

# Checklist for B.S. in Biomedical Science: Medical Microbiology option

6/5/17

<b>University Discovery and Inquiry Requirements<sup>1</sup></b>			
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 Introductory Biology		4	
Physical Science PHYS 401 Introduction to Physics I		4	
Environ., Technol. & Society			
Fine & Performing Arts			
Historical Perspectives			
Humanities			
Social Science			
World Cultures			
Capstone <sup>3</sup>			

<b>University Writing Intensive Requirements</b>			
Course	Semester	Credits	Grade
ENGL 401 First-Year Writing		4	
Course in major			
600/700-level course			
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 <sup>4</sup>		4	
PHYS 401 Introduction to Physics I		4	
PHYS 402 Introduction to Physics II		4	

<b>Bioscience Core Courses</b>			
Course	Semester	Credits	Grade
BMS 503/504 General Microbiology/Lab		3/2	
BIOL 411 Introductory Biology: Molecular & Cellular		4	
BIOL 412 Introductory Biology/or BMS 508 A & P		4	
BMCB 658/659 General Biochemistry /Lab		3 / 2	
GEN 604 Principles of Genetics		4	

<b>BMS-MM Core Courses</b>			
Course	Semester	Credits	Grade
BMS 401 Professional Perspectives in Biomedical Sciences (required for first year students only)		1	
BMS 602/603 Pathogenic Microbiology/Lab		3/2	
BMS 705/715 Immunology/Lab		3/2	
BMS 706/708 Virology/Lab <sup>5</sup>		3/2	

<b>Major Elective Courses (five courses total)</b>			
<b>A) One course from Host-Microbe Interaction Electives (next page)</b>			
Course	Semester	Credits	Grade
<b>B) One course from Molecular Biology Electives (next page)</b>			
Course	Semester	Credits	Grade
<b>C) One course from Community Electives (next page)</b>			
Course	Semester	Credits	Grade
<b>D) Two additional courses from Major Electives listing (next page)</b>			
Course	Semester	Credits	Grade

**A total of 128 credits needed for graduation. A grade of C- or better required in all Bioscience Core, BMS:MM 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 include research experiences (BMS 795-4 credit minimum), senior thesis (BMS 799-4 credit minimum), BMS 635 (4 credit minimum), an approved internship, or approved course (see Major Electives with "C" designation on next page). 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>)

<sup>4</sup> PSYC 402 and SOC 502 are acceptable alternatives.

<sup>5</sup> BMS 706/708 was not a major requirement prior to Fall 2015

## Major Elective courses for Biomedical Science: Medical Microbiology option <sup>6</sup>

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<b>Host-Microbe Interaction Electives</b>			
BMS 655	<i>Human and Animal Parasites</i> <sup>7</sup>	Fall	
BMS 703	<i>Infectious Disease and Health</i>	Fall	
BMS 704	<i>Pathologic Basis of Disease</i>	Spring	
BMS 719	<i>Host-Microbe Interactions</i> <sup>7</sup>	Fall	C
BMS 720	<i>Mycology, Parasitology &amp; Virology</i>	Spring	
BMS 740	<i>Human Microbiome</i> <sup>7</sup>	Spring	L,C

<b>Molecular Biology Electives</b>			
BMS 623	<i>Histology: Micro Cell Structure &amp; Function</i>	Spring	
BMS 650	<i>Molecular Diagnostics</i>	Fall & Spring	
BMS 655	<i>Human and Animal Parasites</i> <sup>7</sup>	Fall	
BMS 711	<i>Toxicology</i>	Spring	
BMS 719	<i>Host-Microbe Interactions</i> <sup>7</sup>	Fall	C
BMS 740	<i>Human Microbiome</i> <sup>7</sup>	Spring	L,C
BMCB 605	<i>Eukaryotic Cell &amp; Developmental Biology</i>	Spring	
BMCB 753	<i>Cell Culture</i>	Fall	L
BMCB 763	<i>Biochemistry of Cancer</i>	Fall	
BMCB 754	<i>Lab. in Biochem. &amp; Mol. Biol. Nucleic Acids</i>	Fall	WI, L
GEN 704	<i>Genetics of Prokaryotic Microbes</i>	Spring	WI, L
GEN 713	<i>Microbial Ecology &amp; Evolution</i>	Spring	WI
GEN 717	<i>Molecular Microbiology</i>	Fall	WI, L

<b>Community Electives</b>			
BMS 716	<i>Public Health: Food &amp; Waterborne Diseases</i>	Fall	WI, C
BMS 730	<i>Ethical Issues in Biomedical Science</i>	Spring	WI, C
ANTH 685	<i>Gender, Sexual. HIV/AIDS Sub-Saharan Africa</i>	Varies	
HMP 501	<i>Epidemiology and Community Medicine</i>	Fall & Spring	

<b>Other Major Electives</b> <sup>8</sup>			
BMS 795	<i>Investigations (4 cr.)</i>		L, C
BMS 799	<i>Senior Thesis (4 cr.)</i>		L, C

<sup>6</sup> **WI = writing intensive; L = with laboratory; C = capstone**

For capstone experiences not listed above, student must complete a non-credit capstone experience form.

<sup>7</sup> Course may be used as a Host-Micro Interaction elective or Molecular Biology elective, but not both.

<sup>8</sup> Courses with prefixes other than BMS need prior approval from advisor to be acceptable as an Other Major Elective.

### Sample Course Sequence for Biomedical Science: Medical Microbiology option

	Fall	Spring
<b>1st Year</b>	BMS 401 - Intro. to Biomedical Science BIOL 411 - Intro. Biology: Molec. & Cellular ENGL 401 - First-Year Writing <sup>9</sup> CHEM 403 - General Chemistry I Discovery Course	BIOL 412 - Intro. Biology: Evol., Biodiv., & Ecology <sup>10</sup> MATH 424B - Calculus for Life Sciences CHEM 404 - General Chemistry II Discovery Course
<b>2nd Year</b>	BMS 503/504 - General Microbiology/Lab GEN 604 - Principles of Genetics CHEM 545/546 - Organic Chemistry/Lab <sup>9</sup> Discovery Course	BMS 602/603 - Pathogenic Microbiology/Lab Major Elective or Discovery Course Discovery Course BIOL 528 - Applied Biostatistics <sup>11</sup>
<b>3rd Year</b>	BMS 705/715 - Immunology/Lab PHYS 401 - Intro to Physics I BMCB 658/659 - General Biochem/Lab Major Elective or Discovery Course	BMS 706/708 - Virology/Lab PHYS 402 - Intro to Physics II Major Elective Major Elective or Discovery Course
<b>4th Year</b>	Major Elective or Capstone course Major Elective Elective Elective	Capstone or Major Elective Major Elective Elective Elective

<sup>9</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.

<sup>10</sup> Students may take BMS 508 Anatomy and Physiology II (except pre-professional health students)

<sup>11</sup> PSYC 402 and SOC 502 are acceptable alternatives.