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CONSULT DEGREE WORKS OR THE UNDERGRADUATE CATALOG FOR THE MOST ACCURATE INFORMATION ON DEGREE REQUIREMENTS

CHECKLIST for B.S. in GENETICS

updated 8/16/2018

CATALOG YEAR 2018-19

<b>University Discovery and Inquiry Requirements<sup>1</sup></b>			
Course	Semester	Credits	Grade
Writing ENGL 401 First-Year Writing <sup>2</sup>		4	
Quant. Reasoning MATH 424B Calculus		4	
Biological Science BIOL 411 Biology		4	
Physical Science PHYS 401 Physics		4	
Environ., Technol. & Society			
Fine & Performing Arts			
Historical Perspectives			
Humanities			
Social Science			
World Cultures			
Capstone <sup>3</sup>			

<b>University Writing Intensive Requirements Course</b>			
Course	Semester	Credits	Grade
ENGL 401 First-Year Writing		4	
Course in major <sup>4</sup>			
600/700-level course <sup>4</sup>			
Elective course			

<b>Foundation Courses</b>			
Course	Semester	Credits	Grade
CHEM 403 General Chemistry I		4	
CHEM 404 General Chemistry II		4	
CHEM 545/546 Organic Chemistry/Lab <sup>2</sup>		3 /2	
MATH 424B Calculus for Life Sciences		4	
BIOL 528 Applied Biostatistics I		4	
PHYS 401 Introduction to Physics I		4	
PHYS 402 Introduction to Physics II		4	

<b>Biological Science Foundation Courses</b>			
Course	Semester	Credits	Grade
BIOL 411 Intro Biology:Molecular & Cellular		4	
BIOL 412 Intro Biology:Evolution, Biodivers & Ecol		4	
GEN 604 Principles of Genetics		4	
BMS 503/504 General Microbiology/Laboratory		3/2	
BMCB 605 Eukaryotic Cell&Developmental Biology		4	
BMCB 658/659 General Biochemistry/Laboratory		3 /2	

<b>Genetics Core Courses</b>			
Course	Semester	Credits	Grade
GEN 401 Professional Perspectives in Genetics		1	
GEN 606 Genetics Lab		4	
GEN 704 or 771		5 or 4	
GEN 711 Genomics & Bioinformatics		4	

**Major Elective Courses**

FOUR courses that include:

- \* ONE course in Population or Evolutionary Genetics - GEN 705, 715, or 772
- \* AT LEAST ONE course from the Laboratory Techniques list
- \* Two courses from the Bioscience Electives list

Course	Semester	Credits	Grade
GEN 705 or 715 or 772			
Lab Techniques			
Bioscience Elective			
Bioscience Elective			

**A total of 128 credits is needed for graduation. A grade of C-minus or better required in Statistics and in all Biological Science Foundation, Genetics Core, and Major Elective courses.**

<sup>1</sup> Inquiry requirement is met by BIOL 411

<sup>2</sup> Students applying to health profession schools need a full year of English, a full year of Organic Chemistry, and a full year of Introductory Biology. ENGL 502 or 503 should be taken in addition to ENGL 401; CHEM 651/653 and CHEM 652/654 should be taken in place of CHEM 545/546. See <http://www.unh.edu/premed-advising/curric.htm>

<sup>3</sup> Capstone experiences for seniors include approved coursework, research projects (GEN 795, 799, 799H, or INCO 790; 4-credit minimum), 790 teaching experience (4-credit minimum and including a classroom presentation or instruction), internship, etc. See <http://genetics.unh.edu> for details

<sup>4</sup> The same course may be used to fulfill the requirements for a writing intensive course in the major and for a 600/700 level course but every student must have 4 writing-intensive courses

**Major elective courses for Genetics<sup>5</sup>**

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<b>Laboratory Techniques</b>		
BMCB 753	<i>Cell Culture</i>	
BMCB 754	<i>Lab. Biochem. Mol. Biol. Nucleic Acids</i>	WI
GEN 704 <sup>6</sup>	<i>Genetics of Prokaryotic Microbes</i>	WI, C
GEN 717	<i>Molecular Microbiology</i>	WI, C
GEN 774	<i>Techniques Plant Gen Engineer &amp; Biotech</i>	
GEN 795 <sup>7</sup>	<i>Investigations (4-credit minimum)</i>	C
GEN 795W <sup>7</sup>	<i>Investigations (4-credit minimum)</i>	
GEN 799 <sup>7</sup>	<i>Senior Thesis (4-credit minimum)</i>	WI, C
GEN 799H <sup>7</sup>	<i>Senior Honors Thesis (4-credit minimum)</i>	WI, C
INCO 790 <sup>7</sup>	<i>Advanced Research Experience (4-credit minimum)</i>	C
<b>Bio science Electives</b>		
GEN 704	<i>Genetics of Prokaryotic Microbes<sup>6</sup></i>	WI, C
GEN 705	<i>Population &amp; Quantitative Genetics</i>	C
GEN 706	<i>Human Genetics</i>	
GEN 712	<i>Introduction to Programming for Bioinformatics</i>	
GEN 713	<i>Microbial Ecology and Evolution</i>	WI
GEN 715	<i>Molecular Evolution</i>	C
GEN 717	<i>Molecular Microbiology</i>	WI, C
GEN 721	<i>Comparative Genomics</i>	
GEN 771	<i>Molecular Genetics</i>	
GEN 772	<i>Evolutionary Genetics of Plants</i>	WI
GEN 774	<i>Techniques Plant Gen Engineer &amp; Biotech</i>	
GEN 795 <sup>7</sup>	<i>Investigations (4 credit minimum)</i>	
GEN 795W <sup>7</sup>	<i>Investigations (4-credit minimum)</i>	WI
GEN 799 <sup>7</sup>	<i>Senior Thesis (4-credit minimum)</i>	WI
GEN 799H <sup>7</sup>	<i>Honors Senior Thesis</i>	WI
ANSC 602	<i>Animal Rights and Societal Issues</i>	WI
ANSC 701	<i>Physiology of Reproduction</i>	
BIOL 702	<i>Techniques in Plant Physiology &amp; Biochemistry</i>	
BIOL 704	<i>Plant Microbe Interactions</i>	
BIOL 711	<i>Applied Biostatistics II</i>	
BIOL 752	<i>Mycology</i>	
BMCB 750	<i>Physical Biochemistry</i>	
BMCB 753	<i>Cell Culture</i>	
BMCB 754	<i>Molecular Biology Research Methods</i>	WI
BMCB 760	<i>Pharmacology</i>	
BMCB 763	<i>Biochemistry of Cancer</i>	
BMCB 783	<i>Proteomics for Biological Discoveries</i>	
BMCB 794	<i>Protein Structure and Function</i>	
BMS 650	<i>Molecular Diagnostics</i>	
BMS 702	<i>Endocrinology</i>	
BMS 705	<i>Immunology</i>	
BMS 706	<i>Virology</i>	
BMS 718	<i>Mammalian Physiology</i>	WI
BMS 719	<i>Host-Microbe Interactions</i>	
BMS 740	<i>Human Microbiome</i>	
INCO 790	<i>Advanced Research Experience (4-credit minimum)</i>	
NR 706	<i>Soil Ecology</i>	
ZOOL 625/626	<i>Principles of Animal Physiology / Lab</i>	WI
ZOOL 690	<i>Evolution</i>	WI
ZOOL 736	<i>Genes and Behavior</i>	
ZOOL 777	<i>Neurobiology and Behavior</i>	

<sup>5</sup> **WI = writing intensive; C = capstone**

<sup>6</sup> Students who take GEN 704 to fulfill the Genetics Core requirement may also count it toward their Laboratory Techniques requirement IF they take one additional Bioscience Elective course.

<sup>7</sup> Must be a laboratory-based project with a genetics focus; approval form available at <http://genetics.unh.edu>