### CURRICULUM PLAN COLLEGE OF SCIENCE 2020-2021

**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.

CORE 1: CRIT	ICAL THINKING				COF	RE 2:				
CODE	COURSE NAME		HRS	GRADE		CODE CO	DURSE NAME		HRS	GRADE
FYS 100	First Year Sem Crit Thinking	٠	3			ENG 101	Beginning Composition	•	3	
	Critical Thinking Course	٠	3		-	ENG 201	Advanced Composition	٠	3	
	Critical Thinking Course	٠	3		-	CMM 103	Fund Speech-Communication	٠	3	
						MTH 140	Applied Calculus	• •	3	
Additiona	I University Requirements					BSC 120	Principles of Biology I	• •	4	
	Writing Intensive		3				Core II Humanities	•	3	
	Writing Intensive		3				Core II Social Science	٠	3	
	Multicultural or International		3				Core II Fine Arts	٠	3	
BSC 491	Capstone		2							

#### **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	٠	3			PHY 201	College Physics I	•	3	
CHM 217	Principles of Chemistry I Lab	٠	2		<b>•</b>	PHY 202	College Physics I Lab	•	1	
CHM 212	Principles of Chemistry II	٠	3			PHY 203	College Physics II	•	3	
CHM 218	Principles of Chemistry II Lab	٠	2		<b>•</b>	PHY 204	College Physics II Lab	•	1	
CHM 355	Organic Chemistry I	٠	3			BSC 491	Capstone (C)	• •	2	
CHM 356	Organic Chemistry II	٠	3							

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	٠	4			AoE Elective	٠	3	
-	BSC 302	Principles of Microbiology	٠	3			AoE Elective	٠	3	
	BSC 322	Principles Cell Biology	٠	4			AoE Elective	۲	3	
	CHM 365	Introductory Biochemistry	٠	3			Free Elective (MTH 122		3	
-	BSC 310	Comp Vertebrate Anatomy	٠	4			recommended for PHY pre-req)			
-	BSC 450	Molecular Biology	٢	3			Free Elective		3	
	BSC 420	Plant Physiology or Animal	٢	4			Free Elective		3	
	or 422	Physiology					Free Elective		3	

#### MAJOR INFORMATION

- Students must earn a grade of C or better in BSC 120 and BSC 121 before they can enroll in any upper-level BSC course. BSC 104, 105, 227, 228 and 250 do not count as electives.BSC 104 and 105 will not substitute for BSC 120 and 121 for a major in the Department of Biological Sciences.
- AofE 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.

• Physic prerequisites are MTH 140 and MTH 122 or MTH 127/130 and MTH 122.

MY ADVISOR'S NAME IS:

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- 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.
- Applied Caldulus (MTH 140) requires ACT Mathematics score of 24 or higher. Students with an ACT Mathematics score less than 24 will be placed in the appropriate prerequisite mathematics courses.
- All Biological Science majors are required to complete a minimum of 40 hours of credits in the Department of Biological Sciences.
- Electives may count only once toward the required 40-hour BSC credits.

# FOUR YEAR PLAN COLLEGE OF SCIENCE 2020-2021 **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.

		CODE	FALL SEMESTER		LIDE	GRADE		CODE	SPRING SEMESTER		LIDE	GRA
		CODE	COURSE NAME			GRADE	-	CODE		•		GRAI
		BSC 120	Principles of Biology I	• •	4			BSC 121	Principles of Biology II		4	
	1. C. C.	CHM 211	Principles of Chemistry I	•	3			CHM 212	Principles of Chemistry II	•	3	
ONE		CHM 217	Principles of Chemistry Lab I	•	2			CHM 218	Principles of Chemistry Lab II	•	2	
	ेरतर	MTH 140	Applied Calculus	• •	3			FYS 100	First Year Sem Crit Thinking	•	3	
AR		ENG 101	Beginning Composition	•	3				Core II Fine Arts	•	3	
YEAR		UNI 100	Freshman First Class		1							
	Cum	TOTAL HO			16			TOTAL HC	DURS		15	
	Sumi	ner Term (op	tional):									
			FALL SEMESTER						SPRING SEMESTER			
		CODE	COURSE NAME		HRS	GRADE		CODE	COURSE NAME		HRS	GRA
		BSC 324	Principles of Genetics	٠	4		-	BSC 302	Principles of Microbiology	٠	3	
		CHM 355	Organic Chemistry I	•	3			CHM 356	Organic Chemistry II	•	3	
0		ENG 201	Advanced Composition	•	3			CHM 361	Organic Chemistry II Lab	•	3	
TWO			Core II Social Science (PSY 201 or	•	3				Free Elective (MTH 122		3	
			SOC 200)						recommended for PHY pre-req)			
YEAR			Free Elective		3				Core I Critical Thinking	•	3	
X												
		TOTAL HO	URS		16			TOTAL HO	OURS		15	
	Sumi	mer Term (op	tional):									
		_	FALL SEMESTER	_				_	SPRING SEMESTER	_	_	
		CODE	COURSE NAME		LIDC	GRADE		CODE			LIDC	GRA
		BSC 332	Principles Cell Biology	•	4	GRADE		BSC 310	Comp Vertebrate Anatomy		4	UNA
		CHM 365	Introductory Biochemistry		3			PHY 203	College Physics II	•	3	
E		PHY 201	College Physics I	•	3			PHY 204	College Physics II Lab	•	1	
[R]		PHY 202	College Physics I Lab	•	1			1111 204	Core II Humanities	•	3	
THREE		CMM 103	Fund Speech-Communication	•	3				AoE Elective		3	
		CIVIIVI 105	rund speech communication		5					<b>▲</b>	5	
R										•		
EAR										•		
YEAR			IIPS		14					•	14	
	Sumi	TOTAL HO			14			TOTAL HC		•	14	
	Sumi	<b>TOTAL HO</b> mer Term (op			14			TOTAL HC		•	14	
	Sumi				14			TOTAL HC			14	
	Sum		tional):			GRADE		TOTAL HC	DURS	•	14 HRS	GRA
	Sum	ner Term (op	tional): FALL SEMESTER	•		GRADE		_	OURS SPRING SEMESTER	•		GRA
Y	Sumi	mer Term (op <b>CODE</b> BSC 450 BSC 420	tional): FALL SEMESTER COURSE NAME Molecular Biology Plant Physiology or Animal	<u>د</u>	HRS	GRADE		CODE	OURS SPRING SEMESTER COURSE NAME	•	HRS	GRA
UR	Sum	mer Term (op <b>CODE</b> BSC 450	tional): FALL SEMESTER COURSE NAME Molecular Biology Plant Physiology or Animal Physiology	•	<b>HRS</b> 3 4	GRADE		CODE	SPRING SEMESTER COURSE NAME Capstone (C)	•	<b>HRS</b> 2	GRA
UR	Sumi	mer Term (op <b>CODE</b> BSC 450 BSC 420	tional): FALL SEMESTER FOURSE NAME Molecular Biology Plant Physiology or Animal Physiology Multicultural or International (CT)	•	HRS 3 4 3	GRADE		CODE	SPRING SEMESTER COURSE NAME Capstone (C) Writing Intensive	•••	<b>HRS</b> 2 3	GRA
FOUR	Sum	mer Term (op <b>CODE</b> BSC 450 BSC 420	tional): FALL SEMESTER COURSE NAME Molecular Biology Plant Physiology or Animal Physiology Multicultural or International (CT) Writing Intensive	•	HRS 3 4 3 3	GRADE		CODE	SPRING SEMESTER COURSE NAME Capstone (C) Writing Intensive AoE Elective	•	HRS 2 3 3	GRA
FOUR	Sumi	mer Term (op <b>CODE</b> BSC 450 BSC 420	tional): FALL SEMESTER FOURSE NAME Molecular Biology Plant Physiology or Animal Physiology Multicultural or International (CT)	•	HRS 3 4 3	GRADE		CODE	DURS SPRING SEMESTER COURSE NAME Capstone (C) Writing Intensive AoE Elective AoE Elective	•	HRS 2 3 3 3 3	GRA 
UR Y	Sumi	mer Term (op <b>CODE</b> BSC 450 BSC 420	tional): FALL SEMESTER COURSE NAME Molecular Biology Plant Physiology or Animal Physiology Multicultural or International (CT) Writing Intensive	•	HRS 3 4 3 3	GRADE		CODE	DURS SPRING SEMESTER COURSE NAME Capstone (C) Writing Intensive AoE Elective AoE Elective	•	HRS 2 3 3 3 3	GRA

# 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 REOUIREMENTS**

- 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 twoyear 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.

# BIOLOGICAL SCIENCE CELL, MOLECULAR, MEDICAL – 2020-2021

Talk with your professors to enhance

your study skills and build your

critical thinking abilities.

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Take a pulse check. Know what

you need to do every year to keep

your grants, scholarships, or federal

financial aid.

# **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.



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



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



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



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

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# **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.



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



academic conference off campus.

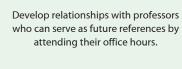
Apply for a nationally competitive scholarship like Fulbright, Rhodes, or Gates Cambridge. Contact the Office of National Scholarships at Marshall.



Research Expo in April.

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



Have guestions? 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



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.

back on track.

4,14,14

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.

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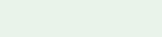
Have you considered adding a minor?

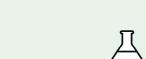
Think about personal areas of interest

you'd like to explore or how you might

enhance your major with a related skill

set.





**YEAR TWO** 

Take an elective course that links diversity

to your field of study.

**YEAR ONE** 

Stav on the Herd Path and come

to class! Class attendance is more

important to your success than

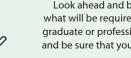
your high school GPA, your class

standing, or your ACT/SAT scores.

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







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

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



Did you do really well in a hard



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.

course? Become a Tutor or a Supplemental Instructor.



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



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

# 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

Prepare to present at the CoS



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



Talk to faculty about pursuing optional professional certifications.



Marshall University College of Science 1 John Marshall Drive Huntington, WV 25755 1-304-696-3170 cos@marshall.edu marshall.edu/cos