

# BIOLOGICAL SCIENCE CELL, MOLECULAR AND MEDICAL

## REQUIREMENTS

**CORE CURRICULUM** The Core Curriculum is designed to foster critical thinking skills and introduce students to basic domains of thinking that transcend disciplines. The Core applies to all majors. Information on specific classes in the Core can be found at [marshall.edu/gened](http://marshall.edu/gened).

### CORE 1: CRITICAL THINKING

CODE	COURSE NAME	HRS	GRADE
FYS 100	First Year Sem Crit Thinking	3	_____
MTH 229	Critical Thinking Course	3	_____
_____	Critical Thinking Course	3	_____
<b>Additional University Requirements</b>			
_____	Writing Intensive	3	_____
_____	Writing Intensive	3	_____
_____	Multicultural or International	3	_____
BSC 491	Capstone	2	_____

### CORE 2:

CODE	COURSE NAME	HRS	GRADE
ENG 101	Beginning Composition	3	_____
ENG 201	Advanced Composition	3	_____
CMM 103	Fund Speech-Communication	3	_____
MTH 229	Calculus I (or Precalc & Calc)	5	_____
BSC 120	Principles of Biology I	4	_____
_____	Core II Humanities	3	_____
_____	Core II Social Science	3	_____
_____	Core II Fine Arts	3	_____

## MAJOR-SPECIFIC

All Biological Science majors are required to take the following courses:

CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
BSC 121	Principles of Biology II	4	_____	CHM 361	Organic Chemistry II Lab	3	_____
CHM 211	Principles of Chemistry I	3	_____	PHY 201	College Physics I	3	_____
CHM 217	Principles of Chemistry I Lab	2	_____	PHY 202	College Physics I Lab	1	_____
CHM 212	Principles of Chemistry II	3	_____	PHY 203	College Physics II	3	_____
CHM 218	Principles of Chemistry II Lab	2	_____	PHY 204	College Physics II Lab	1	_____
CHM 355	Organic Chemistry I	3	_____	BSC 491	Capstone (C)	2	_____
CHM 356	Organic Chemistry II	3	_____				

## AREA OF EMPHASIS-SPECIFIC

Students who wish to add an area of emphasis in Cell, Molecular and Medical Biology must take the following courses:

CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
BSC 324	Principles of Genetics	4	_____	_____	AoE Elective	3	_____
BSC 302	Principles of Microbiology	3	_____	_____	AoE Elective	3	_____
BSC 322	Principles Cell Biology	4	_____	_____	AoE Elective	3	_____
CHM 365	Introductory Biochemistry	3	_____	_____	Free Elective	3	_____
BSC 310	Comp Vertebrate Anatomy	4	_____	_____	Free Elective	3	_____
BSC 450	Molecular Biology	3	_____	_____	Free Elective	3	_____
BSC 420	Plant Physiology or Animal	4	_____	_____	Free Elective	2	_____
or 422	Physiology						

## MAJOR INFORMATION

- Students must pass BSC 120 and earn a grade of C or better in BSC 121, CHM 211, and CHM 212 before they can enroll in any upper-level BSC course except BSC 227, 228 and 250. BSC 104 and 105 will not substitute for BSC 120 and 121 for a major in the Department of Biological Sciences.
- AoE Elective - Pick 3 of the following; BSC 301, 304, 413, 417, 424, 426, 428, 438, 442, 448, 454, 456
- CAPSTONE EXPERIENCE: It is the responsibility of each student to consult his/her advisor regarding details of meeting the capstone requirement. The capstone may be a traditional independent study research project under the supervision of a faculty member selected by the student, participation in a classroom-based capstone course, or the development and implementation of an internship, co-op, or community-based project.
- In addition to the Core General Education requirements, the College of Science requires 3 hours of Calculus, and 40 hours of upper level credit.
- The CHM coursework provides a Chemical Sciences minor.
- Coursework listed as "elective" may vary for each student. Students

- are encouraged to use elective hours toward a 2nd minor or toward prerequisites.
- Students are strongly encouraged to select courses that meet two or more Core or College requirements. For example, a writing intensive literature course could satisfy the Core II Humanities requirement as well as the University writing intensive requirement.
- Course offerings and course attributes are subject to change semesters. Please consult each semesters schedule of courses for availability and attributes.
- Calculus I requires ACT Mathematics score of 27 or higher. Students with an ACT Mathematics score less than 27 will be placed in the appropriate mathematics courses.
- All Biological Science majors are required to complete a minimum of 40 hours of credits in the Department of Biological Sciences.

Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

# BIOLOGICAL SCIENCE CELL, MOLECULAR AND MEDICAL

The Department of Biological Sciences is committed to teaching students about the science of life from molecular to global scales. A degree in Biological Sciences prepares students for careers and graduate study in diverse fields such as human and veterinary medicine, dentistry, biomedical and pharmaceutical research, environmental consulting, wildlife ecology, and K12 or higher education. Students completing the Area of Emphasis in Cell, Molecular and Medical Biology will be prepared for a wide range of careers in fields including biotechnology, cell biology, medicine and/or medical research.

YEAR ONE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
BSC 120	Principles of Biology I	4	_____	BSC 121	Principles of Biology II	4	_____	
CHM 211	Principles of Chemistry I	3	_____	CHM 212	Principles of Chemistry II	3	_____	
CHM 217	Principles of Chemistry Lab I	2	_____	CHM 218	Principles of Chemistry Lab II	2	_____	
MTH 229	Calculus I (CT) (or Precalc & Calc)	5	_____	FYS 100	First Year Sem Crit Thinking	3	_____	
ENG 101	Beginning Composition	3	_____	_____	Core II Fine Arts	3	_____	
UNI 100	Freshman First Class	1	_____					
	<b>TOTAL HOURS</b>	<b>18</b>			<b>TOTAL HOURS</b>	<b>15</b>		
	Summer Term (optional):							

YEAR TWO	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
BSC 324	Principles of Genetics	4	_____	BSC 302	Principles of Microbiology	3	_____	
CHM 355	Organic Chemistry I	3	_____	CHM 356	Organic Chemistry II	3	_____	
ENG 201	Advanced Composition	3	_____	CHM 361	Organic Chemistry II Lab	3	_____	
_____	Core II Social Science (PSY 201 or SOC 200)	3	_____	_____	Free Elective	3	_____	
_____	Free Elective	2	_____	_____	Core I Critical Thinking	3	_____	
	<b>TOTAL HOURS</b>	<b>15</b>			<b>TOTAL HOURS</b>	<b>15</b>		
	Summer Term (optional):							

YEAR THREE	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
BSC 332	Principles Cell Biology	4	_____	BSC 310	Comp Vertebrate Anatomy	4	_____	
CHM 365	Introductory Biochemistry	3	_____	PHY 203	College Physics II	3	_____	
PHY 201	College Physics I	3	_____	PHY 204	College Physics II Lab	1	_____	
PHY 202	College Physics I Lab	1	_____	_____	Core II Humanities	3	_____	
CMM 103	Fund Speech-Communication	3	_____	_____	AoE Elective	3	_____	
	<b>TOTAL HOURS</b>	<b>14</b>			<b>TOTAL HOURS</b>	<b>14</b>		
	Summer Term (optional):							

YEAR FOUR	FALL SEMESTER				SPRING SEMESTER			
	CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
BSC 450	Molecular Biology	3	_____	BSC 491	Capstone (C)	2	_____	
_____	Free Elective	3	_____	_____	Writing Intensive	3	_____	
_____	Multicultural or International	3	_____	_____	AoE Elective	3	_____	
_____	Writing Intensive	3	_____	_____	AoE Elective	3	_____	
BSC 420	Plant Physiology or Animal	4	_____	_____	Free Elective	3	_____	
or 422	Physiology							
	<b>TOTAL HOURS</b>	<b>16</b>			<b>TOTAL HOURS</b>	<b>14</b>		
	Summer Term (optional):							

Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

General Education Requirement  
 College Requirement  
 Major Requirement  
 Area of Emphasis

# BIOLOGICAL SCIENCE CELL, MOLECULAR, MEDICAL – 2019-2020

## INVOLVEMENT OPPORTUNITIES

- Student Government Association
- Campus Activity Board
- JMELI
- Commuter Student Advisory Board
- Club Sports
- Religious Organizations
- Political Organizations
- Residence Hall Association
- Cultural Organizations
- National Society of Leadership and Success

## RELATED MAJORS

- Biomechanics
- Athletic Training
- Education
- Geology
- Geography
- Environmental Science

## GRADUATION REQUIREMENTS

- Have a minimum of 120 credit hours (some colleges or majors require more);
- Have an overall and Marshall Grade Point Average of 2.00 or higher;
- Have an overall Grade Point Average of 2.00 or higher in the major area of study;
- Have earned a grade of C or better in English 201 or 201 H;
- Have met all major(s) and college requirements;
- Have met the requirements of the Core Curriculum;
- Have met the residence requirements of Marshall University, including 12 hours of 300/400 level coursework in the student's college (see section entitled "Residence Requirements" in the undergraduate catalogue);
- Be enrolled at Marshall at least one semester of the senior year;
- Have transferred no more than 72 credit hours from an accredited West Virginia two-year institution of higher education.

Colleges and specific programs may have unique requirements that are more stringent than those noted above. Students are responsible for staying informed about and ensuring that they meet the requirements for graduation.

This academic map is to be used as a guide in planning your coursework toward a degree. Due to the complexities of degree programs, it is unfortunate but inevitable that an error may occur in the creation of this document. The official source of degree requirements at Marshall University is DegreeWorks available in your myMU portal. Always consult regularly with your advisor.

## YEAR ONE



Have questions? Need to talk? You already have a Friend-At-Marshall ready to help you succeed. Find your FAM Peer Mentor here: [www.marshall.edu/fam](http://www.marshall.edu/fam)



Stay on the Herd Path and come to class! Class attendance is more important to your success than your high school GPA, your class standing, or your ACT/SAT scores.



Develop relationships with professors who can serve as future references by attending their office hours.



Talk with your professors to enhance your study skills and build your critical thinking abilities.



Take a pulse check. Know what you need to do every year to keep your grants, scholarships, or federal financial aid.



In order to graduate on time, you need to take an average of 15 credits per semester. Are you on track? Take 15 to Finish.



Take an elective course that links diversity to your field of study.

## YEAR THREE



Think about who can help you grow as a student and a professional (professors, advisors, alumni, etc) and ask at least one to be your mentor.



Complete admissions exams (GRE, MCAT, PCAT, LSAT, etc) the summer before your senior year.



Are you on track to graduate? Meet with your advisor for your Junior Eval to make sure you know what requirements you have left.



College is a great time to experience the world! Consider studying abroad in the summer, during Spring Break, or for an entire semester.



Make sure that you stand out. If you are entering a competitive field, ensure that you can highlight challenging courses and experiences.



Does admission to your chosen graduate or professional school require career shadowing? Start looking for opportunities now.



Want to continue your education and increase your opportunities? Talk to a faculty member about whether graduate school fits your career goals.

## YEAR TWO



Are you completing enough credits to graduate on time? Dropping or failing a class can put you behind. Use summer terms to quickly get back on track.



No need to wait until graduate school. Discuss undergraduate research opportunities with faculty in your major right now.



Join or create a club or organization related to your interests or career goals. Biology students are members of at least 20 different campus clubs.



Did you do really well in a hard course? Become a Tutor or a Supplemental Instructor.



Look ahead and be aware of what will be required to apply to graduate or professional schools, and be sure that you are on track.



Have you considered adding a minor? Think about personal areas of interest you'd like to explore or how you might enhance your major with a related skill set.



Start looking for volunteer experiences in fields related to your career choice or interest. Talk to professors about what makes a good opportunity.

## YEAR FOUR



This is it! Are you on track to graduate? Meet with your advisor for your Senior Eval to see what requirements you have left.



Prepare to present at the CoS Research Expo in April.



Strengthen your resume and enhance your presentation skills. Present what you've learned at an academic conference off campus.



Make sure that you stand out. If you are entering a competitive field, ensure that you can highlight challenging courses and experiences.



Apply for a nationally competitive scholarship like Fulbright, Rhodes, or Gates Cambridge. Contact the Office of National Scholarships at Marshall.



Be at the top of your professional game! Prepare a final resume and practice your interview skills with a career coach in Career Education.

## TRANSFERABLE SKILLS ASSOCIATED WITH THIS MAJOR

- Scientific Knowledge
- Communication Skills
- Ability to Work as Part of a Team
- Technology Literacy
- Adaptability

## ASSOCIATED CAREERS

- Research and Development
- Grant Writing
- Quality Control
- Medicine
- Conservation
- Genetics
- Ecology
- Microbiology
- Food Science
- Information Management
- Data Analysis
- Education
- Technical Writing
- Lobbying
- Law
- Advocacy
- Pharmaceutical Sales
- Consulting
- Marketing



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