

Fundamentals of Biology I

Undergraduate / Graduate	Undergraduate	Registration Code	0063315
Course Category	Basic Courses in Natural Sciences	Credits	2.0
Term (Semester) / Day / Period	G-I (1st year, Fall Semester) / Wed / 3 (13:00~14:30)		
Instructor	CARTAGENA Joyce Abad		
Contact e-mail of the Instructor	joyce@agr.nagoya-u.ac.jp		

●Goals of the Course

Cells are not only the basic unit of living organisms, but also the smallest unit capable of self-renewal. In this course, we aim to deepen our understanding of the basic mechanisms of biological phenomena by studying the structure and functions of cells and their organelles. This course is designed to introduce the key concepts of biology and to provide the foundation for specialized courses. Furthermore, this course aims to encourage students to think like scientists and develop scientific reasoning and literacy skills.

●Objectives of the Course

This course will provide the basic knowledge in the different fields of Biology such as: Cell Biology, Genetics, Molecular Biology, Microbiology, Evolutionary Biology and Biodiversity, and Plant Biology. After taking this course, the students are expected to be able to easily proceed to the more advanced Biology courses in their curriculum.

●Course Contents or Plan

1. Cell Biology
 - Lecture 1: Cell Structure and Function
2. Genetics and Molecular Biology
 - Lecture 2: Cell Division and Sexual Reproduction
 - Lecture 3: Genetics (Mendel's Experiments and Heredity, Modern Understandings of Inheritance)
 - Lecture 4: DNA Structure and Function
 - Lecture 5: Gene Expression
 - Lecture 6: Biotechnology and Genomics
3. Evolution
 - Lecture 7: Evolutionary Processes
4. Biological Diversity
 - Lecture 8: Microbiology
 - Lecture 9: The Evolution of Plant and Fungal Diversity
 - Lecture 10: The Evolution of Vertebrate and Invertebrate Diversity
5. Plant Biology
 - Lecture 11: Plant Structure and Function

●Course Prerequisites and Related Courses

A background in basic Biology from high school is not absolutely required but is ideal.

●Course Evaluation Method and Criteria

Attendance and class participation 30%
 Assignments (including group presentation) 30%
 Examinations (midterm and final) 40%

●Study Load (Self-directed Learning Outside Course Hours)

Students are expected to read and understand one to three chapters (depending on topic) of the textbook every week, and come to class prepared for discussion. In order to assess students' understanding, assignments will be given after every lecture.

●How to Respond to Questions

Communication with the instructor and teaching assistant outside of class hours will be via NUCT or email.

●Notice for students

1. Course format
 - a. Lectures and discussion sessions (synchronous)

Lectures will be given either face-to-face or online (through Zoom) every Wednesday from 1:00-2:30 PM (JST),

depending on the university guidelines regarding the pandemic situation in Nagoya. If majority of the students will not be able to attend face-to-face classes, online Zoom classes will be adopted. The detailed schedule will be announced on the first day of class.

b. COIL class with NCSU (North Carolina State University)

COIL stands for Collaborative Online International Learning, an educational method that uses ICT to interact with overseas universities online. There are two methods: synchronous (using Zoom), and asynchronous (using Slack and Google Drive for file sharing and collaboration). COIL Zoom classes are tentatively set on October 27, 2022 (9:00 PM JST) and December 1, 2022 (10:00 PM JST). A group presentation will be the final requirement for this COIL class.

2. Course webpage

NUCT (Nagoya University Collaboration and Course Tools; <https://ct.nagoya-u.ac.jp/portal>) is an online system that will be used for this course. PowerPoint slides, recorded lectures, other learning materials (such as videos, websites, etc.) and home works will be accessible through this page.

3. Attendance

In case of emergency or absence from class, students should notify the instructor as soon as possible by email.

4. Make-up & repeat exams

Make-up exams may be given on condition that the student can provide acceptable reasons for his/her absence.

Students who fail to get a passing score at the end of the semester will be eligible for a repeat exam, given that the total score reaches at least 40%.

5. Academic honesty and original work

Cheating and copying (including plagiarism) will not be tolerated in this class. If caught cheating, students will receive necessary penalties, including getting an **F** in all registered courses for the semester. All submissions (assignments, exams and reports) will be checked using iThenticate.

6. Course withdrawal

Students who wish to withdraw from the course will have to inform the instructor by November 16, 2022.

7. Teaching assistant

Mr. Abriel Bulasag is a PhD student and will be joining the course as a TA. He can be contacted via NUCT messaging or by email (asbulasag@up.edu.ph).

●**Message from the Instructor**

Students are highly encouraged to regularly check NUCT for important announcements from the instructor. Do not hesitate to contact the instructor for any inquiries.

●**Courses taught by Instructors with practical experience**

Textbook	Biology 2e (2020) OpenStax, Rice University Digital Version ISBN-13 978-1-947172-52-4 https://openstax.org/details/books/biology-2e (Free online textbook)
Reference Book	Jane B. Reece, Martha R. Taylor, Eric J. Simon, Jean L. Dickey. 2019. Campbell Biology: Concepts & Connections, 9 th Ed. Pearson (Global Edition) *or older edition
Reference website for this Course	