

Degree Requirements for Genetics Majors (2010-2011)

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 (42 Credits):

(Note: all of these courses are required)

- | | |
|---|--|
| <input type="checkbox"/> BIOL 111 Natural History of Life (3) | <input type="checkbox"/> PHYS 211 General Physics I (3) OR |
| <input type="checkbox"/> CHEM 111 General Chemistry I (4) | <input type="checkbox"/> PHYS 221 General Physics for Life Sciences I (3) |
| <input type="checkbox"/> CHEM 112 General Chemistry II (4) | |
| <input type="checkbox"/> CHEM 313 Organic Chemistry I (3) | <input type="checkbox"/> PHYS 212 General Physics II (3) OR |
| <input type="checkbox"/> CHEM 314 Organic Chemistry II (3) | <input type="checkbox"/> PHYS 222 General Physics for Life Sciences II (3) |
| <input type="checkbox"/> CHEM 315 Organic Chemistry Lab (2) | |
- Corequisite
- BCHE 395 Biochemistry I (3)
- BCHE 396 Biochemistry II and Biotechnology (3)
- MATH 191 Calculus & Analytical Geometry I (4)
- MATH 192 Calculus & Analytical Geometry II (4)
- A ST 311 Statistical Applications (3)

Tier I courses (All are mandatory courses; 28 Credits): *Prerequisites

- | | |
|--|---------------|
| <input type="checkbox"/> GENE 110 Experimental Systems in Genetics (1) | |
| <input type="checkbox"/> BIOL 211 G&L Cellular & Organismal Biology and Lab (3,1) *Pre/co-req. CHEM 110 or 111 | |
| <input type="checkbox"/> GENE 305L Genetics Techniques Laboratory (1) | } Corequisite |
| <input type="checkbox"/> GENE 315 Molecular Genetics (3) *CHEM 111, BIOL 211 | |
| <input type="checkbox"/> BIOL 311 General Microbiology (3) *BIOL 211 | |
| <input type="checkbox"/> BIOL 311L General Microbiology Laboratory (2) *BIOL 211;pre/co-req. BIOL 311 | |
| <input type="checkbox"/> GENE 320 Heredity and Population Genetics (3) *CHEM 111, BIOL 211 | |
| <input type="checkbox"/> BIOL 377 Cell Biology (3) *BIOL 211, BIOL 305 | |
| <input type="checkbox"/> GENE 440 Genetics Seminar (1) *GENE 315, GENE 320 | |
| <input type="checkbox"/> GENE 452 Applied Bioinformatics (3) *BIOL 305 or GENE 315, GENE 320, and BCHE 395 | |
| <input type="checkbox"/> BCHE 494 Techniques in Genetic Engineering (4) *BCHE 395, 396 or instructor consent | |

Tier II Courses: Choose one from each category:

Selection Response (3cr.):

- AGRO 462 Plant Breeding (3)
- ANSC 423 Animal Breeding (3)
- BIOL 467 Evolution (3)

Organism Structure(3-4 cr.):

- ANSC 370 Anat. & Phys. of Farm Animals (4)
- BIOL 313 Structure & Function of Plants (3)
- BIOL 322 Zoology (3)
- BIOL 330 Comparative Anatomy & Embryology (4)
- BIOL 465 Invertebrate Zoology (4)
- BIOL 470 Developmental Biology (3)
- EPWS 303 Economic Entomology (4)

Physiology (3-4 cr.):

- ANSC 421 Phys. of Reproduction (4)
- BIOL 354 Human Physiology (3)
- BIOL 381 Animal Physiology (3)
- BIOL 385 Introduction to Cancer (3)
- BIOL 451 Phys. of Microorganisms (3)
- BIOL 474 Immunology (3)
- EPWS 314 Plant Physiology (3)
- HORT 471 Plant Mineral Nutrition (3)

Molecular Genetics (2-3cr.):

- BIOL 475 Virology (3)
- BIOL 478 Molecular Biology of Microorganisms (3)
- BIOL 482 Microbial Systems (2)
- GENE 486 Genes and Genomes (3)
- GENE 488 Gene Regulation (3)

Tier III courses: Choose one course

- AGRO 303 Genetics and Society (3)
- HON 306 Science, Ethics, and Society (3)
- PHIL 321 Biomedical Ethics (3)

NEW MEXICO COMMON CORE REQUIREMENTS

Area 1 – Communication (9-10 cr.)

ENGL 111G, 111H, or SPCD 111G

ENGL **218 or 318G**

COMM 253G or 265G, HON 265G

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.)

AG E/FSTE 210G

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

C EP 110G

C J 101G

ECON 201G, 251G, 252G

GEOG 112G, 120G

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

H LS 150

HON 203G, 232G, 235G, 237G, 248G, 249G

JOUR 105G

LING 200G

PSY 201G

SOC 101G, 201G

S WK 221G

W S 201G, 202G

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

ART 101G, 110G, 295G, 296G

DANC 101G

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

HIST 101G, 102G, 110G, 111G, 112G, 201G, 202G, 211G, 212G, 221G, 222G

HON 208G, 216G, 220G, 221G, 222G, 225G, 226G, 227G, 228G, 229G, 230G, 234G, 239G, 241G, 242G, 244G, 270G

MUS 101G, 201G

PHIL 100G, 101G, 124G, 136G, 201G, 211G, 223G

THTR 101G

Second Language – No Second Language Required

Viewing a Wider World (6 cr.)

Courses in this category are 300- and 400-level general education courses. For the Genetics major MGT is recommended and the other is fulfilled by the 9-hour rule.

 ✓ 9-hour rule

 MGT 315V Human Relations in Organizations
(recommended)

NOTES:

Graduation Requirements:

Total credits remaining to reach 128 _____

Upper division credits (300-400 level) to reach 48 _____

Cumulative 2.0 Minimum GPA