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

1. Program request type:
   - ☑ Undergraduate
   - ☑ Graduate
   - □ First Professional
   - ☑ Degree Program
   - □ Minor
   - □ Certificate

2. Request change for:
   Genetics

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):
   M.S. 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. 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=40F9E7FA-9A92-4F11-2756AD0BBF01D60

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

IMPORTANT NOTE: Curriculum 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:

[Signatures and dates]

Questions regarding this form should be directed to Curricular Services at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 04/14
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 (3 CR)
- 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 Model Genetic Systems and increased to 2 credit hours.
- 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 M.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) - 1 cr. hr. only.

TOTAL: 9 hours
- Added GENE 681 - Seminar
- Added BIOL 681 - Grant Writing
Spring semester course (YR.1)s:
GENE 631 (3 hrs.) - Biochemical Genetics
GENE 697 (1 hr.) - Teaching Genetics Labs
GENE 685 (1 hr.) - Directed Studies (rotation credit) - removed, replaced with GENE 691 - Resear
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
minimum 96 HOURS, plus 96 hrs. only,
completion of thesis.
64 HOURS, plus
completion of thesis if one has
already completed a M.S. degree.
M.S. 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 685 (1 hr.) Research Rotations
   • Students will perform at least 1 semester of research rotations.
6) GENE 697 (1 hr.) Teaching Genetics Labs
   • Students will teach as a lab TA for at least 1 semester
7) Research Ethics (1 hr.)
   • can be met through a variety of existing courses.
8) 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 691 (9 hrs.) – Research

Total Hours for M.S.
- Thesis – 32 hrs. plus completion of thesis
- Non-Thesis – 36 hrs.
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional

Submit original form and attachments •

Form Instructions

1. Course request type:
   - Undergraduate
   - Graduate
   - First Professional (DDS, MD, JD, PharmD, DPI)

2. Request submitted by (Department or Program Name):
   - Genetics

3. Course prefix, number and complete title of course:
   - GENE 608 Critical Analysis of Genetics Literature

4. Change requested
   - Prerequisite(s): From: ______________________ To: ______________________
   - Withdrawal (reason):
   - Cross-list with:
     [Cross-listed courses require the signature of both department heads.]
   - Change in course title and description. Enter complete current course title and current course description in item 9; enter proposed course title and proposed course description in item 10. Complete item 11a and b for a change in title.
   - Change in course number, contact hours (lab & lecture), and semester credit hours. Complete item 11a and b. Attach a course syllabus.
   - Is this an existing core curriculum course? □ Yes □ No
   - If grade type is changing for existing course, indicate the new grade type: □ Grade □ S/U □ P/F (CLMD)
   - If this course will be stacked, please indicate the course number of the stacked course: [I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-controls/export-controls-basics-for-distance-education).

5. Complete current course title and current catalog course description:
   - Critical Analysis of Genetics Literature. An introduction to primary literature in the field of genetics which will give students experience in critically evaluating scientific papers and develop an appreciation of how genetics can be used to address important biological questions.

6. Complete proposed course title and proposed catalog course description (not to exceed 50 words):

7. Approval recommended by:
   - Craig Coates
   - Chair, College Review Committee
   - Department Head or Program Chair (Type Name & Sign) Date
   - Dean of College
   - Department Head or Program Chair (Type Name & Sign) (if cross-listed course) Date
   - Chair, GC or UCC
   - Submitted to Coordinating Board by:
     - Associate Director, Curricular Services
     - Date
     - Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 08/14