

# Comprehensive Science Major

Program Director: Robert Styer, PhD

Co-Director: Joseph Comber, PhD

Office Location: Saint Augustine Center Rm. 372

Telephone: (610) 519-4845

[Website](#)

## About

The Comprehensive Science program allows students interested in the quantitative and physical and life sciences to get broad based competency to a full spectrum of scientific concerns and practices. Our majors gain both hands-on lab skills and quantitative aptitudes through a broad range of courses in mathematics, physical and life sciences, and computer science. The program equips students with the analytical, interpretive, and explanatory skill sets that enable their understanding of the scientific world. The flexible program allows students to create a tailored interdisciplinary program that can prepare the student for a variety of professions or graduate studies. Our majors go on to medical schools, dental schools, and other health related graduate programs, as well as careers as financial analysts, lab researchers, computing, pharmaceutical, and other careers that require a science/math background.

**Program:** [Comprehensive Science](#)

**Type:** Bachelor of Science

## PRIMARY MAJOR (122 credits)

## Required Major Credits (65 credits)

### Program Notes:

- Chemistry majors who transfer to Comprehensive Science (BSC) may count CHM 1311/CHM 1301 in place of the CHM 1151/CHM 1103 requirement listed below.
- Chemistry majors who transfer to Comprehensive Science (BSC) may count CHM 1521/CHM 1502 in place of the CHM 1152/CHM 1104 requirement listed below.
- A student can only get credit for one class from this list: CSC 2300, PSY 2000, STAT 1313, 4310.
- Majoring in Comprehensive Science precludes the ability to major in another science as well. Students may not double major in Comprehensive Science and another science major.

Course	Title	Credits
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1
CSC 1051	Algorithms & Data Struc I	4
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
	Approved Physics with Labs	8
	Science Major Statistics	3
	Approved Math or Computing Elective	3
SCI 5300	Capstone Seminar	3
	Approved Science Electives	18

## Core Curriculum Requirements (33 credits)

Comprehensive Science Majors meet the following core requirements in the major and therefore are omitted from the summary below:

- Core Math (3 cr)
- Natural Science (8 cr)

Course	Title	Credits
ACS 1000	Ancients	3
ACS 1001	Moderns	3
THL 1000	Faith, Reason, and Culture	3
PHI 1000	Knowledge, Reality, Self	3
ETH 2050	The Good Life:Eth & Cont Prob	3
	Literature and Writing Seminar (1 course)	3
	History (1 course)	3
	Social Sciences (2 courses)	6
	Fine Arts (1 course)	3
	Upper-Level Theology (1 course)	3
	Language Requirement (Proficiency)	
	Diversity Requirement (2 courses)	

## Free Elective Requirement (24 credits)

Students with a Comprehensive Science primary major have twenty-four (24) required free elective credits.

## Degree Credit Summary

- **Major Credits:** 65 credits
- **Core Credits:** 33 credits
- **Free Electives Credits:** 24 credits
- **Total Required Credits:** 122 Credits

*Note: The above credit totals are based on the minimum number of required credits in each degree area. The minimum number of required credits in each area listed above must be met. Credits taken beyond the required minimum for one area may not be applied to another area.*

## SECONDARY MAJOR

Students who declare Comprehensive Science as a **secondary major** must complete the Required Major Courses to achieve this major. Students are able to count any eligible course taken in their primary major, the core curriculum, minors, concentrations, or free electives toward these requirements. Students may not double major in Comprehensive Science and another science major.

## Category Descriptions

### Approved Physics with Labs

Credits: 8

Two semesters of an approved (science major level) physics with labs. Choose one sequence from those listed below.

Course	Title	Credits
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1
Course	Title	Credits
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
PHY 1102	General Physics II	3
PHY 1103	General Physics II Lab	1

### Science Major Statistics

Credits: 3

One semester of science major-level statistics. Choose any STAT course of 3000-level or above, or select from those listed below.

<b>Course</b>	<b>Title</b>	<b>Credits</b>
BIO 3105	Biostatistics & Exp Design	4
CSC 2300	Statistics for Computing	3
PSY 2000	Intro Statistics	3
STAT 1313	Statistics for Life Sciences	3

### Approved Math or Computing Elective

Credits: 3

One additional approved Mathematics or Computing course. Select any MAT course of 2300 or above, or any STAT course of 3000 or above or one course from those listed below.

<b>Course</b>	<b>Title</b>	<b>Credits</b>
BIO 3105	Biostatistics & Exp Design	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3

### Approved Science Electives

Credits: 18

Science Electives (18 cr/6 courses) from among these course ranges AST 2120:9999, BIO 2200:9999, CBN 2900:4000, CGS 5900:5950, CHM 2200:4900, GEV 3300:3306, 4321:4329, 4351:4356, MAT 2300:5993, PHY 2414:6700, STAT 3000:9999, or any MAT course of 2300 or above, or any STAT course of 3000 or above, or CHE 2031, 2032, or any course with the BSC attribute, or any course with the GESC attribute worth at least 3 credits, or any course listed below.

<b>Course</b>	<b>Title</b>	<b>Credits</b>
BIO 1205	Human Anatomy & Physiology I	4
BIO 1206	Human Anatomy & Physiology II	4
CHE 5534	Biomaterials	3
CSC 1051	Algorithms & Data Struc I	4
CSC 1052	Algorithms & Data Struc II	4
CSC 1300	Discrete Structures	3
CSC 1700	Analysis of Algorithms	3
CSC 1800	Organ of Prog Languages	3
CSC 2053	Platform Based Computing	3
CSC 2300	Statistics for Computing	3
CSC 2400	Computer Systems I	3
CSC 2405	Computer Systems II	3
CSC 2993	Internship in Computing	3
CSC 3080	Info Security & Protection	3
CSC 3400	Information Retrieval	3
CSC 4170	Theory of Computation	3
CSC 4181	Compiler Construction	3
CSC 4300	Computer Graphics	3
CSC 4380	Info Visualization	3
CSC 4480	Principles of Database Systems	3
CSC 4490	Data Warehousing & Mining	3
CSC 4500	Artificial Intelligence	3
CSC 4510	Machine Learn&Theory&Evolution	3
CSC 4550	Computing for Data Science	3
CSC 4630	Software Dev and Systems	3
CSC 4700	Software Engineering	3
CSC 4730	Human Computer Interaction	3
CSC 4790	Senior Projects	3
CSC 4800	Web Application Development	3
CSC 4900	Networks and Security	3
ECE 1620	Egr Prog & Applic	3
ECE 2620	C++, Algorithms & Data Struct	4
ECO 3128	Intro Mathematical Econ	3
ECO 3138	Game Theory	3
FIN 2325	Introduction to Derivatives	3
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4
GEV 1052	Environmental Studies	3
GEV 1053	Environmental Studies II	3
GEV 1750	Geo-Techniques	4
GEV 2310	Environmental Chemistry	4
GEV 3000	Special Topics	3
GEV 3003	Environmental Geology	3
GEV 3308	Environmental Health	3
GEV 3309	Coral Reefs	3
GEV 3310	Special Topics in Geology	3
GEV 3501	Geomorphic Environments	3
GEV 3550	Natural Hazards	3
GEV 3750	Remote Sensing	3
GEV 3790	Global Positioning Systems	4
GEV 4360	Field Methods in Env Science	4

GEV 4361	Field Research	4
GEV 4511	Climate Variability	3
GEV 4512	Medical Geography	3
GEV 4514	Geomorphology	3
GEV 4515	Terrestrial Ecosystems	3
GEV 4700	Geographic Information Systems	4
GEV 4710	Adv. Geographic Info Sys	4
MET 1221	Severe & Hazardous Weather	3
MET 1222	Climate Change:Past & Present	3
NS 3100	Navigation	3
NTR 2120	Principles of Nutrition	3
NUR 3030	Basic Conc Pharmacology	3
NUR 3108	Pathophysiology	3
PSY 2050	Research Methods in Psy.	3
PSY 2800	Human Factors	3
PSY 3200	Human Development	3
PSY 3300	Perception	3
PSY 3500	Psych of Personality	3
PSY 3600	Social Psychology	3
PSY 4200	Biopsychology	3
PSY 4500	Cognitive Psychology	3
PSY 4600	Animal Learning & Cognition	3
PSY 5150	Foundations of Modern Psych	3
PSY 5900	Independent Research Project	3
STAT 1313	Statistics for Life Sciences	3
VIA 3010	Indoor Air Quality/Hum Hlth	3