CURRICULUM PLAN COLLEGE OF SCIENCE 2019-2020

MY ADVISOR'S NAME IS: _____

PHYSICS
APPLIED PHYSICS

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 Sem Crit Thinking	3	
MTH 229	Critical Thinking Course	3	
_____	Critical Thinking Course	3	

Additional University Requirements

_____	Writing Intensive	3	
_____	Writing Intensive	3	
_____	Multicultural or International	3	
PHY 491/492	Capstone	2	

CORE 2:

CODE	COURSE NAME	HRS	GRADE
ENG 101	Beginning Composition	3	
ENG 201	Advanced Composition	3	
_____	Core II Communication	3	
MTH 229	Calculus I	5	
_____	Core II Humanities	3	
_____	Core II Social Science	3	
_____	Core II Fine Arts	3	
CHM 211/17	Core II Natural/Physical Science	5	

MAJOR-SPECIFIC

All Applied Physics majors are required to take the following courses:

CODE	COURSE NAME	HRS	GRADE
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	
ENGR 111	Engineering Computations	3	
CIT 163	Programming Practicum	3	
CIT 236	Data Structures	3	
CIT 238	Algorithms	2	
MTH 230	Calculus/Analytical Geom II	4	
MTH 231	Calculus/Analytical Geom III	4	
MTH 335	Ordinary Diff Equations	3	
PHY 211	University Physics	4	
PHY 202	General Physics I Lab	1	
PHY 213	University Physics II	4	
PHY 204	General Physics II Lab	1	
PHY 308	Thermal Physics	3	

CODE	COURSE NAME	HRS	GRADE
PHY 304	Optics	3	
PHY 405	Optics Lab	2	
PHY 300	Electricity & Magnetism	3	
PHY 330	Mechanics	4	
PHY 320	Intro Modern Physics	3	
PHY 421	Modern Physics Lab	2	
PHY 425	Solid State Physics	3	
PHY 442	Quantum Mechanics	3	
PHY 444	Advanced Laboratory	2	
PHY 445	Math Methods of Physics	3	
PHY 446	Math Methods of Physics II	3	
PHY 491/492	Capstone	2	
_____	PHY Elective (PHY 314/415 Rec.)	5	
_____	Free Elective	3	
_____	Free Elective	3	

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 2nd 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 semester's 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.
- In order to graduate, students must maintain a 2.00 Overall GPA and receive a grade of C or better in each course required for the major.
- Advanced physics courses are offered every two to three semesters; check with the Physics Department for availability.
- Let the Department Chair know if you have an interest in a particular elective course as soon as possible.

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 2019-2020

MY ADVISOR'S NAME IS: _____

PHYSICS
APPLIED PHYSICS

A course of study in physics, resulting in a B.S. degree in physics, prepares students for a wide variety of opportunities, such as engineering careers in the private sector, careers in the health professions, employment in industry and government laboratories, advanced technology jobs in science and technology related fields, and careers as science teachers. The B.S. degree program is also excellent preparation for advanced degrees in physics, astronomy, engineering, medicine, or law. The Applied Physics major is designed for those who are interested in future study or work in an applied physics or engineering field.

YEAR ONE

FALL SEMESTER					SPRING SEMESTER				
CODE	COURSE NAME		HRS	GRADE	CODE	COURSE NAME		HRS	GRADE
PHY 211	University Physics	◆	4		MTH 230	Calculus/Analytical Geom II	◆	4	
PHY 202	General Physics I Lab	◆	1		PHY 204	General Physics II Lab	◆	1	
MTH 229	Calculus I (CT)	● ◆	5		PHY 213	University Physics II	◆	4	
FYS 100	First Year Sem Crit Thinking	●	3		ENG 201	Advanced Composition	●	3	
ENG 101	Beginning Composition	●	3		_____	Core I Critical Thinking (MC/I)	●	3	
UNI 100	Freshman First Class		1						
TOTAL HOURS			**17**		**TOTAL HOURS**			**15**	

Summer Term (optional):

YEAR TWO

FALL SEMESTER					SPRING SEMESTER				
CODE	COURSE NAME		HRS	GRADE	CODE	COURSE NAME		HRS	GRADE
MTH 231	Calculus/Analytical Geom III	◆	4		PHY 446	Math Methods of Physics II	◆	3	
PHY 320	Intro Modern Physics	◆	3		PHY 304	Optics	◆	3	
PHY 421	Modern Physics Lab	◆	2		PHY 405	Optics Lab	◆	2	
PHY 445	Math Methods of Physics	◆	3		MTH 335	Ordinary Diff Equations	◆	3	
_____	Core II Social Science (WI)	●	3		CIT 163	Intro to Programming: C++		3	
TOTAL HOURS			**15**		**TOTAL HOURS**			**14**	

Summer Term (optional):

YEAR THREE

FALL SEMESTER					SPRING SEMESTER				
CODE	COURSE NAME		HRS	GRADE	CODE	COURSE NAME		HRS	GRADE
PHY 330	Mechanics	◆	3		_____	PHY Elective (PHY 314/415 Rec.)	◆	5	
PHY 300	Electricity & Magnetism	◆	3		PHY 442	Quantum Mechanics	◆	3	
PHY 308	Thermal Physics	◆	3		ENGR 111	Engineering Computations	◆	3	
CIT 236	Data Structures	●	3		CIT 238	Algorithms	◆	3	
_____	Core II Communication	●	3						
TOTAL HOURS			**15**		**TOTAL HOURS**			**14**	

Summer Term (optional):

YEAR FOUR

FALL SEMESTER					SPRING SEMESTER				
CODE	COURSE NAME		HRS	GRADE	CODE	COURSE NAME		HRS	GRADE
PHY 491	Capstone	● ◆	1		PHY 492	Capstone	● ◆	1	
PHY 425	Solid State Physics	◆	3		CHM 212	Principles of Chemistry II	◆	3	
PHY 444	Advanced Laboratory	◆	2		CHM 218	Principles of Chemistry II Lab	◆	2	
CHM 211	Principles of Chemistry I	◆	3		_____	Core II Humanities (WI)	●	3	
CHM 217	Principles of Chemistry I Lab	◆	2		_____	Free Elective (CIT Rec.)		3	
_____	Free Elective (CIT Rec.)		3		_____	Core II Fine Arts	●	3	
_____	Writing Intensive	●	3						
TOTAL HOURS			**17**		**TOTAL HOURS**			**15**	

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.

APPLIED PHYSICS — 2019-2020

INVOLVEMENT OPPORTUNITIES

- SGA
- Campus Activity Board
- JMELI
- Commuter Student Advisory Board
- Community Engagement Ambassadors
- Club Sports
- Religious Organizations
- Political Organizations
- Residence Hall Association
- Cultural Organizations
- National Society of Leadership and Success
- Greek Life

RELATED MAJORS

- Mechanical Engineering
- Civil Engineering
- Safety Technology
- Computer Science
- Chemistry
- Biology

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

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.

Participate in a Career Exploration Experience (job shadow) to help identify your career goals.

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 a career self-assessment to help determine what majors fit your talents and interests.

Join or create a club or organization on campus about a particular issue you care about. Marshall has more than 200 student organizations.

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

YEAR TWO

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

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.

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

Begin your Math Methods of Physics to meet your prerequisites for upper division classes.

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

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

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.

YEAR THREE

Submit your work for the annual comptetitions and awards.

Meet with a career education specialist to conduct a "gap analysis." Figure out the skills you'll need for the career you want while you still have time to build them.

Complete graduate admissions exams (GRE, MCAT, LSAT) 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.

Apply to be a New Student Orientation Leader or a Campus Tour Guide.

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

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

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.

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

Networking is key! Attend a Career Expo to seek employment opportunities and network with employers in your field.

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

Participate in Department of Physics outreach events with local high school students. Stay engaged and make a difference.

Prepare to present at Physics Department Research and Convocation Day and CoS Research EXPO in April.

TRANSFERABLE SKILLS ASSOCIATED WITH THIS MAJOR

- Mathematical Ability
- Scientific Ability
- Attention to Detail
- Strong Oral and Written Communication Skills
- Organizational Skills

ASSOCIATED CAREERS

- Accoustical Physics
- Astronomy
- Astrophysics
- Biophysics
- Chemical Physics
- Research and Development
- Nuclear Physics
- High Energy Physics
- Science Education

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