

National Taiwan Normal University

Department of Chemistry

Academic Year 2025 (114) Doctoral Qualifying Examination

Examination Topics and Examiners by Research Area

Research Area	Attempt	Examination Date	Topic / Examination Scope	Examiners
Analytical Chemistry	1	Nov. 5, 2025	Electrochemistry	Chun-Ting Lee, Chung-Yu Chen
	2	Jan. 7, 2026	Chromatographic Separation	Chia-Jung Lu, Sung-Fang Chen
	3	Apr. 1, 2026	Spectroscopic and Mass Spectrometric Analysis	Chung-Yi Li, Sung-Fang Chen
	4	Jun. 4, 2026	Materials Analysis and Related Topics	Chia-Jung Lu, Chun-Ting Lee
Physical Chemistry	1	Nov. 5, 2025	Quantum Chemistry	Chen-Han Wang
	2	Jan. 7, 2026	Thermodynamics	Ti-Yen Wang
	3	Apr. 1, 2026	Chemical Kinetics	Yi-Jen Lee
	4	Jun. 4, 2026	Biophysics	Yen-Shih Wang
Organic Chemistry	1	Nov. 5, 2025	Advanced Organic Chemistry, Part A: Structure and Mechanism (5th Ed.) , Francis A. Carey & Richard J. Sundberg, Springer, 2007. Chapter 3.5: Kinetic Isotope Effects (pp. 332–335); Chapter 11: Free Radical Reactions (pp. 965–1052).	Ching-Fa Yao

Research Area	Attempt	Examination Date	Topic / Examination Scope	Examiners
Inorganic Chemistry	2	Jan. 7, 2026	Advanced Organic Chemistry, Part B: Reactions and Synthesis (5th Ed.), Francis A. Carey & Richard J. Sundberg, Springer, 2007. Chapters: 3. Functional Group Interconversion by Substitution (including Protection and Deprotection); 4. Electrophilic Additions to Carbon–Carbon Multiple Bonds; 5. Reduction of Carbon–Carbon Multiple Bonds, Carbonyl Groups, and Other Functional Groups.	Dun-Cheng Chien
	3	Apr. 1, 2026	László Kürti & Barbara Czakó, Strategic Applications of Named Reactions in Organic Synthesis, Elsevier, 2005.	Wen-Wei Lin
	4	Jun. 4, 2026	Total Synthesis of Taxol (not limited to the original Nature publication).	Hsueh-Liang Wu
	1	Nov. 5, 2025	(1) Structures, isomerism, and bonding of coordination compounds. (2) Identification and characterization of inorganic compounds, including synchrotron radiation techniques (e.g., X-ray Absorption Spectroscopy, XAS), absorption and luminescence spectroscopy, Raman spectroscopy, magnetic measurements (e.g., SQUID), and selected applications of surface mass spectrometry to inorganic materials.	Wei-Jen Lee, Yi-Hsin Liu
	2	Jan. 7, 2026	(1) Electronic spectroscopy, reactions, and mechanisms of coordination compounds. (2) Fundamental electronic structure theory of atomic and molecular materials.	Wei-Jen Lee, Ming-Kang Tsai
	3	Apr. 1, 2026	(1) Electronic structure theory and electronic spectroscopy of organometallic compounds. (2) Electrochemistry and acid–base properties of inorganic compounds.	Wei-Jen Lee, Ming-Kang Tsai (or newly appointed faculty)

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	4	Jun. 4, 2026	(1) Organometallic reactions and catalysis. (2) Electronic structure theory and electronic spectroscopy of organometallic compounds.	Wei-Jen Lee, Ming-Kang Tsai (or newly appointed faculty)