

Heather L. Eggleston (PICTURE)

Advisor: Dr. Zach Adelman

Matthew J. Jevitt (PICTURE)

Advisor: Dr. Terje Raudsepp

Andrew C. Osborne (PICTURE)

Advisor: Dr. Jerome Menet

Justin M. Overcash (PICTURE)

Advisor: Dr. Zach Adelman

Kathryn M. Pflug (PICTURE)

Advisor: Dr. Raquel Sitcheran

Kristin M. Scoggin (PICTURE)

Advisor: Dr. David Threadgill

Kelsi O West (PICTURE)

Advisor: Dr. Robert Watson

**2015 Class**

Kristine D. Arvola (PICTURE)

Advisor: Dr. Sarah Bondos

Rebecca M. Boot (PICTURE)

Advisor: Dr. Sarah Bondos

Luis M. De Santiago (PICTURE)

Advisor: Dr. David Stelly

Miguel F. Gonzalez (PICTURE)

Advisor: Dr. Geoffrey Kapler

Ben J. Greenwell (PICTURE)

Advisor: Dr. Jerome Menet

Samantha E. Liams (PICTURE)

Advisor: Dr. Christine Merlin

Jennifer A. Jung (PICTURE)

Advisor: Dr. Deborah Bell-Perdersen

Tejas R. Karhadkar (PICTURE)

Advisor: Dr. Richard Gomer

Gabriela G. Mendes (PICTURE)

Advisor: Dr. Sarah Bondos

Kathy Scienski (PICTURE)

Advisor: Dr. Clare Gill

Brian A. White (PICTURE)

Advisor: Dr. Rodolfo Aramayo

**2014 Class**

Jessica F. Elswood (PICTURE)

Advisor: Dr. Weston Porter

Meghan N. Kinder (PICTURE)

Advisor: Dr. Deborah Threadgill

Matthew C. Littlejohn (PICTURE)

Advisor: Dr. Alan Pepper

Joseph J. Modarelli (PICTURE)

Advisor: Dr. Jim Derr

Carolina Mantilla Rojas (PICTURE)

Advisor: Dr. David Threadgill

Allyssa K. Miller (PICTURE)

Advisor: Dr. Jennifer Herman

(Coadvisor: Dr. Paul Straight)

Scott J. Pearson (PICTURE)

Advisor: Dr. Weston Porter

**2013 Class**

Wesley A. Brashear (PICTURE)

Advisor: Dr. William Murphy

Samantha Peeler-Fletcher (PICTURE)

Advisor: Dr. Deborah Threadgill

David Forgacs (PICTURE)

Advisor: Dr. Jim Derr

Elyssa R. Garza (PICTURE)

Advisor: Dr. Alan Pepper

Selene Y. Howe (PICTURE)

Advisor: Dr. David Threadgill

Diana N. Medina (PICTURE)

Advisor: Dr. Jon Skare

Nancy J. Wahl (PICTURE)

Advisor: Dr. Seth Murray

Yue Xing (PICTURE)

Advisor: Dr. Clare Gill

**2012 Class**

Caitlin J. Curry (PICTURE)

Advisor: Dr. Jim Derr

Ramesh T. Gunaratna (PICTURE)

Advisor: Dr. Robin Young

Adam J. Salazar (PICTURE)

Advisor: Dr. James Sacchetinni

Alexandra J. Trott (PICTURE)

Advisor: Dr. Jerome Menet

**2011 Class**

Xin Fang (PICTURE)

Advisor: Dr. Clare Gill

Derek V. Seidel (PICTURE)

Advisor: Dr. Nancy Turner

Ahmet E. Yavuz (PICTURE)

Advisor: Dr. Hubert Amrein

**2008 Class**

Cory C. Thurman (PICTURE)

Advisor: Dr. James Sacchetinni

**Honors and Awards**

(IMG\_2603)

**2017 Genetics Symposium**

**Flash Talks:**

1st Place:

Camille Duran

2nd Place:

Alexandra Trott

3rd Place tie:

Jessica Elswood and Scott Pearson

People Choice Award:

Hilary Scott

**Poster Session:**

1st Place:

Kathy Scienski

2nd Place:

Camille Duran

3rd Place:

Jessica Elswood

People Choice Award:

Scott Pearson

**Award of Teaching Excellence**Samantha Peeler-Fletcher ($500)  
  
**Students' Choice Teaching Award**

Hilary Scott

**2016 Genetics Symposium**

**Oral Competition**

First place:

Reed Stubbendieck

“Escape from lethal bacterial competition through coupled antibiotic resistance and a mobilized subpopulation"

Advisor: Dr. Paul Straight

Second place (tie):

Ashley Mattison

"The genetic basis of grain yield in Sorghum bicolor"

Advisor: Dr. John Mullet

Hilary Scott

"A novel pathway regulating neural excitability in the Drosophila nervous system"

Advisor: Dr. Vlad Panin

**Poster Competition**

First place:

Stephen Caster

"Circadian clock regulation of mRNA translation through the eukaryotic elongation factor eEF-2"

Advisor: Dr. Deb Bell-Pederson

Second place:

Derek Seidel

"Epigenetic regulation of apoptosis in adult colon stem cells: response to radiation and dietary interventions"

Advisor: Nancy Turner

Third place:

Camille Duran

"Hic-5 mediates endothelial sprouting by regulating a key surface metalloproteinase"

Advisor: Kayla Bayless

Fourth place:

Adam Salazar

"Killing three birds with one stone: strategic targeting of a conserved mycobacterial and plant, mulipathway choke point, by two classes of herbicide"

Advisor: Jim Sacchettini

**Teaching Awards**

Exceptional Performance for Teaching - Michelle Gorman

Outstanding Performance for Teaching - Samantha Iiams

**2015 Genetics Symposium**

**Poster Competition**

First place:

Kelly Churion

“Sequence-specific incorporation of DNA into protein-based biomaterials"

Advisor: Sarah Bondos

Second place:

Stephen Caster

"Circadian regulation of translation through the Eukaryotic Elongation Factor eEF-2 in Neurospora crassa"

Advisor: Deb Bell-Pederson

Third place:

Rachel Jordan

"Silent chromatin varies across the ribosomal DNA array in Saccharomyces cerevisiae"

Advisor: Mary Bryk

Fourth place:

Reed Stubbendieck

"A mechanism of resistance in a model bacterial competition"

Advisor: Paul Straight

**Teaching Awards**

Exceptional Performance for Teaching - Jessica Elswood

Outstanding Performance in Teaching - Carolina Mantilla-Rojas

**Research Award**

Amanda Hulse-Kemp

**Mentoring Award**

Rachel Jordan

**2014 Genetics Symposium**

**Poster Competition**

First place:

Kelly Churion

" Sequence-specific incorporation of DNA into protein-based biomaterials"

Advisor: Sarah Bondos

Second place:

Victor Mason

"Efficient cross-species capture hybridization and next-generation sequencing of mitochondrial genomes from non-invasively sampled colugo museum specimens"

Advisor: Bill Murphy

Third place:

Josie Hilley

"Genetic basis of stem growth in sorghum"

Advisor: John Mullet

Fourth place - Jade Benjamin

"Development of embryonic stem cell-derived neuronal cultures for high-throughput drug screening"

Advisor: Scott Dindot

**2014 Teaching Awards**

Exceptional Performance for Teaching - David Forgacs

Outstanding Performance in Teaching - Selene Howe

**Resources**

Current students:

* Due Dates
* Genetics Graduate Student Association (GGSA) (link to: https://g2sa.tamu.edu/)
* Office of Graduate and Professional Studies (OGAPS) (link to: <http://ogaps.tamu.edu/)>
* Genetics Handbooks
  + 2015-2016
  + 2016-2017
  + 2017-2018
* Forms
  + Rotation Faculty Confirmation Form
  + Rotation Evaluation by Faculty
  + Student Rotation Evaluation
  + PhD Advisory Committee Annual Report