



## Ph.D. in Science Education with specialization in: Biology, Chemistry, Mathematics & Physics

This program aims to develop highly competent leaders in science education and highly qualified teachers of science and mathematics. The graduates are also expected to be able to follow the latest developments in their respective disciplines and become active researchers in science education. Graduates of the program are expected to play active roles in promoting and improving science education.

### ADMISSION REQUIREMENT

1. A Master's Degree with major in science or mathematics.
2. A grade point average of 2.5 (B) or above in the Master's level.
3. Pass the Graduate Admission Test.
4. Pass the interview by the department chair.

### COURSE REQUIREMENTS

A. Basic Courses	15 units
B. Philosophy Courses	9 units
C. Major Courses	30 units
D. Comprehensive Examinations	
E. Dissertation Writing	12 units
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<b>TOTAL</b>	<b>66 units</b>

Applicants with insufficient background in science, math or education will be required to take prerequisite courses. For Master of Science graduates of DLSU or accredited universities, science courses may be credited through examination.

Also, an additional six (6) units of Advanced Technical Reading and Writing 1&2 will be required for applicants with a low score in the essay part of the entrance examination.

### PROGRAM CURRICULUM

#### A. *Basic Courses (15 units)*

Advanced Educational Statistics 1 (SCE5010)	3 units
Advanced Educational Statistics 2 (SCE5020)	3 units
Advanced Methods of Research and Research Design (SCE526P)	3 units
Advanced Test and Measurement (SCE564P)	3 units
Seminar in Dissertation Writing (SCE905P)	3 units



## **B. Philosophy Courses (9 units)**

Philo. & Psych. Theories of Learning and Teaching (SCE535P)	3 units
Philo. & Scientific Basis for Trends & Research in Science Education (SCE528P)	3 units
Philo. Foundations of Science Curriculum (SCE590P)	3 units

## **C. Major Courses (30 units)**

### **1. Biology**

Cell Biology	3 units
Advanced Ecology	3 units
Advanced Genetics	3 units
Advanced Physiology	3 units
Advanced Systematics	3 units
Bioethics	3 units
Independent Study 1 (SCE922P)	3 units
Independent Study 2 (SCE921P)	3 units
Elective 1	3 units
Elective 2	3 units

### **2. Chemistry**

Physical Inorganic Chemistry	3 units
Analytical Techniques in Chemistry	4 units
Organic Reactions and Mechanisms	3 units
Organic Analysis	2 units
Quantum Chemistry 1	3 units
Structural Methods in Inorganic Chemistry	3 units
Independent Study 1 (SCE922P)	3 units
Independent Study 2 (SCE921P)	3 units
Elective 1	3 units
Elective 2	3 units

### **3. Mathematics**

Number Theory	3 units
Advanced Linear Algebra 1	3 units
Abstract Algebra 1	3 units
Modern Complex Analysis 1	3 units
Real Analysis 1	3 units
Combinatorial Geometry or General Topology	3 units
Independent Study 1 (SCE921P)	3 units
Independent Study 2 (SCE922P)	3 units
Elective 1	3 units
Elective 2	3 units



**4. Physics**

Foundations of Statistics and Statistical Mechanics	3 units
Classical Mechanics 1	3 units
Classical Electrodynamics 1	3 units
Quantum Mechanics 1	3 units
Quantum Mechanics 2	3 units
Solid State Physics 1	3 units
Independent Study 1 ( <i>SCE921P</i> )	3 units
Independent Study 2 ( <i>SCE922P</i> )	3 units
Elective 1	3 units
Elective 2	3 units

Written (Major and Basic)

***E. Dissertation Writing (SCE951P-965P)***                      **12 units**