

This model is in effect for all students entering the program after 9/1/2008

Name: _____

**PROGRAM GUIDE
BACHELOR of SCIENCE, PHYSICS**

- ◆ All students are required to take a minimum combined total of 42 semester hours of General Education and Rowan Experience courses. *(Italics indicate prerequisites)*

GENERAL EDUCATION REQUIREMENTS (choice from Approved Gen Ed Guide)				45 sh
Transfer	Rowan	Hegis #	COMMUNICATION BANK <i>minimum 6 s.h.</i>	6 S.H.
		COMP01.111	College Composition I	3 s.h.
		COMP01.112	College Composition II (<i>College Composition I</i>)	3 s.h.
		Hegis #	SCIENCE/MATHEMATICS BANK <i>minimum 7 s.h.</i>	15 S.H.
			Math/Science (choice from Approved General Education Courses)	3 s.h.
			Lab Science (choice from Approved General Education Courses)	4s.h.
		Hegis #	SOCIAL & BEHAVORAL SCIENCES BANK <i>minimum 6 s.h.</i>	6 S.H.
			(choice from Approved General Education Courses)	3 s.h.
			(choice from Approved General Education Courses)	3 s.h.
		Hegis #	HISTORY/HUMANITIES/LANGUAGE BANK <i>minimum 6 s.h.</i>	6 S.H.
			(choice from Approved General Education Courses)	3 s.h.
			(choice from Approved General Education Courses)	3 s.h.
		Hegis #	NON-PROGRAM COURSES <i>minimum 6 s.h.</i>	6 S.H.
				3 s.h.
				3 s.h.

ROWAN EXPERIENCE REQUIREMENTS (choose from Approved RE Guide) (Can be taken as a Gen Ed OR within the major requirements.)				
Transfer	Rowan	Hegis #		6 s.h.
		CMS 04205	Public Speaking (<i>College Composition I and II</i>)	3 s.h.
			Artistic/Creative Experience	3 s.h.
CHECK TO BE SURE THE FOLLOWING REQUIREMENTS ARE COMPLETED				
			Broad Based Literature Course (LIT)	
			Writing Intensive Course (WI) (<i>College Composition II</i>)	
			Multicultural/Global Course (M/G)	
			Lab Science Course (LAB)	
			Computer Competency Exam or Computer Literacy Course	
			Rowan Seminar (RS) – <i>Freshmen Only</i>	

- ◆ **NOTE:** *M/G, LIT, ACE, WI and RS courses, if taken within the major program of study, CAN NOT COUNT towards the minimum total of Gen Ed 42 credits.*
- ◆ This information has been provided by the department listed above as of the date listed below and is subject to change.
- ◆ To declare this major go to the CAP Center in Savitz Hall.
- ◆ *Students should consult with their program advisor for suggested General Education and Rowan Experience courses.*

Bachelor of Science, Physics

Major Requirements

60-62 s.h.

Physics Core

49 s.h.

Course #	COURSE NAME	S.H.	PREREQUISITES
MATH 01.131	Calculus II	4	
MATH 01.230	Calculus III	4	
MATH 01.210	Linear Algebra	3	
MATH 01.231	Differential Equations	3	
PHYS 02.200	Introductory Mechanics—RS	4	
PHYS 02.201	Introductory Electricity & Magnetism	4	
PHYS 02.210	Introductory Thermo, Fluids, Waves & Optics	4	
PHYS 02.300	Modern Physics	4	
PHYS 02.315	Analytical Mechanics	4	
PHYS 02.430	Electricity & Magnetism I	4	
PHYS 02.401	Quantum Mechanics I	4	
PHYS 02.387	Statistical Physics	3	
PHYS 02.440	Advanced Lab	4	

Physics Electives - Choose at least two

6-8 sh

PHYS 02.305	Optics and Light	4	
PHYS 02.310	Independent Study	1-3	
PHYS 02.333	ZEMAX	3	
PHYS 02.399	Electric Circuits	4	
PHYS 02.402	Quantum Mechanics II	3	
PHYS 02.431	Electricity & Magnetism II	3	
PHYS 02.470	Selected Topics	3-4	
PHYS 02.211, 212, 311,411, ASTR 11.209, 212,312, 412	Physics/Astronomy Research I, II, III, IV	1-3	Maximum of 3 sh can count for Physics Electives

Restricted Electives

3-5 sh

Choose at least one approved course from Physics, Astronomy, Atmospheric Science, Earth Science, Materials Science, Engineering, Math, Chemistry, Computer Science, Biology, or Education, or any Physics Elective listed above

Following courses can be used for Gen Ed Math/Science			
MATH 01.130	Calculus I	4	
CHEM 06.100	Chemistry I—LAB	4	
CHEM 06.101	Chemistry II	4	
CS 01.104 Or CS 04.103	Intro to Scientific Programming or Computer Science & Programming	3	
Following courses can be used for Gen Ed HHL & Rowan Experience			
PHIL 09.368	Philosophy of Science—WI	3	

Free Electives 13-15 s.h.

General Education (see other side)..... 45s.h.

Total Credits in Program..... 120 S.H.

Approved Restricted Elective Courses

Physics

- Physics of Sound & Music (PHYS 02.140)
- Physics of Everyday Life (PHYS 02.150)
- Mathematical Physics (PHYS 02.325)

Astronomy | any 200+ level Astronomy (ASTR 11) course

Atmospheric Science | any course from the PHSC 13 program

Earth Science/Geology

- Any course from the ASTR 17 program
- Geology I (GEOG 06.103)
- Geology II (GEOG 06.104)
- Investigations in Physical Geography (GEOG 06.110)

Materials Science

- Material Science (ENGR 01.281)
- Interdisciplinary Materials Science (INTR 01.486)

Engineering | any 300+ level Engineering course

Mathematics | any 200+ level Math course

Chemistry | any 200+ level Chemistry course (except Chemistry in the Environment)

Computer Science | any 200+ level Computer Science course

Biology | any Biology course

Education

- Teaching/Learning A: Science (SMED 34.330)
- Practicum in Teaching/Learning A: Science (SECD 03.330)
- Teaching/Learning B: Science (SMED 34.331)
- Practicum in Teaching/Learning B: Science (SECD 03.332)

Possible Physics Major Course Sequence (Incoming Freshman)

Fall Freshman	S.H.
College Composition I	3
Chemistry I	4
Calculus I	4
Introductory Mechanics—RS	4
Semester Total	15

Spring Freshman	S.H.
College Composition II	3
Chemistry II	4
Calculus II	4
Introductory Thermo, Fluids, Waves, Optics	4
Semester Total	15

Fall Sophomore	S.H.
Public Speaking	3
Introductory Electricity and Magnetism	4
Calculus III	4
Introduction to Scientific Programming	3
Linear Algebra	3
Semester Total	17

Spring Sophomore	S.H.
Phil of Science—WI	3
Differential Equations	3
Modern Physics	4
ACE	3
Free Elective	3
Semester Total	16

Fall Junior	S.H.
Analytical Mechanics	4
Electricity and Magnetism I	4
HHL GE ^{LIT}	3
Free Elective	3
Semester Total	14

Spring Junior	S.H.
Quantum Mechanics I	4
Physics Elective	3-4
SBS GE ^{M/G}	3
Free Elective x2	6
Semester Total	16-17

Fall Senior	S.H.
Advanced Laboratory	4
Restricted Elective	3-4
SBS GE	3
NPC GE	3
Semester Total	13-14

Spring Senior	S.H.
Statistical Physics	3
Physics Elective	3-4
NPC GE	3
Free Elective	3
Semester Total	12-13

General Education requirements include 6 semester hours in Social and Behavioral Science (SBS), 6 semester hours in History, Humanities and Languages (HHL), and 6 semester hours in Non-Program Courses (NPC). Rowan Experience requirements include 3 semester hours in Public Speaking (PS) and Artistic and Creative Experience (ACE) each, as well as at least one course each designated as Multicultural/Global (M/G), Literature (LIT). These may be taken at any time. The above specified courses are for illustration only. Note that the Rowan Experience Writing Intensive (WI), Rowan Seminar (RS), Math(MATH), and Lab Science (LAB) requirements are accounted for in Program Requirements.