

# BACHELOR OF SCIENCE PHYSICS *General*

The Physics departmental philosophy is that each student should be able to reason, to collect facts and opinions, to think critically and to make informed decisions concerning their physical, social, economic, and political environment. The objective of the Bachelor of Science in Physics program is to prepare students for careers in physics research, engineering, medicine, and other professional fields including physics teaching in high schools. Physics courses prepare students with good mathematical and analytical skills. In every skilled profession, such as engineering, medicine, management, teaching, etc., analytical expertise gained through mathematics and physics courses will provide an added opportunity/tool to choose and succeed in that profession. A thorough study of mechanics, statistical physics, modern physics, electromagnetic theory, and quantum mechanics along with introductory physics courses and introductory math courses enhances students' ability and updates modern technological innovations needed to succeed in alternate career choices.

Alternative physics careers include teaching, medicine, law (especially intellectual property or patent law), science writing, history of science, philosophy of science, science policy, energy policy, government, or management in technical fields.

*College of  
Science,  
Engineering, &  
Technology*



## COURSE TYPE DESCRIPTIONS

General Education Core	GEC	<b>General Education Core (GEC)</b> courses are courses that every student must take in order to obtain a degree from Jackson State University. GEC courses are essential to every undergraduate degree at Jackson State University. Collectively, there are 30 credit hours of GEC course requirements.
General Education Pathway	PATH	<b>General Education Pathway (PATH)</b> courses are courses that are connected through interdisciplinary themes and are selected at the student's discretion to fulfill the general education curriculum. Through experiential learning and reflective writing, students will have the opportunity to integrate knowledge across courses, develop their skills and an enhanced sense of civic responsibility. Students select nine (9) hours from the pathway of choice. Each pathway concludes with a related one (1) credit hour a University Required (UR) course.
University Required	UR	<b>University Required (UR)</b> courses are courses that are specific to Jackson State University and are designed to integrate students within the Jackson State University community by promoting student success resources, strategies and high impact practices.
Degree Program Requirement	DPR	<b>Degree Program Required (DPR)</b> courses are courses that are required for completion of a degree program within the specified major.
Electives	DPE or GEL	<b>Electives</b> are courses selected at a student's discretion and provide opportunities for students to pursue their academic interests. There are two types of electives. <b>Degree Program Elective (DPE)</b> courses are elective courses that are partially restricted such that students select courses from a specified group of identified courses (e.g., departmental elective courses) to fulfill a particular requirement. <b>General Elective (GEL)</b> courses are courses that may be selected from any program for which the student has fulfilled the proper prerequisites.
Professional Concentrations	PC	<b>Professional Concentration (PC)</b> courses complement Degree Program Required courses and allow students to have a concentrated area of study within the major.



**COLLEGE OF SCIENCE, ENGINEERING AND  
TECHNOLOGY**  
**PHYSICS**  
**CONCENTRATION: GENERAL**

**PHYSICS** electives can be satisfied with any PHY courses not required for degree completion.  
Six (6) hours of physics electives are required.

Students must take six (6) hours of **RESTRICTED** electives from the course list below:

RESTRICTED Elective Course Options:			
Restrictive Elective Options	COURSE	COURSE TITLE	CREDIT HOURS
	ECE 220	Circuit Theory	3
	ECEL 220	Circuits Laboratory	1
	ECE 320	Circuit Theory II	3
	ECE 330	Electronics	3
	ECEL 330	Electronics Laboratory	1
	ECE 331	Electronics II	3
	ECE 335	Semiconductor Devices	3
	ECE 345	Electromagnetic Fields	3
	ECE 480	Power Systems Analysis	3
	ECE 481	Electric Machines	3
	CSC 118	Computer Science I	3
	CSC 119	Computer Science II	3
	CSC 215	Data Analytics	3
	CSC 225	Discrete Structures for Computer Science	3
	CSC 228	Data Structures & Algorithms	3
	CSC 235	Security Awareness	3
	CSC 245	Introduction to Bioinformatics	3
	CSC 330	Database Systems	3
	MATH 24x	Any math course that is MATH 240 or higher .	

Student Name: \_\_\_\_\_

J-Number: \_\_\_\_\_

Advisor: \_\_\_\_\_

**COLLEGE OF SCIENCE, ENGINEERING AND TECHNOLOGY**
**PHYSICS**
**CONCENTRATION: GENERAL**

Entering Term: \_\_\_\_\_

Expected Graduation Date: \_\_\_\_\_

Pathway: \_\_\_\_\_

**FRESHMAN YEAR FALL 1ST SEMESTER**

COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
UNIV 100	University Success	2	UR		
ENG 104	Composition I	3	GEC		
MATH 241	Calculus I & Lab	3	GEC		
CHEM 141 & CHML 141	General Chemistry I & Lab	4	GEC		
PHY 198	Physics	0.5	DPR		
	Humanities & Fine Arts Option	3	GEC		
TOTAL CREDIT HOURS		15.5	TERM GPA:		

**Comments:**
**FRESHMAN YEAR SPRING 2ND SEMESTER**

COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
MATH 242	Calculus II & Lab	3	DPR		
ENG 105	Composition II	3	GEC		
CHEM 142 & CHML 142	General Chemistry II & Lab	4	DPR		
PHY 211 & PHY 211	General Physics I & Lab	4	DPR		
PHY 199	Physics Seminar	0.5	DPR		
	Pathway Option	3	PATH		
TOTAL CREDIT HOURS		17.5	TERM GPA:		

**Comments:**
**SOPHOMORE YEAR FALL 1ST SEMESTER**

COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
MATH 243	Calculus III & Lab	3	DPR		
PHY 212 & PHY 212	General Physics II & Lab	4	DPR		
BIO 111 & BIOL 111	General Biology I & Lab	4	GEC		
PHY 298	Physics Seminar	0.5	DPR		
	Pathway Option	3	PATH		
TOTAL CREDIT HOURS		14.5	TERM GPA:		

**Comments:**
**SOPHOMORE YEAR SPRING 2ND SEMESTER**

COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
UNIV 200	Civic Engagement	1	UR		
MATH 243	Calculus IV & Lab	3	DPR		
PHY 216	Modern Physics	3	DPR		
PHY 297	Research Methods for Physics	2	DPR		
PHY 299	Physics Seminar	0.5	DPR		
	Humanities & Fine Arts Option	3	GEC		
	Pathway Option	3	PATH		
TOTAL CREDIT HOURS		15.5	TERM GPA:		

**Comments:**

JUNIOR YEAR FALL 1ST SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
PHY 311	Theoretical Mechanics I	3	DPR		
PHY 351	Thermal & Statistical Physics	3	DPR		
PHY 361	Math Methods of Physics & Chemistry I	3	DPR		
PHY 398	Physics Seminar	0.5	DPR		
	Physics Elective	3	DPE		
	Social & Behavioral Science Option	3	GEC		
TOTAL CREDIT HOURS		15.5	TERM GPA:		

Physics electives can be satisfied with any PHY courses not required for degree completion.

**Comments:**

JUNIOR YEAR SPRING 2ND SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
PHY 312	Theoretical Mechanics II	3	DPR		
PHY 330W	Methods of Experimental Physics	3	DPR		
PHY 342	Optics	3	DPR		
PHY 362	Methods of Math Physics II	3	DPR		
PHY 399	Physics Seminar	0.5	DPR		
	Social & Behavioral Science Option	3	GEC		
TOTAL CREDIT HOURS		15.5	TERM GPA:		

**Comments:**

SENIOR YEAR FALL 1ST SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
PHY 411	Electromagnetic Theory I	3	DPR		
PHY 422	Quantum Mechanics	3	DPR		
PHY 498	Physics Seminar	0.5	DPR		
	Physics Elective	3	DPE		
	Restricted Elective	3	DPE		
	General Elective	3	GEL		
TOTAL CREDIT HOURS		15.5	TERM GPA:		

**Comments:**

SENIOR YEAR SPRING 2ND SEMESTER					
COURSE	COURSE TITLE	CREDIT HOURS	COURSE TYPE	GRADE	SUCCESS MARKER/NOTE
PHY 412	Electromagnetic Theory II	3	DPR		
PHY 431	Atomic & Molecular Physics	3	DPR		
PHY 499	Physic Seminar	0.5	DPR		
	Humanities & Fine Arts Option	3	GEC		
	Restricted Elective	3	DPE		
TOTAL CREDIT HOURS		12.5	TERM GPA:		

**Comments:**

**TOTAL HOURS: 122 (REQUIRED)**

\*Candidates that transfer 12 or more hours of college credit are exempt from UNIV 100: University Success; however, the student must take 2 hours of general electives to replace the UNIV course.

Student Signature: \_\_\_\_\_

Advisor Signature: \_\_\_\_\_