

**CHECKLIST for B.S. in GENETICS:GENOMICS option<sup>1</sup>**

updated 8/18/14

<b>University Discovery Requirements</b>	<b>Semester</b>	<b>Credits</b>	<b>Grade</b>
Writing <b>ENGL 401 (WI) First-Year Writing<sup>2</sup></b>		4	
Quant. Reasoning <b>MATH 424B Calculus</b>		4	
Biological Science <b>BIOL 411 Biology<sup>3</sup></b>		4	
Physical Science <b>PHYS 401 Physics</b>		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			

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

<b>Foundation Courses</b>	<b>Semester</b>	<b>Credits</b>	<b>Grade</b>
<b>CHEM 403 General Chemistry I</b>		4	
<b>CHEM 404 General Chemistry II</b>		4	
<b>CHEM 545/546 Organic Chemistry/Lab<sup>5</sup></b>		3 / 2	
<b>MATH 424B Calculus for Life Sciences</b>		4	
<b>BIOL 528 Applied Biostatistics I</b>		4	
<b>PHYS 401 Introduction to Physics I</b>		4	
<b>PHYS 402 Introduction to Physics II</b>		4	

**NOTES:**

<sup>1</sup> - 128 credits are needed for graduation

- C- or better in all COLSA courses

<sup>2</sup> 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>)

<b>Biological Science Foundation Courses</b>	<b>Semester</b>	<b>Credits</b>	<b>Grade</b>
<b>BIOL 411 Intro Biology:Molecular &amp; Cellular</b>		4	
<b>BIOL 412 Intro Biology:Evolution, Biodivers &amp; Ecol</b>		4	
<b>GEN 604 Principles of Genetics</b>		4	
<b>BMS 503 General Microbiology</b>		5	
<b>BMCB 605 Eukaryotic Cell &amp;Developmental Biology</b>		4	
<b>BMCB 658/659 General Biochemistry/Laboratory</b>		3 / 2	

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

**Major Elective Courses**

	<b>Semester</b>	<b>Credits</b>	<b>Grade</b>
<b>GEN 712 Intro PERL Programming for Bioinformatics</b>		4	
<b>GEN 721 Comparative Genomics</b>		4	
<b>GEN 705<sup>c</sup> OR 713 OR 715<sup>c</sup> OR 772</b>			
<b>GEN 705<sup>c</sup> OR 713 OR 715<sup>c</sup> OR 772</b>			
<b>Bioscience or Other Major Elective<sup>6</sup></b>			

<sup>3</sup> BIOL 411 fulfills the Inquiry requirement of the Discovery program

<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

<sup>5</sup> 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>)

<sup>6</sup> 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: Genomics option

updated 8/18/14

### **Bioscience Electives**

BIOL 702	<i>Techniques in Plant Physiology &amp; 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>	C
GEN 705	<i>Population &amp; 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 &amp; Biotech</i>	
GEN 795	<i>Investigations (4 credit minimum)</i>	
GEN 799	<i>Senior Thesis</i>	WI
PBIO 752	<i>Mycology</i>	
ZOOL 777	<i>Neurobiology and Behavior</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 &amp; Healing</i>	
ANTH 610W	<i>Medical Anthropology: Illness &amp; 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 718	<i>Mammalian Physiology</i>	WI
BMS 730	<i>Ethical Issues in Biomedical Science</i>	WI
BMS 650	<i>Molecular Diagnostics</i>	
CLAS 525	<i>Greek &amp; 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 &amp; the Public Health</i>	
HMP 735	<i>Social Marketing</i>	WI
HMP 744	<i>Health, Ethics &amp; Law</i>	
HMP 746	<i>Health Policy</i>	
HUMA 651	<i>Humanities &amp; 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

WI = writing intensive

C = capstone; see <http://genetics.unh.edu/capstone-experience-genetics-majors> for more information