

## Ph.D. in Materials Science Degree Requirements

Directed Research Requirements	Ph.D. Dissertation Requirements	Coursework Requirements	Total (Cr)
27	15	18	60
45%	25%	30%	100%

### 1. Directed Research Requirements

Directed Research Requirements (27 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
MATSCI 781	Ph.D. Directed Research 1	3	0	9	
MATSCI 782	Ph.D. Directed Research 2	3	0	9	
MATSCI 783	Ph.D. Directed Research 3	3	0	9	
MATSCI 784	Ph.D. Directed Research 4	3	0	9	
MATSCI 785	Ph.D. Directed Research 5	3	0	9	
MATSCI 786	Ph.D. Directed Research 6	3	0	9	
MATSCI 787	Ph.D. Directed Research 7	3	0	9	
MATSCI 788	Ph.D. Directed Research 8	3	0	9	
MATSCI 789	Ph.D. Directed Research 9	3	0	9	

### 2. Ph.D. Dissertation Requirements

Ph.D. Dissertation Requirements (15 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
MATSCI 795	Ph.D. Dissertation 1	3	0	9	
MATSCI 796	Ph.D. Dissertation 2	3	0	9	
MATSCI 797	Ph.D. Dissertation 3	3	0	9	
MATSCI 798	Ph.D. Dissertation 4	3	0	9	
MATSCI 799	Ph.D. Dissertation 5	3	0	9	

### 3. Coursework Requirements

The aim of coursework requirements is to provide students in the Ph.D. program in Materials Science with special advanced knowledge essential for completion of doctoral research. PhD candidates have to take at least four courses from the 700-level courses in the Course Catalog. Students have to take additional two courses; these two courses may be taken from the set of 700-level courses or may be taken from 600-level courses offered in the M.Sc. program in Material Science. Ph.D. candidates may not register for 600-level courses that they have taken during the course of previous studies before being admitted to the Ph.D. program.

Coursework Requirements (18 Cr)					
Course Code	Course Title	Cr	L	P	Prerequisite
600-Level or 700-Level MATSCI Electives		6	6	0	
700-Level MATSCI Electives		12	12	0	

#### 1. Materials Science Electives

The student must select a minimum of 18 Cr from the following list At least four courses must be from the 700-level courses					
Course Code	Course Title	Cr	L	P	Prerequisite
MATSCI 605	Energy Conversion and Storage Processes	3	3	0	
MATSCI 606	Composites	3	2	3	
MATSCI 607	Materials Modeling	3	2	3	
MATSCI 608	Materials in Nanotechnology	3	3	0	
MATSCI 609	Materials for the Environment	3	3	0	
MATSCI 610	Market Research and Product Development	3	2	3	
MATSCI 611	Catalysis	3	3	0	
MATSCI 612	Self-assembly	3	3	0	
MATSCI 613	Ceramics	3	2	3	
MATSCI 614	Alloys and Corrosion	3	2	3	
MATSCI 615	Research Tools	3	2	3	
MATSCI 616	Research Best Practice and Ethics	3	3	0	
MATSCI 702	Transition Metal and Main Group Chemistry	3	3	0	
MATSCI 703	Macromolecules	3	3	0	
MATSCI 704	Material Processing and Characterization	3	3	0	
MATSCI 705	Energy Conversion and Storage Processes	3	3	0	
MATSCI 706	Composites	3	2	3	
MATSCI 707	Materials Modeling	3	2	3	
MATSCI 708	Materials in Nanotechnology	3	3	0	
MATSCI 709	Materials for the Environment	3	3	0	
MATSCI 710	Market Research and Product Development	3	2	3	
MATSCI 711	Catalysis	3	3	0	
MATSCI 712	Self-assembly	3	3	0	
MATSCI 713	Ceramics	3	2	3	
MATSCI 714	Alloys and Corrosion	3	2	3	
MATSCI 715	Research Tools	3	2	3	
MATSCI 716	Research Best Practice and Ethics	3	3	0	
MATSCI 717	Preparation and Characterization of Organic Thin Films	3	3	0	
MATSCI 718	Process Engineering	3	3	0	
MATSCI 719	Organic Functional Material	3	3	0	
MATSCI 720	Lab-on-a-chip devices	3	3	0	
MATSCI 721	Chemical Education	3	2	3	
MATSCI 722	Selected topics in Materials Science and Technology	3	3	0	