Syllabus for CHEM504500 PROTEIN STRUCTURE AND CHEMISTRY, Spring 2023

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Lecture:

Time: T3T4R2 Room: CHEM R326 Method: Lecture, 3 credits

Course Outline:

Part I

- Protein chemistry
    - Overview on amino acid chemistry and properties
    - Peptide/protein sequence analysis
    - Peptide synthesis
    - Chemical ligation
- Protein structure
    - Secondary structures
    - Common structure motif
    - Noncovalent interactions in proteins
    - Protein aggregations
- Basic principles of protein folding and circular dichroism spectroscopy

Part II

- Membrane protein
    - Overview of membrane protein
    - Transport
    - Enzymatic activities
    - Signal transduction
    - Intercellular junctions
    - Cell-cell recognition
    - Cell shape
    - Membrane dynamics

Note:

Course information and materials are available on the NTHU **eeclass** platform.

Grading:

Part I

Homework	15%
Two exams	2 x 25% = 50%

- 2023/3/28 (Tue) & 2023/5/2 (Tue)

Part II

Homework	10%
One exam	25%

- 2023/6/12 (Tue)

References:

- T.E. Creighton (2010), *The biophysical chemistry of nucleic acids & proteins*.
- T.E. Creighton (1999), *Proteins – Structures and Molecular Properties,* 2nd Ed.
- A.V. Finkelstein & O.B. Ptitsyn (2002), *Protein Physics*.
- A. Fersht (1999), *Structure and Mechanism in Protein Science*.
- C. Branden & J. Tooze (1999), *Introduction to Protein Structure*, 2nd Ed.
- S.M. Hecht (Ed.) (1998), *Bioorganic Chemistry: Peptides and Proteins*.
- W.C. Chan & P.D. White (Ed.) (2000), *Fmoc Solid Phase Peptide Synthesis: A Practical Approach*.