

## BIOINFORMATICS I (3 credits)

First semester (2025)

| Time: TH, FR 14.00 - 16.00                                                |      |      | Co-ordinator: Teerapong |            |
|---------------------------------------------------------------------------|------|------|-------------------------|------------|
| Room: GOM1, MVRH 509/2 MATH                                               |      |      |                         |            |
| Topic                                                                     | Lect | Prac | Date                    | Instructor |
| 1. Introduction to Bioinformatics                                         | 1    | 1    | 7-Aug                   | Teerapong  |
| 2. Databases                                                              |      |      |                         |            |
| 2.1 Data banks of biological information                                  | 2    | 2    | 8, 14 Aug               | Pattana    |
| 2.2 Retrieval of information and data mining                              | 1    | 1    | 15-Aug                  | Pattana    |
| 2.3 Submitting sequences to the databases                                 | 1    | 1    | 21-Aug                  | Pattana    |
| 3. Sequence analysis I                                                    |      |      |                         |            |
| 3.1 Sequence alignment                                                    | 2    | 2    | 22, 28 Aug              | Teerapong  |
| 3.2 Databases searching                                                   | 1    | 1    | 29-Aug                  | Teerapong  |
| 3.3 Phylogenetic analysis                                                 | 2    | 2    | 4, 5 Sep                | Supitcha   |
| 4. Protein analysis                                                       |      |      |                         |            |
| 4.1 Protein sequence analysis                                             | 2    | 2    | 11, 12 Sep              | Veerasak   |
| 4.2 Molecular modeling                                                    | 2    | 2    | 18, 19 Sep              | Thanyada   |
| Mid-term examination: 22 - 26 Sep 2025; 26 Sep 2025 08:30 - 11:30 น.      |      |      |                         |            |
| 4. Protein analysis (continued)                                           |      |      |                         |            |
| 4.3 Prediction of protein tertiary structure by homology modeling         | 2    | 2    | 2, 3 Oct                | Thanyada   |
| 4.4 Computer simulation                                                   | 3    | 3    | 9, 10, 16 Oct           | Thanyada   |
| 4.5 Protein design                                                        | 3    | 3    | 17, 24, 30 Oct          | Thanyada   |
| 5. Gene and genome analysis                                               |      |      |                         |            |
| 5.1 Identification of gene structures                                     | 2    | 2    | 31 Oct, 6 Nov           | Teerapong  |
| 5.2 Genome sequencing and annotation                                      | 2    | 2    | 7, 14 Nov               | Teerapong  |
| 5.2 Analysis of high throughput expression data                           | 2    | 2    | 20, 21 Nov              | Teerapong  |
| Final-term examination: 24 Nov - 8 Dec 2025; 26 Nov 2025 13:00 - 16:00 น. |      |      |                         |            |