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| Course Title | Introduction to  Natural/Life Science | | Instructor(s) | Melody Muguerza  Jason Adachi | |
| E-mail | mmuguerza@sky.miyazaki-mic.ac.jp  jadachi@sky.miyazaki-mic.ac.jp | |
| Class Style | Lecture | | Office Hours | 4th Period on Wednesday and Thursday, or by appointment | |
| Track | General Education | | Mode of Instruction | Team | |
| Credits | 3 | | Allocated Year | First Year | |
| Active Learning | Interactive lectures  Spoken summaries  Pair and group work  Experimental work  Field Study work  Presentations | | Compulsory or Elective | Elective for TC track | |
| Course Overview | Introduces concepts, experimental techniques, and scientific methodologies for exploring a natural life system. Examines aspects of the theory of evolution, morphology and physiology of the organisms composing the natural life systems, i.e., Monera, Protista, Animalia, Plantae and Fungi. | | | | |
| Course  Objectives | Content Objectives:   * Be familiar with the basic principles of evolutionary ecology (e.g. adaptation, natural selection, sexual selection, and biological interactions), * Be familiar with similarity and diversity as the two faces of evolution, * Be familiar with diversified organisms around us.   Language Objectives:   * Know the vocabulary, and sentence structures necessary to discuss topics related to natural science, * Know how academic science papers and reports are organized in English, * Learn how to write a scientific report in English. | | | | |
| Prerequisite | None | | | | |
| **Course**  **Schedule** | No | Contents | | | Homework |
| 1 | What are the characteristics of living things and how do you determine if a thing is alive? (Asking yes/no and WH questions.) | | | Read the text and answer comprehension questions. |
| 2 |  | | | Discussion and lab |
| 3 | What is the scientific method? What is spontaneous generation? | | | Read the text and answer comprehension questions. |
| 4 |  | | | Discussion and lab |
| 5 | What do we know about the first life (the first thing displaying these characteristics)? How might it have formed? | | | Read the text and answer comprehension questions.  Field Assignment #1  Experiment #1 |
| 6 |  | | | Discussion and lab |
| 7 | Why are there differences among living things? How are prokaryotic and eukaryotic cells different? How are unicellular and multicellular organisms different? | | | Read text and answer comprehension questions. |
| 8 |  | | | Discussion and lab |
| 9 | How are anaerobic/aerobic, heterotroph/autotroph and asexual/sexual different? | | | Read text and answer comprehension questions. |
| 10 |  | | | Discussion and lab |
| 11 | What are the advantages and disadvantages of these contrasting features? | | | Read text and answer comprehension questions.  Experiment #1 report due  Field assignment #2 |
| 12 |  | | | Discussion and lab |
| 13 | Why do organisms change over time? What are evolution and adaptation? | | | Prepare for the midterm review and exam |
| 14 |  | | | Discussion and lab |
| 15 | Midterm Review  Midterm Exam | | | Read text and answer comprehension questions. |
| 16 |  | | | Discussion and lab |
| 17 | How are features passed from parent to offspring? What are the principles of basic genetics? | | | Read text and answer comprehension questions.  Field assignment #3 |
| 18 |  | | | Discussion and lab |
| 19 | What is Darwinian natural selection? | | | Read text and answer comprehension questions. |
| 20 |  | | | Discussion and lab |
| 21 | What is sexual selection? | | | Read text and answer comprehension questions.  Experiment #2 |
| 22 |  | | | Discussion and lab |
| 23 | Phylogeny and more on adaptation | | | Read text and answer comprehension questions. |
| 24 |  | | | Discussion and lab |
| 25 | Predator-prey relationships | | | Reading text and answering questions  Field assignment #4 |
| 26 |  | | | Discussion and lab |
| 27 | Plant-animal interactions - pollination and seed dispersal | | | Read text and answer comprehension questions. |
| 28 |  | | | Discussion and lab |
| 29 | Conservation biology, ecological succession, and course review | | | Preparation of Final Exam  Experiment #2 report due |
| 30 |  | | | Discussion and lab |
|  | Final Exam | | |  |
| Grading | Grades will be determined as follows:  Homework 20%, Written reports 10%, Quizzes 20%, Exams 40%, Participation 10%. | | | | |
| Textbooks | Course materials will be provided by instructors | | | | |
| References |  | | | | |
| NOTES | Each week, students will attend a mandatory discussion and laboratory meeting. This meeting will be scheduled by consensus on the first day of class.  Missing the equivalent of 5 classes will result in an automatic failure. This includes late arrivals and early departures from class. Note that absence or tardiness will generally not be accepted as a valid excuse for incompletion or late submission of any task or assignment. Appropriate and timely communication by students to the instructors is expected. | | | | |