Texas A&M University
Request for a Change in Curriculum
Undergraduate • Graduate • Professional

1. Program request type:
   □ Undergraduate    ✔ Graduate    □ First Professional (e.g., DVM, MFA)

2. Request change for:
   ✔ Degree Program    □ Minor    □ Certificate

3. Request submitted by (Department or Program Name):
   Program Designation and Name
   (e.g., B.A. in History, Minor in History, Certificate in European Union):
   Genetics
   Ph.D. in Genetics

4. Brief description of change:
   Modified requirements for core curriculum classes, defined competency areas, added requirements for oral presentation, ethics, and grant writing.

5. Rationale for change:
   These changes were part of the recommendations from our recent Academic Program Review and also reflect the changing nature of genetics research. A course in computational genetics is an essential training component for all genetics students. The competency areas were defined to ensure that each student had some breadth to their course work. The oral presentation requirement will improve the presentation skills of the students and provides them a platform to present their research to the faculty as a whole. Ethics training is required for all students supported on federal funds. A course in grant writing will improve the writing skills of the students and is an essential part of their career development.

Use the checkboxes below to make sure that all information is included.

7. a. Proposed curriculum attached.  ✔ Yes    □ No
   b. Current catalog curriculum with handwritten edits attached.  ✔ Yes    □ No
   c. Current Howdy degree evaluation with handwritten edits attached.  ✔ Yes    □ No

   Please make sure the attached proposed curriculum, catalog and Howdy degree evaluation match.

8. a. Will degree program hours change (increase/decrease) due to the proposed curriculum changes?  □ Yes    ✔ No
   b. If yes, degree program hours will change from: ______ to: ______
   c. If yes, is the Texas Higher Education Coordinating Board form attached?  □ Yes    □ No

   http://www.thecb.state.tx.us/index.cfm?objectid=A0F9F7FA-9A92-4F11-2756AD3BBFF01D60

9. If proposed changes affect other unit(s), are letters of support attached?  □ Yes    □ No

IMPORTANT NOTE: Curricular changes submitted through the approval process and fully approved by February (December-UCC/GC, January-Faculty Senate, February-President) will be effective in the next academic year. Changes requiring approval beyond the University should complete the internal approval process early in the fall semester whenever possible in order to ensure timely implementation.

Approval recommended by:
Craig Coates
Department Head or Program Chair (Type Name & Sign)  10-16-15
Date
Dean of College
Date
Chair, College Review Committee
Date
Chair, GC or UCC
Date

Questions regarding this form should be directed to Curricular Services at 845 2201 or sandra-williams@tamu.edu.
Curricular Services – 04/14
What-if Analysis

Information for Degree Evaluation

idente 3: Select a major. Click "add more" to add minors to the What-If evaluation.

Program Description: Doctor of Philosophy

Time Limits: All requirements for the degree must be completed within ten consecutive years.

Degree Plan: A Graduate Degree Plan of at least 96 hrs beyond a baccalaureate degree or 64 hrs beyond a master's degree or a DVM or a MD from a U.S. institution.

Course Limitations: Courses exceeding limits below will not be considered for meeting degree requirements.

1. Only approved courses on the degree plan will be considered for this program.
2. No correspondence study may be used.
3. No credit hours of FREN 601 or GERM 603 may be used.
4. No credit hours of extension course work may be used.
5. For other course exclusions refer to the Graduate Catalog.

Advisory Committee: The Advisory Committee consists of at least four members of the Graduate Faculty, one of which must be from outside the student's major department.

Residence Requirement: If entering with a baccalaureate degree, one year plus one semester must be spent in resident study. If entering with a master's degree, or a DVM or MD from a U.S. institution, one year must be spent in resident study. One year may include two adjacent long semesters or one long semester and one adjacent 10-week summer term of 9 hrs each.

Research Proposal: A dissertation proposal approved by the Advisory Committee, Department Head and the Office of Graduate Studies is required.

Preliminary Examination: The result of the Preliminary Exam must be received, along with the Checklist, by the Office of Graduate Studies within ten days of the oral examination date. All degree requirements must be completed within a four year time period following the preliminary exam or the preliminary exam is voided and must be repeated.

To be eligible to hold a preliminary exam, the student:

1. must have a Degree Plan approved by the Office of Graduate Studies no later than ninety days prior to the preliminary exam,
2. must have a graduate GPR of at least 3.0 (listed as "Program GPA" below),
3. must have a degree plan GPR of at least 3.0,
4. must be registered in the university,
5. must be within 6 hrs of completing all formal (graded) course work on the degree plan (i.e., all course work except 681, 684, 690, and 691).

Admission to Candidacy: To achieve Admission to Candidacy, the student:

1. must have completed all formal course work on the degree plan with the exception of any remaining 681, 684, 690 and 691,
2. must have a graduate GPR of at least 3.0 (listed as "Program GPA" below),
3. must have a Degree Plan GPR of at least 3.0 with no grade lower than C in any course on the degree plan,
4. must have passed the preliminary examination (written and oral portions),
5. must have an approved dissertation proposal,
6. must have met the residence requirements.

**Dissertation Defense:** The doctoral student is allowed only one opportunity to take the dissertation defense. The request to hold and announce the defense must be submitted to the Office of Graduate Studies a minimum of 10 working days in advance of the scheduled date.

To be eligible to hold the defense, the student:
1. must have a graduate GPR of at least 3.0 (listed as "Program GPA" below),
2. must have a Degree Plan GPR of at least 3.0,
3. must be admitted to candidacy,
4. must have completed or be registered for all remaining degree plan course work,
5. must be registered in the university.
6. must have the dissertation in final form and ready for distribution to all committee members,
7. must complete all degree requirements within a four year period following the preliminary exam.

**Dissertation:** The final version of the dissertation must be cleared by the Office of Graduate Studies no later than one year after the defense or within the ten year time limit, whichever is first.

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**Entry Term:** Fall 2015 - College Station

**Program:** PHD [AG]

**Level:** Graduate

**Degree:** Doctor of Philosophy

**College:** Agriculture & Life Sciences

**Campus:** College Station

**First Major**: Genetics and Department: Biochemistry & Biophysics

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Print
COURSE REQUIREMENTS FOR DOCTORATE AND MASTER'S DEGREES IN GENETICS

- GENE 603 Introduction to Genetics (4 CR)
- GENE 612 Population Genetics (3 CR) OR GENE 613 Quantitative Genetics (3 CR) - Removed, replaced with Computational Genetics
- GENE 631 Biochemical Genetics (3 CR) - Removed
- One additional course (elective) in Genetics or a related field to be chosen by the student and the student's advisory committee.* - Now 9 CR from at least 3 competency areas.
- GENE 608 Critical Analysis of the Genetics Literature (1 CR) - Changed name to molecular genetic systems and increased to 2 credit
- GENE 697 Teaching Genetics (for students who are T.A.s for GENE 301 or 432) - for all students.
- GENE 685 Directed Studies: Lab Rotation (1 CR)
- 681 (seminar/journal club) any departmental prefix, 3 semesters for Ph.D. students and 1 semester for M.S. students - Changed to at least 2 GENE 681 for both Ph.D. and M.S.

* Courses that would meet this requirement include, but are not limited to GENE 620 Cytogenetics, GENE 643 Quantitative Genetics and Plant Breeding, GENE 655 Complex Genomes, GENE/ANSC 614 Maximum Likelihood Estimation of Genetics, ANSC 628 Animal Breeding, BIOL 650 Genomics, ANSC 689 Special Topics in Databases and Programming for Biologists, or MIRC 614 Microbial Signaling and Development.

Note: GENE 603 is a prerequisite for GENE 612, 613, and 620. Most graduate students will begin their studies with GENE 603, however, if they come to Texas A&M with an advanced (graduate) level course in Genetics, they may skip GENE 603; the Chair of the Faculty of Genetics will make this decision after reviewing the documentation provided by the student.

Also, the course requirements are essentially the same for MS and Ph.D. degrees for the first year of study.

Fall semester courses (YR. 1):
Typically, new students entering in the fall semester will start with:
- GENE 603 (4 hrs.) - Genetics
- GENE 608 (1 hr.) - Critical Analysis of Genetics Literature - 2hrs. + name change
- GENE 697 (1 hr.) - Teaching Genetics Labs - removed
(Regent's fellowship students do not take this course; they take)
- GENE 685 (3 hr.) - Directed Studies (rotation credit) - 10 cr. only.

TOTAL: 9 hours
- Added GENE 681 - Seminar
- Added BIOL 689 - Grant Writing.
**Spring semester course (YR.1)s:**
- GENE 631 (3 hrs.) - Biochemical Genetics - removed, replaced with Computational Genetics
- GENE 697 (1 hr.) - Teaching Genetics Labs
- GENE 685 (1 hr.) - Directed Studies (rotation credit) - removed, replaced with GENE 691 - Reso
- Elective course (3hr) - Added 1 hr. - Research Ethics requirement

**Other Course requirements**
- GENE 697 (1 hr.) - Teaching Genetic Labs (Required for TAs)

Students with do not take GENE 697. Instead they can register for GENE 685 - (1 hr) Directed Studies, another 681 (Seminar), or a 1 hr. module.

**TOTAL: 9 hours**

**Summer:**
- STAT 651 - Statistics in Research I, if needed

If the graduate student has chosen a lab at this time, he/she will take:
- GENE 691 (hrs.) - Research

IF NOT... he/she will take:
- GENE 685 (3 hrs. each 5 week session) - Directed Studies
- Summer Total: 6 hrs. for 10-wk. Session, or 3 hrs. for each 5 week session

The 4th semester, the graduate student will continue to take the required courses from the “core” courses and select a thesis committee. At this time, the student’s committee advisor will prescribe additional courses for the student to take to complete his/her degree.

Fall YR.2 GENE 612 (Pop.Gen.-3 hrs.) or
- Spring YR.2 GENE 613 (Quant.Gen.-3 hrs.)

**TOTAL HOURS FOR MASTERS =**
- Thesis - minimum 32 hours, plus completion of thesis.
- Non-thesis - 36 hours

**TOTAL HOURS FOR Ph.D.** =
- minimum 96 HOURS, plus completion of thesis.
- 64 HOURS, plus completion of thesis if one has already completed a M.S. degree.
Ph.D. in Genetics

Required Courses

1) GENE 603 (4 hrs.) Genetics
2) Computational Genetics (3 hrs.)
   • can be met through a variety of courses such as CSCE 601, BIOL 651, VTPP 638, STAT 657
3) GENE 608 (2 hrs.) Model Genetics Systems
4) GENE 681 (1 hr.) Seminar
   • Students will take at least 2 GENE 681 Seminars.
5) GENE 682 (1 hr.) Seminar Presentation
   • Students will take at least 2 GENE 682 Seminar Presentations
6) GENE 685 (1 hr.) Research Rotations
   • Students will perform at least 1 semester of research rotations.
7) GENE 697 (1 hr.) Teaching Genetics Labs
   • Students will teach as a lab TA for at least 1 semester
8) Research Ethics (1 hr.)
   • can be met through a variety of existing courses.
9) Grant Writing (1 hr.)
   • can be met through a variety of existing courses.

Elective Courses (9 hrs.) – Students will take a minimum of 9 hrs. (can be a mix of 3 hrs., or 1-2 hr. modular courses) spread across at least three of the following competency areas, which can be satisfied by courses such as the following.

1) Molecular genetics
   • GENE 626, GENE 631, GENE 648, GENE 655, GENE 677
2) Quantitative and population genetics
   • GENE 606, GENE 612, GENE 613, GENE 614, GENE 638, GENE 643, ANSC 628, ANSC 689 – Advanced Quantitative Genetics, SCSC 641, SCSC 642
3) Statistics
   • STAT 651, STAT 652, STAT 643, PHEB 613, PHEB 614
4) Organismal genetics
   • GENE 633, BIOL 611, ANSC 624, VTPP 638, BIOL 652, MSCI 630, BIOL 635
5) Cytogenetics
   • GENE 620
**1st Year**

Fall  
GENE 603 (4 hrs.) - Genetics  
GENE 608 (2 hrs.) - Model Genetic Systems  
GENE 681 (1 hr.) - Seminar  
GENE 685 (1 hr.) - Rotations  
BIOL 689 (1 hr.) - Grant Writing

Spring  
XXXX ### (3 hrs.) - Computational Genetics  
XXXX ### (3 hrs.) - Elective  
XXXX ### (1 hr.) - Research Ethics  
GENE 697 (1 hr.) - Teaching Genetics Labs  
GENE 691 (1 hr.) - Research

**2nd Year**

Fall  
XXXX ### (3 hrs.) - Elective  
XXXX ### (3 hrs.) - Elective  
GENE 691 (3 hrs.) - Research  
Submit Degree Plan

Spring  
GENE 682 (1 hr.) – Seminar Presentation  
GENE 691 (8 hrs.) - Research

**3rd Year**

Fall  
GENE 691 (9 hrs.) - Research  
Preliminary Exam

Spring  
GENE 691 (9 hrs.) - Research

**4th Year**

Fall  
GENE 682 (1 hr.) – Seminar Presentation  
GENE 691 (8 hrs.) - Research

**Total Hours for Ph.D.**

- 96 hrs. plus completion of thesis.  
- 64 hrs. plus completion of thesis if previously completed a M.S. degree