



# University of Pretoria Yearbook 2023

## Physical chemistry 382 (CMY 382)

**Qualification** Undergraduate

**Faculty** Faculty of Natural and Agricultural Sciences

**Module credits** 18.00

**NQF Level** 07

**Programmes** BSc (Applied Mathematics)

BSc (Biochemistry)

BSc (Chemistry)

BSc (Geology)

BSc (Human Physiology)

BSc (Mathematics)

BSc (Physics)

BSc (Plant Science)

**Service modules** Faculty of Education

**Prerequisites** CMY 282, CMY 283, CMY 284 and CMY 285

**Contact time** 1 discussion class per week, 2 practicals per week, 4 lectures per week

**Language of tuition** Module is presented in English

**Department** Chemistry

**Period of presentation** Quarter 4

### Module content

Theory: Molecular quantum mechanics. Introduction: Shortcomings of classical physics, dynamics of microscopic systems, quantum mechanical principles, translational, vibrational and rotational movement. Atomic structure and spectra: Atomic hydrogen, multiple electron systems, spectra of complex atoms, molecular structure, the hydrogen molecule ion, diatomic and polyatomic molecules, structure and properties of molecules. Molecules in motion: Viscosity, diffusion, mobility. Surface chemistry: Physisorption and chemisorption, adsorption isotherms, surface tension, heterogeneous catalytic rate reactions, capillarity.

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