

## Degree Requirements for Genetics Majors (2007-2008)

The following contains information on the courses required to fulfill a degree in Genetics at New Mexico State.

**A minimum of 128 credits must be taken, 48 at the 300 level or above.** Below you will find a listing of courses that must be taken to fulfill requirements for the major as well as College of Arts and Sciences requirements. You must earn a **C or better** in all courses required for the major.

### GENETICS MAJOR REQUIREMENTS

#### Basic Science Background requirements (40 Credits)

(Note: all of these courses are required)

- |   |  |
|---|--|
| <input type="checkbox"/> BIOL 111 Natural History of Life           | <input type="checkbox"/> PHYS 211 General Physics I<br>(or <i>PHYS 221 General Physics for Life Sciences I</i> )   |
| <input type="checkbox"/> CHEM 111 General Chemistry I               |  |
| <input type="checkbox"/> CHEM 112 General Chemistry II              |  |
| <input type="checkbox"/> CHEM 313 Organic Chemistry I               | <input type="checkbox"/> PHYS 212 General Physics II<br>(or <i>PHYS 222 General Physics for Life Sciences II</i> ) |
| <input type="checkbox"/> CHEM 314 Organic Chemistry II              |  |
| <input type="checkbox"/> CHEM 315 Organic Chemistry Lab             |  |
| <input type="checkbox"/> BCHE 395 Biochemistry                      |  |
| <input type="checkbox"/> BCHE 396 Biochemistry and Biotechnology    |  |
| <input type="checkbox"/> MATH 191 Calculus & Analytical Geometry I  |  |
| <input type="checkbox"/> MATH 192 Calculus & Analytical Geometry II |  |
| <input type="checkbox"/> E ST 311 Statistical Applications          |  |

#### Tier I courses (All are mandatory courses):

- |   |  |
|---|--|
| <input type="checkbox"/> GENE 110 Experimental Systems in Genetics          |  |
| <input type="checkbox"/> BIOL 211 G&L Cellular & Organismal Biology and Lab |  |
| <input type="checkbox"/> GENE 305L Genetics Techniques Laboratory           |  |
| <input type="checkbox"/> BIOL 311 General Microbiology                      |  |
| <input type="checkbox"/> BIOL 311L General Microbiology Laboratory          |  |
| <input type="checkbox"/> GENE 315 Molecular Genetics                        |  |
| <input type="checkbox"/> GENE 320 Heredity and Population Genetics          |  |
| <input type="checkbox"/> BIOL 377 Cell Biology                              |  |
| <input type="checkbox"/> BIOL 440 Genetics Seminar                          |  |
| <input type="checkbox"/> BIOL 452 Applied Bioinformatics                    | or MOLB 470 Bioinformatics & Genome Analysis |
| <input type="checkbox"/> BCHE 494 Techniques in Genetic Engineering         |  |

#### Tier II Courses: Choose one from each category:

##### Selection Response (3cr.):

- |   |
|---|
| <input type="checkbox"/> AGRO 462 Plant Breeding  |
| <input type="checkbox"/> ANSC 423 Animal Breeding |
| <input type="checkbox"/> BIOL 467 Evolution       |

##### Physiology (3cr.):

- |   |
|---|
| <input type="checkbox"/> ANSC 421 Phys. of Reproduction   |
| <input type="checkbox"/> BIOL 354 Human Physiology        |
| <input type="checkbox"/> BIOL 381 Animal Physiology       |
| <input type="checkbox"/> BIOL 385 Introduction to Cancer  |
| <input type="checkbox"/> BIOL 451 Phys of Microorganisms  |
| <input type="checkbox"/> BIOL 474 Immunology              |
| <input type="checkbox"/> EPWS 314 Plant Physiology        |
| <input type="checkbox"/> HORT 471 Plant Mineral Nutrition |

##### Organism Structure(3-4 cr.):

- |  |
|--|
| <input type="checkbox"/> ANSC 370 Anat. & Phys of Farm Animals     |
| <input type="checkbox"/> BIOL 313 Structure & Function of Plants   |
| <input type="checkbox"/> BIOL 322 Zoology                          |
| <input type="checkbox"/> BIOL 330 Comparative Anatomy & Embryology |
| <input type="checkbox"/> BIOL 465 Invertebrate Zoology             |
| <input type="checkbox"/> EPWS 470 Developmental Biology            |
| <input type="checkbox"/> EPWS 303 Economic Entomology              |

##### Molecular Genetics (2-3cr.):

- |   |
|---|
| <input type="checkbox"/> BIOL 475 Virology                            |
| <input type="checkbox"/> BIOL 478 Molecular Biology of Microorganisms |
| <input type="checkbox"/> BIOL 482 Microbial Systems                   |
| <input type="checkbox"/> GENE 486 Genes and Genomes                   |
| <input type="checkbox"/> GENE 488 Gene Regulation                     |

#### Tier III courses: Choose one course from Tier III

- |   |
|---|
| <input type="checkbox"/> AGRO 303 Genetics and Society        |
| <input type="checkbox"/> HON 306 Science, Ethics, and Society |
| <input type="checkbox"/> PHIL 321 Biomedical Ethics           |

## NEW MEXICO COMMON CORE REQUIREMENTS

*In each area the total credits needed must come from courses in different disciplines.*

### **Area 1 – Communication (9-10 cr.)**

ENGL 111G, 111H, or SPCD 111G

ENGL **218G or 318G**

COMM 253G or 265G, HON 265G

### **Second Language – No second Language Required**

### **Area 2 – Mathematics (3cr.)**

Satisfied by taking departmental requirements

### **Area 3 – Laboratory Sciences (8cr.)**

Satisfied by taking departmental requirements

*A total of 15 credits (5 classes) must come from Areas 4 & 5.*

*2 classes from Area 4*

*2 classes from Area 5*

*1 class from either Area 4 or 5*

### **Area 4 – Social/Behavioral Sciences (6-9cr.)**

ANTH 120G, 125G, 201G, 202G, 203G

HON 223G, 235G, 237G

CJ 101

ECON 201G, 251G, 252G

GEOG 112G, 120G

GOVT 100G, 110G, 150G, 160G

HON 248G, 249G

LING 200G

PSY 201G

HON 203G, 232G

SOC 101G, 201G

W S 201G, 202G

### **Area 5 – Humanities and Fine Arts (6-9cr.)**

ART 101G, 110G, 295, 296, HON 216G

ENGL 115G, 116G, 220G, 244G

HIST 101G, 102G, 201G, 202G, 211G, 212G, 221G,

HON 221G, 222G, 239G, 241G, 242G

MUS 101G, 201G, HON 208G

PHIL 101G, 136G, 201G, 211G, 223G

HON 225G, 226G, 227G, 228

THTR 101G, HON 270G

### **VIEWING A WIDER WORLD (6cr.)**

Viewing a Wider World courses are a prescribed list of 300- and 400-level general education courses. You must take 2 courses from 2 different colleges, outside the student's home college.

MGT 315G Human Relations in Organizations  
(suggested)

2<sup>nd</sup> VWW completed with the 9 hour rule.

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