

Theoretical and Computational Ph.D. degree; total number of units (6 x 9 + 2 x 6 = 66)

Table 1: 4-year course schedule

First Semester (Fall)			Second Semester (Spring)		
Course	Description	Hours	Course	Description	Hours
CHEM 6115: Theory of the Chemical Bond	Core Course	1	CHEM 6325: Introduction to ab initio Calculations - Hartree Fock Theory	Core Course	3
CHEM 6125: Symmetry and Group Theory in Chemistry	Core Course	1	CHEM 6326: Density Functional Theory – Methodology and Application	Core Course	3
CHEM 6225: Chemical Communications in Computational Chemistry	Core Course	2	CHEM 7151: Research	Research	1
CHEM 6343: Advanced Computational Chemistry	Core Course				
CHEM 6120: Current Topics in Research	Chemistry Seminar	1	CHEM 6121: Current Topics in Research	Chemistry Seminar	1
CHEM 7111: Teaching Practicum	TAship	1	CHEM 7112: Teaching Practicum	TAship	1
	Total units	9		Total units	9
Third Semester (Fall)			Fourth Semester (Spring)		
Course	Description	Hours	Course		
CHEM 6341: Advanced Models and Concepts in Chemistry	Core Course	3	Elective course (see list of new courses)	Elective Course	3
CHEM 6344: Computer Assisted Drug Design – Fundamentals and Applications	Core Course	3	CHEM 7351: Research	Research	3
CHEM 7351: Research	Research	2	CHEM 7251: Research	Research	2
CHEM6120: Current Topics in Research	Chemistry Seminar	1	CHEM 6121: Current Topics in Research	Chemistry Seminar	1
	Total units	9		Total units	9

Fifth Semester (Fall)			Sixth Semester (Spring)		
Course	Description	Hours	Course		
Elective course (see list of new courses)	Elective Course	3	CHEM 7233: Research Synopsis	Presentation of research work and report	2
			CHEM 7122: Meeting Presentation	Conference presentation	1
CHEM 7351: Research	Research	3	CHEM 7351: Research	Research	3
CHEM 7251: Research	Research	2	CHEM 7251: Research	Research	2
CHEM 6120: Current Topics in Research	Chemistry Seminar	1	CHEM 6121: Current Topics in Research	Chemistry Seminar	1
	Total units	9		Total units	9
Seventh Semester (Fall) Ph.D. candidacy:			Eighth Semester (Fall)		
Course	Description	Hours	Course		
CHEM 8049: Ph.D. Graduate Full-Time Status			CHEM 8049: Ph.D. Graduate Full-Time Status		
CHEM 8698: Dissertation	PhD thesis work	6	CHEM 8698: Dissertation	PhD thesis work	6
	Total units	6		Total units	6

Current list of electives (which will be frequently extended):

- **Courses developed within CATCO**
 - CHEM 6345** Going Beyond Hartree-Fock: Electron Correlation Methods
 - CHEM 6346** Calculation of Molecular Properties
 - CHEM 6348** Statistical Molecular Thermodynamics
- **Courses from other department/schools**
 - CSE 5333** Quantifying The World
 - CSE 5345** Advanced Application Programming

