

ライフサイエンス II

科目ナンバリング SCE-104

【VII】 選択 2単位

アレンヤフニムハンソマトマヘディ

1. 授業の概要(ねらい)

- 1) [Life Science I and II] include a study of living organisms and their cellular vital processes. Topics to be covered in the course include cell structure, biochemistry, cellular process, genetics, and classification of organisms, as well as other related themes.
- 2) Students will be taught mechanisms of life on the cellular level.
- 3) The course will begin with basic knowledge to enable students from different backgrounds to cope with the teaching materials.

2. 授業の到達目標

Students are expected to be able to:

- 1) understand and explain the transcriptional and translational processes in the cells.
- 2) understand and explain the various types of microorganisms and the phylogenetic relationship.
- 3) understand and explain the basics biotechnology.

3. 成績評価の方法および基準

- 1) Term-end written exam will be held (totally 70 points).
- 2) Quizzes throughout the whole course will be conducted (totally 20 points).
- 3) Activities and attitude though classes (totally 10 points).

4. 教科書・参考文献

教科書

Urry, Lisa A./Cain, Michael L./Wasserman, Steven A./Minorsky, Peter Campbell Biology 11TH
Pearson College Div

参考文献

Bruce Alberts, Karen Hopkin, Alexander Johnson, David Morgan, Martin Raff Essential Cell Biology
5th W W Norton & Co Inc

5. 準備学修の内容

[Prior the class]

Students are highly encouraged to read the relevant chapters from the reference book in advance, to ensure the maximum benefits of the class. They should not hesitate to contact the instructor for any further explanation if needed.

[Post the class]

Students are required to read the taught subjects at home.

6. その他履修上の注意事項

7. 授業内容

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| 【第1回】 | An overview and course guidance. |
| 【第2回】 | Mendel's experimental approach, the physical basis of Mendelian inheritance |
| 【第3回】 | The molecular basis of inheritance: genetic materials, role of protein |
| 【第4回】 | Gene expression: from gene to protein |
| 【第5回】 | Regulation of gene expression |
| 【第6回】 | DNA tools and biotechnology I : DNA sequencing and cloning, gene expression |
| 【第7回】 | DNA tools and biotechnology II : gene expression, genome editing |
| 【第8回】 | Genomes and their evolution |
| 【第9回】 | Phylogeny and the tree of life |
| 【第10回】 | Viruses: structure, replication |
| 【第11回】 | Bacteria and archaea: structure, reproduction |
| 【第12回】 | Protists: structure, reproduction |
| 【第13回】 | Fungi I |
| 【第14回】 | Fungi II |
| 【第15回】 | Term-end exam |