CURRICULUM PLAN COLLEGE OF SCIENCE 2024-2025

BIOCHEMISTRY

MY ADVISOR'S NAME IS: _____

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: CRITICAL THINKING

CODE	COURSE NAME	HRS	GRADE
FYS 100	First Year Seminar	3	
MTH 229	Critical Thinking Course	5	
_____	Critical Thinking Course	3	

Additional University Requirements

_____	Writing Intensive (CHM 357 or 358)	4	
_____	Writing Intensive	3	
_____	Multicultural or International	3	
CHM 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/Analytic Geom I (CT)	5	
BSC 120/L	Principles of Biology I / Lab	3/1	
_____	Core II Humanities	3	
_____	Core II Social Science	3	
_____	Core II Fine Arts	3	

MAJOR-SPECIFIC

All Biochemistry majors are required to take the following courses:

CODE	COURSE NAME	HRS	GRADE
BSC 120/L	Principles of Biology I / Lab	3/1	
BSC 121/L	Principles of Biology II / Lab	3/1	
CHM 211	Principles of Chemistry I	3	
CHM 217	Principles of Chemistry I Lab	2	
CHM 212	Principles of Chemistry II	3	
CHM 218	Principles of Chemistry II Lab	2	
CHM 355	Organic Chemistry I	3	
CHM 356	Organic Chemistry II	3	
CHM 361	Organic Chemistry II Lab	3	
CHM 305	Research Methods Chemistry	1	
CHM 358	Physical Chemistry (or 357 in Fall)	4	
CHM 365	Introductory Biochemistry	3	
CHM 366	Intro Biochemistry Lab	2	
CHM 467	Intermediate Biochemistry	3	
CHM 491	Capstone	2	
CHM 432	Seminar	0	

CODE	COURSE NAME	HRS	GRADE
BSC 322	Principles of Cell Biology	4	
BSC 324	Principles of Genetics	4	
PHY 201	College Physics I	3	
PHY 202	College Physics I Lab	1	
PHY 203	College Physics II	3	
PHY 204	College Physics II Lab	1	
MTH 229	Calculus/Analytic Geom I (CT)	5	
_____	Biochemistry Elective	3-4	
_____	Biochemistry Elective	3-4	
_____	Biochemistry Elective	3-4	
_____	Biochemistry Elective	3-4	
_____	Free Elective	3	
_____	Free Elective	3	
_____	Free Elective	3	
_____	Free Elective	2	

MAJOR INFORMATION

- Students are required to know and track their degree requirements for graduation or for entrance to a professional school.
- In addition to the Core General Education requirements, the College of Science requires 3 hours of Calculus, and 40 hours of upper level credit.
- Coursework listed as "elective" may vary for each student. Students are encouraged to use elective hours toward a minor or toward prerequisities.
- 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 each semester. Please consult each semesters schedule of courses for availability and attributes.
- Math is based on an ACT Mathematics score of 27 or higher. Students with an ACT Mathematics score less than 27 will be placed in the appropriate prerequisite mathematics and science courses.
- CHM 358 or 411 is recommended for students considering graduate school.
- The BSC coursework provides a Biological Sciences minor.
- A Grade Point Average of 2.0 is required 1) overall, 2) at MU, 3) in all required Chemistry courses, 4) in all Chemistry courses, and 5) in all required Chemistry courses taken at MU.
- Biochemistry Electives: Select from the following courses. At least one course must be 4 credit hours, and at least one must be a CHM course. BSC 302, 422, 428, 443, 448, 450, 456, CHM 345, 357, 358, 411, 448, 451, 465, 466.
- Double majors within the Department of Chemistry may include any majors other than the B.S., Major in Chemical Sciences. A double major of Forensic Chemistry with Biochemistry is also currently not permitted.

● Area of Emphasis ◆ Major Requirement ■ College Requirement ● General Education Requirement

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.

FOUR YEAR PLAN COLLEGE OF SCIENCE 2024-2025

BIOCHEMISTRY

MY ADVISOR'S NAME IS: _____

Students completing the Biochemistry major will be prepared for career opportunities in the biotechnology, forensics, environmental, pharmaceutical, agricultural, and medical fields. Students will also be well prepared for graduate-level study in biochemistry, biotechnology, and genetics and molecular biology. Additionally, Biochemistry is an excellent choice for students desiring to attend professional training in Medicine, Dentistry, Pharmacy, Law or Engineering.

YEAR ONE

FALL SEMESTER				SPRING SEMESTER			
CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
CHM 211	Principles of Chemistry I	3		BSC 121/L	Principles of Biology II / Lab	3/1	
CHM 217	Principles of Chemistry I Lab	2		CHM 212	Principles of Chemistry II	3	
BSC 120/L	Principles of Biology I / Lab	3/1		CHM 218	Principles of Chemistry II Lab	2	
ENG 101	Beginning Composition	3		MTH 229	Calculus/Analytic Geom I (CT)	5	
FYS 100	First Year Sem Crit Thinking	3					
UNI 100	Freshman First Class	1					
TOTAL HOURS		**16**		**TOTAL HOURS**		**14**	

Summer Term (optional):

YEAR TWO

FALL SEMESTER				SPRING SEMESTER			
CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
_____	Core I Critical Thinking	3		BSC 324	Principles of Genetics	4	
CHM 355	Organic Chemistry I	3		CHM 356	Organic Chemistry II	3	
ENG 201	Advanced Composition	3		CHM 361	Organic Chemistry Lab	3	
_____	Free Elective	3		CMM 103	Fund Speech Communication	3	
_____	Free Elective	3		_____	Core II Fine Arts	3	
TOTAL HOURS		**15**		**TOTAL HOURS**		**16**	

Summer Term (optional):

YEAR THREE

FALL SEMESTER				SPRING SEMESTER			
CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
BSC 322	Principles of Cell Biology	4		CHM 366	Intro Biochemistry Lab	2	
CHM 305	Research Methods Chemistry	1		CHM 467	Intermediate Biochemistry	3	
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	
_____	Core II Social Science (MC/I)	3		_____	Biochemistry Elective	3-4	
TOTAL HOURS		**15**		**TOTAL HOURS**		**15**	

Summer Term (optional):

YEAR FOUR

FALL SEMESTER				SPRING SEMESTER			
CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
CHM 491	Capstone Experience (or CHM 490)	2		CHM 432	Chemistry Seminar	0	
_____	Writing Intensive	3		_____	Biochemistry Elective	3-4	
_____	Biochemistry Elective (CHM Course) or Free Elective	3-4		CHM 358	Physical Chemistry (or 357 in Fall)	4	
_____	Biochemistry Elective or Free Elective	3-4		_____	Biochemistry Elective (CHM Course)	3-4	
_____	Free Elective	2		_____	Biochemistry Elective (CHM Course) or Free Elective	3-4	
				_____	Free Elective	3	
TOTAL HOURS		**13-15**		**TOTAL HOURS**		**16-19**	

Summer Term (optional):

● Area of Emphasis ◆ Major Requirement ■ College Requirement ● General Education Requirement

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.

BIOCHEMISTRY — 2024-2025

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
- Greek Life

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

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

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.

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!

Discuss undergraduate research opportunities with faculty in Chemistry right now.

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

Join the Alpha Chi Sigma chemistry professional fraternity.

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

YEAR TWO

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

Discuss undergraduate research opportunities with faculty in Chemistry right now.

Present your research at a national or regional American Chemical Society meeting.

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

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

Apply in the spring semester for Chemistry Department scholarships and summer fellowships.

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

YEAR THREE

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

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

Present your research at a national or regional American Chemical Society meeting.

Apply in the spring semester for Chemistry Department scholarships and summer fellowships.

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

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

Discuss undergraduate research opportunities with faculty in Chemistry right now.

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.

Present your research at a national or regional American Chemical Society meeting.

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

Complete admissions exams (GRE, MCAT, PCAT) 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.

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

Present your research at the College of Science Research Day.

TRANSFERABLE SKILLS ASSOCIATED WITH THIS MAJOR

- Scientific Ability
- Oral and Written Communication Skills
- Ability to Work as Part of a Team
- Technological Literacy
- Adaptability

ASSOCIATED CAREERS

- Product Development
- Process Development
- Analysis
- Quality Assurance/Control
- Environmental Analysis
- Chemical Engineer
- Pharmacist
- Pharmaceutical Sales
- Marketing

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