

## B. S. MICROBIOLOGY 2022-2023 BIOMEDICINE CONCENTRATION <sup>a</sup>

### FRESHMAN YEAR

<u>First Semester</u>	<u>Second Semester</u>
BIOL 1010 Frontiers in Biol. I .....1(1,0)	BIOL 1110 Prin. of Biol. II <sup>1</sup> .....4(3,3)
BIOL 1100 Prin. of Biol. I <sup>1</sup> .....4(3,3)	CH 1020 General Chemistry .....4(3,3)
CH 1010 General Chemistry .....4(3,3)	ENGL 1030 Composition and Rhetoric.....3(3,1)
MATH 1060 Calculus of One Var. I .....4(4,0)	Mathematical Sciences Requirement <sup>3</sup> ..... <u>3</u>
SC REACH Act Requirement <sup>2</sup> ..... <u>3</u>	14
16	

### SOPHOMORE YEAR

CH 2230 Organic Chemistry .....3(3,0)	BCHM 3050 Essential Elements of Bioch <sup>6</sup> .....3(3,0)
CH 2270 Organic Chemistry Lab .....1(0,3)	CH 2240 Organic Chemistry .....3(3,0)
<b>MICR 3050 General Microbiology</b> <sup>4</sup> ..... <b>4(3,3)</b>	CH 2280 Organic Chemistry Lab .....1(0,3)
Oral Communication Requirement <sup>5</sup> .....3	GEN 3000 Fundamental Genetics <sup>7</sup> .....3(3,0)
Social Science Requirement <sup>5</sup> ..... <u>3</u>	<b>MICR 3070 Microbial Diversity</b> ..... <b>4(3,3)</b>
14	Social Science Requirement <sup>5</sup> ..... <u>3</u>
	17

### JUNIOR YEAR

BIOL 4610 Cell Biology.....3(3,0)	<b>MICR 4120 Bacterial Physiology</b> ..... <b>3(3,0)</b>
BIOL 4620 Cell Biology Lab .....2(1,2)	<b>MICR 4500 Advanced Micro Lab I</b> ..... <b>2(1,2)</b>
<b>MICR 4040 Microbial Ecology</b> ..... <b>3(3,0)</b>	PHYS 2080 General Physics II <sup>10</sup> .....3(3,0)
PHYS 2070 General Physics I <sup>8</sup> .....3(3,0)	PHYS 2100 General Physics II Lab <sup>10</sup> .....1(0,2)
PHYS 2090 General Physics Lab I <sup>8</sup> .....1(0,3)	Arts and Humanities (Literature) Req. <sup>5</sup> .....3
Biomedicine Requirement <sup>9</sup> ..... <u>3</u>	Global Challenges Course Requirement <sup>5</sup> ..... <u>3</u>
15	15

### SENIOR YEAR

<b>MICR 4140 Basic Immunology</b> ..... <b>3(3,0)</b>	BIOL 4930 Senior Seminar <b>or</b>
<b>MICR 4150 Microbial Genetics</b> ..... <b>3(3,0)</b>	MICR (BIOL) 4930 Senior Seminar.....2(2,0)
<b>MICR 4160 Introductory Virology</b> ..... <b>3(3,0)</b>	Arts and Humanities (Non-Lit) Req. <sup>5</sup> .....3
<b>MICR 4510 Advanced Micro Lab II</b> ..... <b>2(1,2)</b>	Biomedicine Requirement <sup>9</sup> .....3
Biomedicine Requirement <sup>9</sup> ..... <u>3</u>	Global Challenges Course Requirement <sup>5</sup> .....3
14	Pathogenic Requirement <sup>11</sup> .....3
	Elective ..... <u>1</u>
	15

**Total Semester Hours = 120**

<sup>a</sup> **Bolded courses must be taken in the sequence listed above to ensure a punctual graduation.**

<sup>1</sup> BIOL 1030/1050 may substitute for BIOL 1100 and BIOL 1040/1060 may substitute for BIOL 1110.

<sup>2</sup> See South Carolina REACH Act Requirements in the Academic Regulations section in the Undergraduate Catalog.

<sup>3</sup> MATH 1080 or STAT 2300 or other approved coursework. See advisor. Medical/dental schools have different mathematics requirements. Statistics will be useful in either graduate study or professional school.

<sup>4</sup> Enroll in section for microbiology majors.

<sup>5</sup> See General Education Requirements. The Medical Colleges Admissions Test (MCAT) includes questions on psychology and sociology.

<sup>6</sup> BCHM 3010 may be substituted.

<sup>7</sup> GEN 3020 may be substituted.

<sup>8</sup> PHYS 1220/1240 may be substituted.

<sup>9</sup> See advisor. A minimum of 9 hours is required, selected from BCHM 4320, BCHM 4400, BIOL 3150, BIOL 3160, BIOL 3940, BIOL 4030, BIOL 4200, BIOL 4250, BIOL 4340, BIOL 4560, BIOL 4670, BIOL 4840, BIOL 4890, BIOL 4910, BIOL 4940, BIOL 4950, HLTH 3800, MICR 3940, MICR 4000, MICR 4050, MICR 4170, MICR 4910, MICR 4940, MICR 4950.

<sup>10</sup> PHYS 2210/2230 may be substituted.

<sup>11</sup> Select MICR 4110 or MICR 4180

NOTE: A transfer course may not be used to satisfy the General Education Global Challenges Requirement. While a transfer course may fulfill other degree requirements, students must enroll in a Clemson course(s) on the Global Challenges list to fulfill the Global Challenges Requirement.

**2022/2023 B.S. MICROBIOLOGY - BIOMEDICINE CONCENTRATION CURRICULUM**

<b>MICR Core Requirement: (38 cr.)</b>	<b>SEM/Yr</b>	<b>Grade</b>
BIOL 1010	1(1,0)	_____
BIOL 1100/1101	4(3,3) <sup>1</sup>	_____
BIOL 1110/1111	4(3,3) <sup>1</sup>	_____
MICR 3050/3051 (Fall, SO)	4(3,3)	_____
MICR 3070/3071 (Sp., SO)	4(3,3)	_____
MICR 4040 (Fall, JR)	3(3,0)	_____
MICR 4120 (Sp., JR)	3(3,0)	_____
MICR 4140 (Fall, SR)	3(3,0)	_____
MICR 4150 (Fall, SR)	3(3,0)	_____
MICR 4160 (Fall, SR)	3(3,0)	_____
MICR 4500/4501 (Sp., JR)	2(1,2)	_____
MICR 4510/4511 (Fall, SR)	2(1,2)	_____
MICR 4930 (or BIOL 4930)	2(2,0)	_____
<b>Biomedicine Requirement (9 cr.) <sup>2</sup></b>		
_____	_____	_____
_____	_____	_____
<b>Pathogenic Requirement (3 cr.) <sup>3</sup></b>		
<b>Required Science Courses (42 cr.)</b>		
BCHM 3050 OR 3010	3(3,0)	_____
BIOL 4610	3(3,0)	_____
BIOL 4620	2(1,2)	_____
CH 1010/1011	4(3,3)	_____
CH 1020/1021	4(3,3)	_____
CH 2230, 2270	3(3,0) & 1(0,3)	_____
CH 2240, 2280	3(3,0) & 1(0,3)	_____
GEN 3000	3(3,0) <sup>4</sup>	_____
MATH 1060	4(4,0)	_____
MATH 1080	4(4,0)	_____
OR STAT 2300	3(3,0) <sup>5</sup>	_____
PHYS 2070, 2090	3(3,0), 1(0,2) <sup>6</sup>	_____
PHYS 2080, 2100	3(3,0), 1(0,2) <sup>7</sup>	_____
<b>Required Non-Science Courses (18 cr.)</b>		
ENGL 1030/1031	3(3,1)	_____
Arts & Humanities – Literature	3(3,0) <sup>8</sup>	_____
Arts & Humanities – Non-Lit	3(3,0) <sup>8</sup>	_____
Oral Communication Req.	3(3,0) <sup>8</sup>	_____
SC REACH Act	3(3,0) <sup>9</sup>	_____
Social Sciences		_____
_____	3(3,0) <sup>8,10</sup>	_____
_____	3(3,0) <sup>8,10</sup>	_____
<b>Electives (1 cr.)</b>		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- <sup>1</sup> BIOL 1100 and BIOL 1110 are strongly recommended; however, BIOL 1030/1050 may substitute for BIOL 1100 and BIOL 1040/1060 may substitute for BIOL 1110.
- <sup>2</sup> See advisor. Minimum 9 hours required. BCHM 4320, 4400, BIOL 3150, 3160, 3940, 4030, 4200, 4250, 4340, 4560, 4670, 4840, 4890, 4910, 4940, 4950, HLTH 3800, MICR 3940, 4000, 4050, 4170, 4190, 4910, 4940 or 4950
- <sup>3</sup> MICR 4110 or MICR 4180
- <sup>4</sup> GEN 3020 may be substituted
- <sup>5</sup> Statistics will be useful in both graduate school and professional school.
- <sup>6</sup> PHYS 1220, 1240 (MATH 1060 pre-req.) may be substituted.
- <sup>7</sup> PHYS 2210, 2230 (MATH 1080 pre-req) may be substituted.
- <sup>8</sup> See General Education Requirements.
- <sup>9</sup> HIST 1010, POSC 1010, or POSC 1030
- <sup>10</sup> The Medical Colleges Admissions Test (MCAT) includes questions on psychology and sociology.

<b>Other Courses</b>	<b>SEM/Yr</b>	<b>Grade</b>
CU 1000	_____	_____
GCC	_____	_____
GGC	_____	_____