

**Course Structure for Ph. D Program**  
**Graduate Institute of Science Education**  
**National Taiwan Normal University**

Adaptive to Class of	Required Credit(s)	Elective Credit(s)	Free Elective Credit(s)	Minimum Total Credits for Graduation
112				Masters major field : Math, science, or other related fields 43.0 Masters major field : Science education 43.0 Masters major field : Others 49.0

Note: The first alphabet "E" on the course name refers to the course in English as a medium of instruction

**I. Required Courses: 16.0 credits are required**

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
SEC8001	1 Colloquium (I)	2.0	2.0	0.0	This course must be retaken with a passing score for 2 times
SEC8002	2 Colloquium (II)	2.0	2.0	0.0	This course must be retaken with a passing score for 2 times
SED0089	3 Seminar on Science and Society	2.0	2.0	0.0	
SED0090	4 Seminar on Cognitive Perspectives on Science Learning	2.0	2.0	0.0	
SED0091	5 Seminar on Curriculum, Instruction and Assessment	2.0	2.0	0.0	
SED0092	6 Seminar on Digital Learning	2.0	2.0	0.0	

**II. Elective Courses: 0.0 credit is required**

**III. Courses Offered to Students in Different Divisions**

**IV. Free Elective Credits**