

CHECKLIST for B.S. in GENETICS¹

updated 9/11/15

University Discovery & Inquiry Requirements			
Course	Semester	Credits	Grade
Writing ENGL 401 (WI) First-Year Writing ²		4	
Quant. Reasoning MATH 424B Calculus		4	
Biological Science BIOL 411 Biology ³		4	
Physical Science PHYS 401 Physics		4	
Environ., Technol. & Society			
Fine & Performing Arts			
Historical Perspectives			
Humanities			
Social Science			
World Cultures			
Capstone			
capstone experiences for seniors include approved coursework, research projects (GEN 795 or 799), 790 teaching experience, internship, etc. - see genetics.unh.edu			

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

Foundation Courses			
	Semester	Credits	Grade
CHEM 403 General Chemistry I		4	
CHEM 404 General Chemistry II		4	
CHEM 545/546 Organic Chemistry/Lab ⁵		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	

NOTES:

¹ - 128 credits are needed for graduation

- C or better in all COLSA courses

² Students applying to professional schools need a full year of english and should take ENGL 502 or 503 in addition to ENGL 401 (see <http://www.unh.edu/premed-advising/curric.htm>)

Biological Science Foundation Courses	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 General Microbiology		5	
BMCB 605 Eukaryotic Cell&Developmental Biology		4	
BMCB 658/659 General Biochemistry/Laboratory		3 /2	

Genetics Core Courses	Semester	Credits	Grade
GEN 401 Professional Perspectives in Genetics		1	
GEN 606 Genetics Lab		4	
GEN 704^c or 771			
GEN 711 Genomics & Bioinformatics		4	

Major Elective Courses

FIVE courses that include:

* ONE course in Population or Evolutionary Genetics - GEN 705 or 715

* AT LEAST ONE course from the Laboratory Techniques list

* Three courses from the Bioscience or Other Major Electives lists with NO MORE THAN ONE course from the Other Major Electives list⁶

	Semester	Credits	Grade
GEN 705^c or 715^c			
Lab Techniques			
Bioscience Elective			
Bioscience Elective			
Bioscience or Other Major Elective			

³ BIOL 411 fulfills the Inquiry requirement of the Discovery program

⁴ 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

⁵ Students applying to professional schools need a full year of organic chemistry and should take CHEM 651/653 Organic Chemistry I/Lab and CHEM 652/654 Organic Chemistry II/Lab instead of CHEM 545/546 (see <http://www.unh.edu/premed-advising/curric.htm>)

⁶ One course from the Other Major Electives list is recommended for students applying to professional schools (see <http://www.unh.edu/premed-advising/curric.htm>)

Major elective courses for Genetics

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Laboratory Techniques

BMCB 753	<i>Cell Culture</i>	
BMCB 754	<i>Lab. Biochem. Mol. Biol. Nucleic Acids</i>	WI
BMS 714	<i>Research Methods in Endocrinology</i>	WI
GEN 704*	<i>Genetics of Prokaryotic Microbes</i>	WI, C
GEN 717	<i>Molecular Microbiology</i>	WI, C
GEN 774	<i>Techniques Plant Gen Engineer & Biotech</i>	
GEN 795**	<i>Investigations (4 credit minimum)</i>	C
GEN 799	<i>Senior Thesis</i>	WI, C
INCO 790**	<i>Advanced Research Experience (4 cr min)</i>	C

* 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.

** Must be a laboratory-based project with a genetics focus
- approval form available at genetics.unh.edu/4year

Bioscience Electives

BIOL 702	<i>Techniques in Plant Physiology & Biochemistry</i>	
BIOL 704	<i>Plant Microbe Interactions</i>	
BIOL 711	<i>Applied Biostatistics II</i>	
BMCB 750	<i>Physical Biochemistry</i>	
BMCB 753	<i>Cell Culture</i>	
BMCB 754	<i>Lab. Biochem. Mol. Biol. Nucleic Acids</i>	WI
BMCB 763	<i>Biochemistry of Cancer</i>	
BMCB 783	<i>Proteomics for Biological Discoveries</i>	
BMCB 794	<i>Protein Structure and Function</i>	
BMS 702	<i>Endocrinology</i>	
BMS 705	<i>Immunology</i>	
BMS 706	<i>Virology</i>	
BMS 714	<i>Research Methods in Endocrinology</i>	WI
GEN 704	<i>Genetics of Prokaryotic Microbes</i>	WI, C
GEN 705	<i>Population & Quantitative Genetics</i>	C
GEN 706	<i>Human Genetics</i>	
GEN 712	<i>Intro. Perl Program. 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 & Biotech</i>	
GEN 795	<i>Investigations (4 credit minimum)</i>	
GEN 799	<i>Senior Thesis</i>	WI
PBIO 752	<i>Mycology</i>	

Other Major Electives

ANSC 602	<i>Animal Rights and Society Issues</i>	WI
ANSC 701	<i>Physiology of Reproduction</i>	
ANSC 708	<i>Ruminant Nutritional Physiology</i>	
ANTH 610	<i>Medical Anthropology: Illness & Healing</i>	
ANTH 610W	<i>Medical Anthropology: Illness & Healing</i>	WI
ANTH 685	<i>Gender Sex., HIV/AIDS Sub-Saharan Afri.</i>	WI
ARTS 567	<i>Introductory Sculpture</i>	
BMCB 714/5	<i>Electron Microscopy with Lab</i>	
BMS 650	<i>Molecular Diagnostics</i>	
BMS 718	<i>Mammalian Physiology</i>	WI
BMS 730	<i>Ethical Issues in Biomedical Science</i>	WI
CLAS 525	<i>Greek & Latin Origins of Medical Terms</i>	
HIST 522	<i>Science in the Modern World</i>	
HIST 597	<i>Medicine and Society</i>	
HIST 604	<i>History of Medicine in the United States</i>	
HIST 654	<i>Topics in History of Science</i>	
HMP 401	<i>United States Health Care System</i>	
HMP 401W	<i>United States Health Care System</i>	WI
HMP 403	<i>Introduction to Public Health</i>	
HMP 569	<i>Human Behavior & the Public Health</i>	
HMP 735	<i>Social Marketing</i>	WI
HMP 744	<i>Health, Ethics & Law</i>	
HMP 746	<i>Health Policy</i>	
HUMA 651	<i>Humanities & Sci:Nature of Scientific Creativity</i>	WI
KIN 607	<i>Biology of Aging</i>	
NR 706	<i>Soil Ecology</i>	
PBIO 566	<i>Plant Systematics</i>	
PHIL 660	<i>Law, Medicine and Morals</i>	WI
PSYC 511	<i>Sensation and Perception</i>	
PSYC 513	<i>Cognitive Psychology</i>	
PSYC 531	<i>Psychobiology</i>	
PSYC 561	<i>Abnormal Behavior</i>	
PSYC 758	<i>Health Psychology</i>	
SOC 635	<i>Medical Sociology</i>	WI
ZOOL 518	<i>Vertebrate Morphology</i>	
ZOOL 625/6	<i>Principles of Animal Physiology with Lab</i>	WI
ZOOL 690	<i>Evolution</i>	WI