

Courses within the PhD school in chemistry

Education/research programs:

1. Analytical chemistry
2. Bioorganic chemistry
3. Theoretical chemistry
4. Physical chemistry
5. Catalysis, colloid chemistry, surface and material science
6. Chemistry of complex compounds
7. Organic chemistry

List of the PhD courses by programs (5 credits each)

1. Analytical chemistry

- 1.1. Separation techniques, chromatography I.
Lecturer: Dr. Antal Péter professor
Dr. István Ilisz associate professor
- 1.2. Separation techniques, chromatography II.
Lecturer: Dr. Tamás Janáky professor
- 1.3. Mass spectrometry
Lecturer: Dr. Zoltán Kele assistant professor
- 1.4. Atomic spectroscopy
Lecturer: Dr. Gábor Galbács associate professor
- 1.5. Molecular spectroscopy
Lecturer: Dr. Ottó Berkesi associate professor
- 1.6. Photoelectron spectroscopy
Lecturer: Dr. Albert Oszkó assistant professor
- 1.7. NMR spectroscopy I.
Lecturer: Dr. György Dombi professor
- 1.8. NMR spectroscopy II.
Lecturer: Dr. György Dombi professor

- 1.9. Detection of persistent contaminants (PPCP) and their decomposition products by spectroscopic methods and separation techniques
Lecturer: Dr. Krisztina Schrantz assistant professor
Dr. Tünde Alapi assistant professor

2. Bioorganic chemistry

- 2.1. Protein folding, conformational diseases, modelling
Lecturer: Dr. Gábor Tóth professor
Dr. Botond Penke professor emeritus
Dr. Ferenc Bogár senior research associate
- 2.2. Approaches of biopolymer synthesis
Lecturer: Dr. Gábor Tóth professor
- 2.3. Bioorganic applications of separation techniques
Lecturer: Dr. Tamás Janáky professor
- 2.4. Mass spectrometry of biopolymers
Lecturer: Dr. Zoltán Kele assistant professor
- 2.5. Methods of organic synthesis
Lecturer: Dr. Lajos Kovács senior research associate
- 2.6. Chemistry of renewable raw materials
Lecturer: Dr. Lajos Kovács senior research associate
- 2.7. Synthesis and applications of nucleic acids
Lecturer: Dr. Zoltán Kupihár assistant professor

3. Theoretical chemistry

- 3.1. Calculation and analysis of potential surfaces (theory)
Lecturer: Dr. Imre G. Csizmadia professor
Dr. Béla Viskolcz professor
- 3.2. Calculation and analysis of potential surfaces (practice)
Lecturer: Dr. Imre G. Csizmadia professor
Dr. Béla Viskolcz professor
- 3.3. Density functional theory
Lecturer: Dr. Gábor Paragi senior research associate
- 3.4. Quantum theory of molecules

- Lecturer: Dr. Ferenc Bogár senior research associate
- 3.5. Methods of quantum mechanics for solving problems in biology and kinetics
Lecturer: Dr. Béla Viskolcz professor
- 3.7. Chemometric methods and their development
Lecturer: Dr. Róbert Rajkó professor
- 3.8. Advanced quantum chemistry
Lecturer: Dr. Gyula Tasi associate professor
- 3.9. Computational quantum chemistry
Lecturer: Dr. Gyula Tasi associate professor
- 3.10. Basics of computational drug design
Lecturer: Dr. Tamás Martinek professor
- 3.11. Mathematical modelling of chemical and biological pathways
Lecturer: Dr. László Sztachó professor
- 3.12. Introduction to the modelling of biomolecules
Lecturer: Dr. Csaba Hetényi senior research associate
- 3.13. Calculations of biochemical interactions
Lecturer: Dr. Csaba Hetényi, senior research associate

4. Physical chemistry

- 4.1. Heterogeneous electrochemistry
Lecturer: Dr. Visy Csaba professor emeritus
- 4.2. Methods of electrochemical investigation
Lecturer: Dr. Árpád Szűcs associate professor
- 4.3. Organic conducting polymers
Lecturer: Dr. Csaba Visy professor emeritus
- 4.4. Electrochemistry in Materials Science
Lecturer: Dr. Csaba Janáky assistant professor
- 4.5. Modern methods of reaction mechanism investigation
Lecturer: Dr. Dezső Horváth professor
- 4.6. Nonlinear dynamics

Lecturer: Dr. Ágota Tóth professor

5. Catalysis, colloid chemistry, surface and material science

5.1. Surface chemistry and heterogeneous catalysis

Lecturer: Dr. Imre Dékány professor,
Dr. András Erdőhelyi professor emeritus,
Dr. János Kiss scientific advisor

5.2. Structure and reactivity of solid materials

Lecturer: Dr. Frigyes Solymosi professor emeritus

5.3. Modern spectroscopic methods in heterogeneous catalysis

Lecturer: Dr. Frigyes Solymosi professor emeritus

5.4. Zeolite chemistry

Lecturer: Dr. István Hannus professor emeritus

5.5. Methods of surface investigation

Lecturer: Dr. János Kiss scientific advisor

5.6. Solid surfaces and nanoparticles in high technology

Lecturer: Dr. András Berkó scientific advisor

5.7. Catalytic oxidation processes

Lecturer: Dr. János Halász honorary professor

5.8. Environmental catalysis

Lecturer: Dr. István Hannus professor emeritus
Dr. János Halász honorary professor

5.9. Structure and thermodynamic properties of interfaces

Lecturer: Dr. Imre Dékány professor

5.10. Graphite filaments and carbon-nanotubes

Lecturer: Dr. Klára Hernádi professor
Dr. Zoltán Kónya professor

6. Chemistry of complex compounds

6.1. Bioinorganic chemistry

Lecturer: Dr. Tamás Kiss professor
Dr. Béla Gyurcsik associate professor

- 6.2. Chemistry of complex equilibria
Lecturer: Dr. Éva Anna Enyedy assistant professor
- 6.3. Methods in coordination chemistry
Lecturer: Dr. Tamás Gajda professor
Dr. Béla Gyurcsik associate professor
Dr. Attila Jancsó assistant professor
Dr. Tamás Jakusch assistant professor
Dr. Ottó Berkesi associate professor
- 6.4. Computational methods in coordination chemistry
Lecturer: Dr. Tamás Jakusch assistant professor
- 6.5. Metal ion coordination of biomolecules
Lecturer: Dr. Tamás Kiss professor
Dr. Tamás Gajda professor
- 6.6. Chemistry of toxic elements
Lecturer: Dr. Tamás Kiss professor
- 6.7. Evaluation of experimental data
Lecturer: Dr. Tamás Jakusch assistant professor
- 6.8. Chemistry of nonaqueous solutions, molten materials and extremely concentrated aqueous systems
Lecturer: Dr. Pál Sipos professor
- 6.9. Biological tools of modern bioinorganic chemistry
Lecturer: Dr. Béla Gyurcsik associate professor
- 6.10. X-ray crystallography
Lecturer: Dr. Veronika Harmat assistant professor,
Dr. Sándor Brockhauser scientific advisor

8. Organic chemistry

- 7.1. Enantioselective heterogeneous catalytic syntheses
Lecturer: Dr. György Szóllósi senior research associate
- 7.2. Stereoselective syntheses
Lecturer: Dr. Árpád Molnár professor emeritus
- 7.3. Chemistry of steroids

Lecturer: Dr. Gyula Schneider professor emeritus

7.4. Catalysis in industry

Lecturer: Dr. Krisztián Bogár senior research associate

7.5. New methods in chemical synthesis

Lecturer: Dr. Gyula Schneider professor emeritus

7.6. Organic reaction mechanisms

Lecturer: Dr. János Wölfling professor

7.7. Gathering chemical information

Lecturer: Dr. Eszter Meskó associate professor,
Dr. István Pálinkó professor

7.8. Drug analysis in industry

Lecturer: Dr. Sándor Görög akadémikus

7.9. Biochemistry of steroid hormones

Lecturer: Dr. Mihály Szécsi senior research associate