

11120CHEM242000 物理化學二 Physical Chemistry (II)

1. Blackbody Radiation, Photoelectric Effect, Hydrogen Atom, Bohr Model, de Broglie Waves, & Uncertainty Principle (2/15、2/17)
2. The Classical Wave Equation & Two-Dimensional Wave (2/22、2/24)
3. Operators, Schrödinger Equation & Particle in a Box (3/1、3/3、3/8)
4. Postulates of Quantum Mechanics (3/10、3/15、3/17)
5. Harmonic Oscillator, Diatomic Motion, Infrared Spectrum, & Hermite Polynomials (3/22、3/24、3/31)
6. Rigid Rotor & Rotational Spectrum (4/7、4/12、4/14)
7. Hydrogen Atom: Hamiltonian, Wave Functions, Energy, Angular Momentum, & Orbitals (4/19、4/21、4/26)
8. Approximation Methods: Perturbation & Variation Theory (4/28、5/3、5/5)
9. Multielectron Atoms: Variation Treatment, Hartree-Fock Self-Consistent Field Method, Slater Determinants, Term Symbols, & Hund's Rules (5/12、5/17、5/19、5/24)
10. Molecular-Orbital Theory for H_2^+ (5/26、5/31)
11. Molecular-Orbital Theory for Other Diatomic Molecules, Hybridization, & Hückel Theory (6/2、6/7、6/9)

停課日 2023/4/5 (三) 民族掃墓節

期中考(一) 範圍：上述內容 1-4 2023/3/29 星期三 10:00-12:30 (30%)

期中考(二) 範圍：上述內容 5-7 2023/5/10 星期三 10:00-12:30 (30%)

期末考 範圍：上述內容 8-11 2023/6/14 星期三 10:00-12:30 (30%)

不定期課堂小考 (15%)

授課教師：朱立岡

上課時間：W3W4F3F4

教科書：*Quantum Chemistry*, 2nd Ed., Donald A. McQuarrie, University Science Books, 2007.

參考書目：*Physical Chemistry: A Molecular Approach*, Donald A. McQuarrie & John D. Simon, Baker & Taylor Books, 1997.

請班代預先安排教科書採購等事宜，化學系圖書室亦有上述兩本書

建議練習作業(Problem) (不須繳交) ← 不是上課小考

Ch. 1: 1-6, 1-11, 1-18, 1-25, 1-35, 1-51, 1-54

Appendix A: A-3, A-6, A-7

Ch. 2: 2-2, 2-5, 2-7, 2-19, 2-26

Appendix B: B-1, B-6

Ch. 3: 3-1, 3-3, 3-4, 3-5, 3-6, 3-7, 3-10, 3-15, 3-22, 3-26, 3-28, 3-33, Sec. 3.7 & 3.8 (very important)

Appendix C: C-1, C-6, C-8, C-17

Ch. 4: 4-1, 4-9, 4-11, 4-15, 4-20, 4-21, 4-22, 4-24, 4-28, 4-49

Appendix D: D-3

Ch. 5: 5-8, 5-9, 5-10, 5-11, 5-14, 5-26, 5-27, 5-30, 5-32, 5-41, 5-42

Appendix E: E-6

Ch. 6: 6-6, 6-7, 6-8, 6-9, 6-13, 6-21, 6-26, 6-29, 6-40, 6-41

Ch. 7: 7-10, 7-15, 7-16, 7-17, 7-24

Ch. 8: 8-7, 8-12, 8-36, 8-37, 8-38, Ex. 8-4

Ch. 9: 9-2, 9-3, 9-25, 9-31, 9-46, 9-48, 9-51, 9-52, 9-60

Ch. 10: Ex. 10-2, 10-5

Ch. 11: 11-6, 11-7, 11-8, 11-13, 11-24, 11-27, 11-35, 11-36, 11-38, 11-39, 11-41

Appendix: F-4

