

## Checklist for B.S. in Biomedical Science, option in Medical and Veterinary Sciences

May 2017

### University Discovery and Inquiry Requirements<sup>1</sup>

Course	Semester	Credits	Grade
Writing ENGL 401 (WI) First-Year Writing <sup>2</sup>		4	
Quant. Reasoning MATH 424B Calculus for Life Sciences		4	
Biological Science BIOL 411 Intro Biology: Molecular and Cellular		4	
Physical Science CHEM 403 General Chemistry I		4	
Environ., Technol. & Society			
Fine & Performing Arts			
Historical Perspectives			
Humanities			
Social Science			
World Cultures			
Capstone <sup>3</sup>			

### Bioscience Core Courses

Course	Semester	Credits	Grade
BMS 503/504 General Microbiology/Lab	Fall/Spring	3/2	
BIOL 411 Intro Biology: Molecular and Cellular	Fall/Spring	4	
BIOL 412 Intro Biology: Evolution, Biodiversity and Ecology	Fall/Spring	4	
BMCB 658/659 General Biochemistry/Lab	Fall/Spring	3/2	
GEN 604 Principles of Genetics	Fall/Spring	4	

### BMS-MVS Core Courses

Course	Semester	Credits	Grade
BMS 401 Professional Perspectives in Biomedical Sciences (required for first-year students only)	Fall	1	
BMS 507 Human Anatomy and Physiology I or ANSC 511 Anatomy and Physiology	Fall	4	
BMS 508 Human Anatomy and Physiology II or ANSC 512 Anatomy and Physiology	Spring	4	

### University Writing Intensive Requirements (four courses total)

Course	Semester	Credits	Grade
ENGL 401 First-Year Writing <sup>2</sup>		4	
Course in major			
600/700-level course			
Elective course			

### Major Elective Courses (seven courses total)

#### A) TWO courses from Biomedical Systems Electives

Course	Semester	Credits	Grade

#### B) TWO courses from Pathobiology and Disease Electives

Course	Semester	Credits	Grade

#### C) TWO courses from Health & Environmental Issues Electives

Course	Semester	Credits	Grade

#### D) ONE additional course from entire list of Major Electives (see next page)

Course	Semester	Credits	Grade

### Foundation Courses

Course	Semester	Credits	Grade
CHEM 403 General Chemistry I		4	
CHEM 404 General Chemistry II		4	
CHEM 651/653 Organic Chemistry I /Lab		3/2	
CHEM 652/654 Organic Chemistry II/ Lab		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	

A total of 128 credits is needed for graduation.

A grade of C- or better is required in all Foundation, Bioscience Core, BMS:MVS Core, and Major Elective courses.

J-term courses should not be used to fulfill BMS:MVS elective requirements.

<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 415C, 419, 501, 502 or 503 could be taken in addition to ENGL 401. See <http://www.unh.edu/premed-advising/curric.htm>

<sup>3</sup> Capstone experiences may be: 1) a research experience (BMS 795/BMS 795W), senior thesis (BMS 799/799H), or their equivalent (INCO 790 or other 795 *Investigations* courses in the biological sciences); 2) BMS 635 Preceptorial in Prehospital Care (4-credit minimum); or 3) an approved course (see Major Electives with "C" designation on next page). Any other experience, such as an internship, requires submission of the Capstone Experience Approval form (see BMS:MVS website) before beginning the experience. Capstone experiences usually occur in the final year but may be completed during the previous summer if the student has completed 90 credits. (see <https://www.unh.edu/discovery/discovery-program-capstone-experience>)

**DISCLAIMER: THIS COURSE LISTING IS ADVISORY ONLY.**

**CONSULT DEGREEWORKS OR THE UNDERGRADUATE CATALOG FOR THE MOST ACCURATE INFORMATION ON DEGREE REQUIREMENTS.**

**Major Elective courses for Biomedical Science, option in Medical & Veterinary Sciences<sup>4</sup>**

May 2017

<b>Biomedical Systems Electives</b>			
<b>Recommended courses:</b>			
BMS 702	Endocrinology	Fall	C
BMS 718	Mammalian Physiology	Spring	WI, C
BMCB 605	Eukaryotic Cell & Developmental Biol.	Spring	
BMCB 760	Pharmacology	Spring	
GEN 717	Molecular Microbiology	Fall	WI, L
NUTR 750	Nutritional Biochemistry	Fall	WI, C
<b>Other appropriate courses:</b>			
BMS 623	Histology: Micro. Cell. Struct. & Func.	Spring	
BMS 740	Human Microbiome	Spring	L, C
ANSC 609	Principles of Animal Nutrition	Fall	
ANSC 612	Genetics of Domestic Animals	Fall	
ANSC 698	Coop Real Education Agricultural Mgt	Fall & Spring	L, C
ANSC 701	Physiology of Reproduction	Fall	
ANSC 708	Ruminant Nutritional Physiology	Spring	
ANSC 710	Dairy Nutrition	Spring	
ANSC 715	Physiology of Lactation	Fall	
ANSC 724	Reproductive Mgt & Artificial Insemination	Spring	L
BMCB 753	Cell Culture	Fall	L, C
BMCB 754	Lab. Molecular Biology of Nucleic Acids	Fall	WI, L
BMCB 794	Protein Structure and Function	Fall	
CHE 762	Biomedical Engineering	Fall	WI
GEN 704	Genetics of Prokaryotic Microbes	Spring	WI, L
GEN 705	Population & Quantitative Genetics	Fall	
GEN 706	Human Genetics	Spring	
GEN 711	Genomics and Bioinformatics	Fall	
GEN 713	Microbial Ecology & Evolution	Spring	WI
GEN 715	Molecular Evolution	Spring	
GEN 771	Molecular Genetics	Fall	
KIN 684/685	Emer. Med Care: Emer Med Tech/Lab	Spring	
ZOOL 613	Animal Behavior	Fall	WI, L
ZOOL 777	Neurobiology and Behavior	Spring	
<b>Other Electives</b>			
BMS 799	Senior Thesis (4-credit minimum)		
BMS 799H	Honors Senior Thesis		

<b>Pathobiology and Disease Electives</b>			
<b>Recommended courses:</b>			
BMS 602	Pathogenic Microbiology	Spring	
BMS 655	Human and Animal Parasites	Fall	
BMS 704	Pathologic Basis of Disease	Spring	C
BMS 705	Immunology	Fall	
BMS 711	Toxicology	Spring	C
BMS 719	Host-Microbe Interactions	Fall	C
BMCB 763	Biochemistry of Cancer	Fall	
<b>Other appropriate courses:</b>			
BMS 644	Hematology	Fall	
BMS 650	Molecular Diagnostics	Fall & Spring	
BMS 656	Immunohematology	Fall	
BMS 658	Medical Biochemistry	Spring	
BMS 703	Infectious Disease and Health	Fall	
BMS 706	Virology	Spring	
BMS 712	Grand Rounds (must take 2X for 4 credits)	Fall & Spring	
BMS 720	Mycology, Parasitology, and Virology	Spring	
AAS 527	Companion Animal Diseases	Fall	
AAS 574	Dairy Cattle Disease Seminar	Spring	
NUTR 773	Clinical Nutrition	Spring	

<b>Health &amp; Environmental Issues Electives</b>			
<b>Recommended courses:</b>			
BMS 716	Public Health: Food/Waterborne Diseases	Fall	WI, L
BMS 730	Ethical Issues in Biomedical Science	Spring	WI
ANTH 610	Medical Anthropology: Illness & Healing	Spring	
BIOL 541	General Ecology	Fall & Spring	WI, L
HMP 401	United States Health Care Systems <sup>5</sup>	Fall & Spring	
HMP 501	Epidemiology & Community Medicine	Fall & Spring	
NR 435	Contemp Cons Issues & Environ Awareness <sup>5</sup>	Fall & Spring	
SOC 635	Medical Sociology	Fall & Spring	WI
<b>Other appropriate courses:</b>			
ANTH 685	Gender, Sexuality, HIV/AIDS in Sub Saharan Africa	Variable	WI
CLAS 525	Greek & Latin Origins of Medical Terms	Spring	
HMP 505	Public Health: History and Practice	Variable	
HMP 569	Human Behavior and the Public Health	Spring	
HMP 642	Health Economics	Spring	
NR 650	Principles of Conservation Biology	Spring	
PSYC 531	Psychobiology	Fall & Spring	
PSYC 737	Behavioral Medicine	Fall & Spring	WI

<sup>4</sup> WI = writing intensive; L = with laboratory; C = capstone

<sup>5</sup> Only one 400-level course may be taken to fulfill major requirements.

**Sample Course Sequence for Biomedical Science: Medical & Veterinary Sciences option**

This is just ONE way that the requirements for the BMS:MVS degree can be arranged in order to complete the degree in 8 semesters.

May 2017

	Fall	Spring
<b>1st Year</b>	BMS 401 - Professional Perspectives Biomed Science BIOL 411 - Intro. Biology: Molec. & Cellular ENGL 401 - First-Year Writing <sup>6</sup> CHEM 403 - General Chemistry I Discovery Course	BIOL 412 - Intro. Biology: Evol., Biodiv., & Ecol. MATH 424B - Calculus for Life Sciences CHEM 404 - General Chemistry II Discovery Course
<b>2nd Year</b>	GEN 604 - Principles of Genetics CHEM 651/653 - Organic Chemistry I/Lab BMS 507 - Human Anatomy & Physiology I OR ANSC 511 - Anatomy & Physiology Discovery Course	BMS 503/504 - General Microbiology/Lab <sup>7</sup> CHEM 652/654 - Organic Chemistry II/Lab BMS 508 - Human Anatomy & Physiology II OR ANSC 512 - Anatomy & Physiology Discovery Course
<b>3rd Year</b>	BMCB 658/659 - General Biochem/Lab PHYS 401 - Intro to Physics I BIOL 528 - Applied Biostatistics I Major Elective	Major Elective PHYS 402 - Intro to Physics II Major Elective Discovery Course
<b>4th Year</b>	Major Elective (possible Capstone) Major Elective Discovery Course Elective	Major Elective Major Elective Elective Elective

<sup>6</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 415C, 419, 501, 502 or 503 could be taken in addition to ENGL 401. See <http://www.unh.edu/premed-advising/curric.htm>

<sup>7</sup> Prior to fall 2017, students took BMS 503 General Microbiology with lecture and lab combined